

**CLASS 425, PLASTIC ARTICLE OR EARTHENWARE SHAPING OR TREATING: APPARATUS****SECTION I - CLASS DEFINITION**

This is the generic class for:

1. Apparatus including a molding surface which either shapes a fluent or bulk material, which material has plasticity as a property, into a self-sustaining article or preform of desired shape or which reshapes or resizes a plastic or "green" preform or product, not provided for elsewhere.

2. Apparatus for shaping of molten materials including metal, but excluding glass, where no molding surface is employed, e.g., by melt comminution or spheroidizing.

3. Apparatus for treating (e.g., vulcanizing, etc.), a product made by the apparatus of this class, not provided for elsewhere.

4. Apparatus for randomly depositing and bonding (uniting) particulate material, not provided for elsewhere.

5. A combination of apparatus of this class with any diverse working or treating apparatus which combination is not provided for elsewhere.

(1) Note. Caveat relating to administration of this class. Only the assignment of "original" copies of patents issued after 1934 are to be used as evidence of appropriate classification within the class.

(2) Note. Class 425 does not provide for a product made by the apparatus of the class. A specific article is classified with the respective art class to which it belongs, (e.g., a rubber glove is provided for elsewhere).

**SECTION II - SUBCLASS REFERENCES TO THE CURRENT CLASS**

SEE OR SEARCH THIS CLASS, SUBCLASS:

5, for means for encapsulating liquid droplets by simultaneous extrusion of a drop of liquid and a drop of fluent but hardenable encapsulating material.

77, for an ultra high pressure generating device disclosed for use in changing or controlling chemical or physical properties of a material (e.g., diamond maker, etc.).

87, see the notes and compare with the class for dispensing, some of which subclasses provide for means to dispense semi-solids, (e.g., toothpaste, putty, etc.), where there is no intent that a dispensing orifice produces a self-sustaining preform having a shape that is reflected in a final product.

**SECTION III - REFERENCES TO OTHER CLASSES**

SEE OR SEARCH CLASS:

2, Apparel, subclass 168 for a rubber glove.

7, Compound Tools, subclass 111 for a rolling pin either combined with or convertible to other apparatus.

12, Boot and Shoe Making, appropriate subclasses for multioperation machines, for tools and adjuncts specialized to the making, assembling and repairing of foot coverings, (e.g., shoes, etc.), and parts thereof even though combined with a Class 425 means for molding or vulcanizing; see especially subclasses 21+ for a blank molding sole machine, subclass 53.1 for a stretching last or former and subclass 128 for a shoe or boot last of general application. Class 425 provides for the subcombination of a shoe last support and a female mold for casting a composite of a shoe preform and fluent material.

19, Textiles: Fiber Preparation, subclasses 144+ for a process or apparatus for assembling fibers bearing some relationship to each other or with some other material.

26, Textiles: Cloth Finishing, subclasses 71+, for apparatus for stretching or spreading a cloth or woven fabric including a fabric in the form of a plastic film. Plastic film stretching devices are, per se, or with film treating means, provided for in Class 26.

28, Textiles: Manufacturing, appropriate subclass for apparatus producing textile products by involving mechanical interengagement of fibers, strands or strandlike strips and including auxiliary devices related thereto, especially subclasses 240+ for stretching apparatus for finishing thread including a monofilament type, (e.g., nylon, etc.). Further, see subclasses 118+ and 121 for the compacting of fibrous

- material into tampons or wads or for such compacting combined with additional treatments, e.g., drying, where not provided for elsewhere and see the search notes thereunder.
- 29, Metal Working, subclasses 33+ for miscellaneous manufacturing apparatus comprising diverse means for working material comprising (1) a metal working device combined with a Class 425 shaping or reshaping apparatus and not provided for elsewhere, or (2) means for shaping a nonmetal by slitting or cutting combined with assembly means not provided for elsewhere, or (3) diverse means for working metal.
- 30, Cutlery, appropriate subclasses for an implement type cutter which shapes a preform by cutting only, i.e., wherein material flow or removal is restricted to that inherent in the cutting; the combination of a Class 30 device with a Class 425 means is provided for in Class 425.
- 34, Drying and Gas or Vapor Contact With Solids, appropriate subclasses for drying apparatus, per se. A combination of Class 34 drying apparatus and Class 425 apparatus is provided for in Class 425 unless the molding apparatus is recited by name only.
- 38, Textiles: Ironing or Smoothing, appropriate subclasses for apparatus for producing a smooth appearance on a textile or fabric surface by pressing, stretching, etc.; see the notes under the class definition.
- 44, Fuel and Related Compositions, subclasses 634+, for shaping apparatus to form fuel briquets including means peculiar to the manufacture of a fuel composition.
- 52, Static Structures (e.g., Buildings), appropriate subclasses for a static building structure, especially subclasses 749.1+ for a machine or implement used in the construction thereof and not provided for elsewhere.
- 53, Package Making, subclasses 111+ for a packaging apparatus combined with means for reshaping package contents material either before, after or during the packaging operation; subclass 140 for packaging apparatus combined with means producing a cover material and subclasses 558+ for the combination of means forming or partially forming a receptacle and subsequent filling means.
- (1) Note. Class 425 provides for depositing material in a confining receptacle to impart shape to the material and in which the product therefrom is removed prior to marketing, shipping, etc.. Class 425 also provides for molding by depositing on a flat sheet divider even though the divider remains with the product.
- (2) Note. Means for encapsulating liquid droplets by simultaneous extrusion of a drop of liquid and a drop of fluent but hardenable encapsulating material is provided for in Class 425. See Subclass References to the Current Class, above.
- 57, Textiles: Spinning, Twisting, and Twining, appropriate subclasses for means for producing textile strands, yarns, threads, cords and other miscellaneous composites of filaments or fibers and the combination thereof with means for attenuating, drafting and drawing fibrous material, or the combination thereof with means upstream for covering cores. Class 57 provides for the combination of a Class 425 filament forming means recited by name only combined with a Class 57 means; otherwise the combination is provided for in Class 425.
- 59, Chain, Staple, and Horseshoe Making, appropriate subclasses for metal working specific to the products of this class, see especially subclasses 16+ for a combination of diverse working means combined in a machine for combination of diverse working means for producing a horseshoe.
- 62, Refrigeration, subclasses 340+ for the combination of specific refrigeration producing means and coacting shaping surface means for shaping or retaining the shape of a material being congealed with or without a product release means; however, such a combination including additional manufacturing means, (e.g., a stick inserter for the manufacture of frozen confections containing water, flavoring, and coloring, etc.), is provided for in Class 425, except where the additional means is a severing means for a congealed product.
- 65, Glass Manufacturing, appropriate subclasses for processes and apparatus for molding or shaping glass after being melted or changed to a plastic or softened state.
- 72, Metal Deforming, appropriate subclasses for deformation of metal stock by application of mechanical stress to the stock while in a self-sustaining state, (i.e., not molten or powdered); Class 72 is not only the residual locus for such deformation of metallic stock (including a composite with a nonmetal, e.g., metal and paper laminates, etc.), but also is the residual

- locus for deformation of nondefinitive material or unspecified or unidentified material which is construed to be metal by use of art terms such as ingot, rail, axle blank, etc. The combination of Class 72 apparatus and Class 425 apparatus is provided for in Class 29, Metal Working subclasses 33+ unless directed to a specific article manufacturing class.
- 79, Button Making, appropriate subclasses for apparatus for making a button other than solely by molding apparatus provided for in Class 425.
- 83, Cutting, appropriate subclasses for machine type apparatus for reshaping a green ceramic, earthenware or other preform of plastic material by mere cutting or severing without material flow other than that inherent in the cutting or severing. The combination of means shaping or reshaping such material with a cutting or severing means is provided for in Class 425. In general, mere cutting other than by a means cutting off of flow by a valving action on fluent material is not, per se, provided for in Class 425. (See the collection of notes under the class definition of Class 83 for various aspects of cutting, drilling, turning, etc.).
- 87, Textiles: Braiding, Netting, and Lace Making, appropriate subclasses for apparatus for making textile strands or fabrics by means braiding, knotting or intertwisting strands.
- 99, Foods and Beverages: Apparatus, subclasses 324+ for means for shaping or reshaping a fluent, (e.g., batter, etc.), or plastic, (e.g., dough, etc.) type edible combined with means for cooking or baking, see especially subclasses 372+ for a waffle iron and subclasses 450.1+ for apparatus for making a composite edible by preform assembly means or by package making means where the container or wrapper is an edible, (e.g., means filling a doughnut, cream puff, etc.).
- (1) Note. Class 425 provides for apparatus to make a composite edible within a female mold or extrusion cavity and for apparatus to shape a bulk fluent edible into a self-sustaining product, or to reshape an edible preform, with or without means for applying a coating.
- 100, Presses, appropriate subclasses for a press apparatus not provided for elsewhere. Class 100 provides for a press, including means for compacting material into bale, of the type providing a mechanical interlock, (e.g., hay, scrap paper, etc.), to form a bale, etc. Class 425 provides for shaping or reshaping apparatus of the press forming type having a shaping surface including means for making a self-sustaining article by compacting a mass of powder, granules or dust where the article retains its shape by interfacial bonds among adjacent particles generated by pressing.
- (1) Note. For the locus providing for an ultra high pressure generating device disclosed for use in changing or controlling chemical or physical properties of a material, (e.g., diamond maker, etc.) see Lines With Other Classes and Within This Class, above.
- 101, Printing, subclasses 3.1+ for printing apparatus comprising embossing or penetrating means for deforming the material receiving the printing.
- 106, Compositions: Coating or Plastic, appropriate subclasses for plastic compositions.
- 118, Coating Apparatus, appropriate subclasses for apparatus for coating a base including a machine controlled relationship between a coating applicator and the base, see especially subclass 44 for means temporarily deforming, (e.g., by unraveling, etc.), to enhance a coating operation.
- (1) Note. Class 425 provides for (1) the combination of a coating apparatus and means including a shaping surface for shaping or reshaping plastic-ware or earthenware, (2) means molding a facing type coating on a base by a stencil mold means confining a fluent material therein, (3) extrusion means applying a coating to a preform moving through the extrusion orifice, which orifice shapes the coating to a configuration other than that of the preform. (Patents which disclose a wire coating extrusion device for Class 118 but claim no wire handling features are assigned to Class 118).
- (2) Note. A trowel for controlling coating thickness combined with a Class 118 coating apparatus is provided for in Class 118 as a perfecting feature.
- (3) Note. Class 118 provides for application of fluent gasket material in a bottle cap; however, the combination with a means for subsequent shaping of the gasket is provided for in Class 425.

- 125, Stone Working, appropriate subclasses for a tool or machine for working upon stone or stone-like material after quarrying from its native position. See the collection of search notes under the class definition for related subject matter.
- 127, Sugar, Starch, and Carbohydrates, subclasses 18+ for means treating crystals of materials of the class including purging and molding.
- 131, Tobacco, appropriate subclasses under subclasses 280+ for apparatus for making a cigar or cigarette including means for molding or forming and subclasses 111+ for an apparatus for making a tobacco plug or a compressed shaped tobacco product.
- 140, Wireworking, appropriate subclasses for apparatus for shaping or deforming wire or the assembly and uniting of wire with wire or non-wire material by twisting, bending, kinking, looping, etc.; see especially subclasses 3+ for apparatus for making wire fabric and subclasses 71+ for apparatus for making or forming an article from wire; see the search notes in the class definition.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, appropriate subclasses for a fluent material dispensing means having means providing a combination relationship with a receiver or a receiver coacting means; see the collection of notes in Lines With Other Classes and Within This Class and References to Other Classes in class definition in regard to filling apparatus combined with treating or manufacturing apparatus.
- 144, Woodworking, for a machine or process for working in wood not elsewhere classified; see the search notes in the class definition.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for laminating apparatus including means for assembling and uniting preforms, not elsewhere provided for, even though combined with an upstream or downstream separate and distinct shaping or reshaping apparatus, see especially subclasses 394.1+ for a tire body building type, subclasses 425+ for laminating apparatus comprising means for longitudinally progressive helical winding of uncured material such that the product is homogeneous with an exterior shape determined by a core or mandrel, subclasses 433+ for means for uniting flexible strands, and subclasses 500+ for a Class 156 laminating apparatus combined with distinct means for casting, plastic molding or extruding. With respect to the line between Class 156 and Class 425, Class 425 provides for laminating apparatus comprising (1) means to make and to bond preforms within the same mold cavity (2) mold means uniting preforms and simultaneously shaping the joint formed by plastic flow of bulk or fluent bonding material or of plastic flow of at least one preform except in tire building apparatus, (3) means providing a mold frame sandwiched between spaced preforms, which frame shapes a bonding material therein, (4) mold means shaping fluent material and uniting the fluent material while in a moldable state in the mold to a preform, and (5) vulcanizing means including means for supporting an article being vulcanized, which supporting means conforms to the shape of the article.
- 157, Wheelwright Machines, subclasses 1.1+ for a tire mounting or demounting apparatus, subclass 8 for tire tighteners, subclass 11 for tire removers and subclass 13 for grooving, slitting or lacerating rubber tires.
- 162, Paper Making and Fiber Liberation, appropriate subclasses for an apparatus or process for making paper by deposition of fibers from a liquid suspension thereof to form an interfelted product, especially subclasses 289+ for an apparatus to form a running length product and subclasses 382+ for a foraminous forming mold to make discrete articles by pulp molding.
- 163, Needle and Pin Making, appropriate subclasses for multi-operation apparatus for the manufacture of crocheting, knitting and sewing needles as well as garment-fastening pins either of the straight or safety type.
- 164, Metal Founding, appropriate subclasses for a metal founding process or apparatus, especially subclasses 159+ for apparatus to shape a forming surface, (e.g., sand molds, etc.), subclasses 272+ for means to shape molten metallic material against a shaping surface and subclasses 374+ for a foundry mold flask or flask section. Class 425 provides for shaping of molten metal without use of a shaping surface, (e.g., by molten metal comminution, spheroidizing, etc.), and for shaping of powdered metal on a molding surface. A disclosure of subject matter for both Classes 164 and 425 is assigned to Class 425 unless the claims are restricted solely to the Class 164 subject matter.
- 177, Weighing Scales, subclasses 60+ for a dough dividing machine which weighs out a definite quantity; a dough dividing machine which

- merely measures a quantity by volume and simultaneously provides a shaped preform is provided for in Class 425.
- 199, Type Casting, appropriate subclasses for printing type forming means, see especially subclasses 47+ for casting mechanism for integral line type including a mold and subclasses 80+ for separate type casting mechanisms including a mold.
- 204, Chemistry: Electrical and Wave Energy, subclass 281 for an electro-forming mold or strip plate and subclass 298.01 for means forming an object by cathode sputtering.
- 219, Electric Heating, appropriate subclasses for electric heating devices, per se, or for certain specific combinations provided for therein; see especially subclasses 149+ for means heating metal electrically combined with forging or shaping means and see the search notes thereunder, and subclasses 420+ for an electrical heating device combined with a crucible or furnace adapted to hold meltable material.
- 222, Dispensing, appropriate subclasses for dispensing means, per se, some of which dispense semi-solids, (e.g., tooth paste, putty, etc.), where there is no intent that a dispensing orifice produces a self-sustaining preform having a shape that is reflected in a final product. (See Subclass References to the Current Class, above for a reference to the line between Class 222 and Class 425.)
- 223, Apparel Apparatus, is the generic class for machines and machine methods of making, except by knitting or weaving, repairing and maintaining in proper condition, apparel and analogous articles, (e.g., household linens, etc.), especially subclasses 12+ for a hat shaping press, subclasses 28+ for an apparel fluting press and subclasses 52+ for a device for pressing, forming, molding or stretching articles of apparel.
- 228, Metal Fusion Bonding, especially subclasses 15.1+ for metal fusion bonding apparatus combined with means to deform work, or a filler or a flux portion before fusion bonding.
- 241, Solid Material Comminution or Disintegration, appropriate subclasses for a comminutor for a solid of the extrusion type, (e.g., meat or vegetable grinder or "ricer", etc.), which produces a porous bulk mass of material comminuted rather than a self-sustaining shaped product. The combination of a Class 425 shaping means and a comminutor is provided for in Class 425; a patent disclosing both types will be assigned to Class 425 unless the claims are limited to a Class 241 type.
- 242, Winding, Tensioning, or Guiding, appropriate subclasses for a combination of a nominal filament or web forming means combined with a Class 242 device; however, Class 425 provides for the combination whenever the forming means is define more specifically than by name only.
- 249, Static Molds, appropriate subclasses for static means for shaping fluent material; see especially subclasses 1+ for an in situ construction or building type form or mold, subclass 54 for a dental prosthodontic type of static mold, subclasses 117+ for a container type mold and subclasses 175+ for a core. Class 249 provides only for a static subcombination or element of Classes 164 and 425. Class 249 does not provide for dynamic apparatus nor for a static mold combined with a diverse function means, except for a few specially provided for combinations with perfecting devices, where such device is also static and integral with mold or is essential thereto, (e.g., a tunnel core with a wheel or skid, etc.). A female mold of a male-female press couple is provided for in Class 249. See the amplified line notes in the class definition of Class 249.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for a process corresponding to an apparatus provided for in Class 425. A patent containing process and apparatus claims of equal comprehensiveness will be classified as an "original" in class 264; otherwise, the general rule that the most comprehensive claim controls placement of the "original" copy will be followed between Class 264 and 425.
- 266, Metallurgical Apparatus, subclass 249 for apparatus for treating and shaping solid metal; apparatus to press and sinter powdered metal is provided for in Class 425. See subclass 160 for apparatus to pelletize or ball a metal bearing ore combined with means to sinter, indurate, reduce or otherwise metallurgically treat the ore prior to, during or after the shaping operation.
- 269, Work Holders, appropriate subclasses for a work holder, per se, especially subclass 302.1 for a work-underlying support for mixing or kneading.
- 366, Agitating, subclasses 69+ for working and kneading apparatus for rubber or heavy plastics, such apparatus combined with discharge

- means which cooperate with a molding will be classified in Class 425.
- 369, Dynamic Information Storage or Retrieval, subclasses 84+ for dynamic copying of a record.
- 401, Coating Implements With Material Supply, appropriate subclasses for a coating implement with a material supply including a former which is capable of shaping the coating in one dimension only. Class 425 provides for similar structure having means for shaping a coating in plural dimensions.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 245.1+ for non-coating apparatus for crystallization of non-metal, non-glass material with no intent to provide a shaped article and with no intent to grow single-crystal.
- 432, Heating, subclasses 77+, for a heating furnace with work cooling structure; subclasses 120+, for a heating furnace or kiln; and subclasses 258+, for structure supporting ceramic material during heat treatment.
- 433, Dentistry, subclasses 25+ for dental apparatus including a shaping or reshaping means restricted to dental use. See particular subclasses 34+ for dental impression devices.
- 434, Education and Demonstration, subclasses 81+ for a teaching device for sculpturing.
- 452, Butchering, subclasses 35+ for sausage stuffer and subclasses 46+ for a sausage linkers. Class 425 provides for dynamic meat briquetting other than stuffing comminuted meat into a sausage casing.
- 483, Tool Changing, generally for a process or apparatus including a tool transfer means combined with either a tool support or storage means.
- 493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, for working previously made paper into an article of commerce (e.g., a bag, box, envelope, etc.) without thinning flow. Class 425 provides for such apparatus wherein there is thinning flow. See the line note to Class 425 expressed under the definition of Class 493.
- 501, Compositions: Ceramic, appropriate subclasses for ceramic compositions, or process for preparation, including specific firing or crystallization or pore forming thereof.
- 588, Hazardous or Toxic Waste Destruction or Containment, subclasses 249 through 260 for the permanent enclosing or encapsulating of hazardous or toxic waste.

#### SECTION IV - GLOSSARY

##### AND

When used in a subclass title indicates plural basic subject matter of this class. And/or has not been used; see "OR".

##### BLOWING

Forming a plastic mass or preform by introducing gas under pressure within the mass or preform.

##### BOND

Uniting by adhesive means or fusion (a mechanical interlock is excluded).

##### BRAKE

A baker's kneading machine. In bread making "braking" is kneading.

##### BULK MATERIAL

A mass or pile of stock material lacking any shape that contributes to a final shape after molding. Bulk material may have a definite shape but it must not contribute its shape to a final desired form.

##### CASTING

Forming a preform by pouring fluent stock onto or into a shaping surface. Synonym: Teeming.

##### CLOSED SYSTEM

Plural fluid containing elements in fluid tight relation when under pressure.

##### COMPOSITE

A preform or product made of diverse materials, each of which is identifiable, at least in part, in the final product.

##### CONDENSATE

Material derived by a change in physical state from a vapor to a liquid.

##### CONVOLUTE

To twist or to coil with one part of a preform overlapping another part.

#### CORE

A separable static male shaping surface providing a hollow portion in a casting. A core is differentiated from a plunger in that a plunger moves during a shaping operation.

#### CORRUGATE

To shape a layer into parallel rows of wavelike folds extending along its width or length and transverse to the thickness.

#### CULLET

Waste or broken plastic.

#### CURE

A chemical or physical treatment to obtain a stable state of a preform or product, (e.g., by vulcanizing, drying, etc.).

#### CYCLE

A sequence of manipulative steps governed by a mechanism such as a cam, timer, program means, etc.

#### DIE

An apparatus part having a work contacting part for shaping or reshaping the work.

#### DISTINCT

An independent entity.

#### DIVERSE

Differing from one another.

#### DOUGH

A soft semi-solid mass capable of being kneaded or of being shaped into a self-sustaining form, (e.g., clay bread dough, etc.).

#### DRUM

A hollow cylinder, substantially circular in cross-section,

which has a surface used as a shaping or working surface.

#### DYNAMIC SUBJECT MATTER

Apparatus in which motion of a part is essential to accomplish a desired function, (e.g., shaping, cutting, etc.).

#### EARTHENWARE

A product made of (1) slightly porous opaque clay fired at low heat; (2) inorganic settable ingredient containing, (e.g., Portland cement type, etc.), (3) powdered metal (4) ceramics other than glass or slag; (5) alkali metal silicate containing.

#### EJECTOR

Means to release or remove a product from a shaping surface.

#### EMBOSSING

Altering a surface configuration only.

#### ENDLESS

A closed loop, such as the peripheral surface of a roll, a cylinder or a drum.

#### EXTRUDANT

A shaped body of material formed by forcing the material through a confining, shaping orifice.

#### FEMALE MOLD

A receptacle having structure for imparting a desired configuration to a removable product formed therein from stock material.

#### FLARE

Reshaping a tubular portion by spreading a portion outwardly.

#### FLUENT MATERIAL

A material which lacks ability to retain a shape at working temperatures, but instead readily conforms in shape to the configuration of a surface upon or within which it is placed.

**GANG MOLD**

A single mold having plural shaping compartments in which plural articles are formed by one operation.

**“GREEN” PRODUCT**

Self-sustaining but not permanently set or cured, (e.g., unvulcanized rubber, etc.).

**INDEFINITE LENGTH WORK**

A self-sustaining body having a longitudinal dimension which is effectively infinite.

**IN SITU**

Remaining in the same place.

**INTERFACIAL BOND**

Cohesion among common boundaries of particles material without a mechanical interlock.

**KNEADING**

Working a material by intermittent squeezing and relieving a semi-solid material such as dough, rubber, etc.  
Synonym: BRAKING

**LAST**

A form for shaping a shoe.

**LAW OF A MACHINE**

Control of sequential operations of machine parts by electrical or mechanical program means with operator control reduced to mere starting or stopping of operation of the machine.

**MANDREL**

A shaping form over or around which material is shaped or a preform is resized.

**MECHANICAL-INTERLOCK BOND**

A joint made by random lapping of discrete pieces, (e.g., as in a bale of paper, etc.).

**MINERAL PLASTIC**

A naturally occurring mineral which can be formed into a stone-like product by grinding, wetting, shaping and burning.

**NECK RING**

The portion of a segmented mold which forms the neck portion of a hollow article.

**OR**

This conjunction is used in this class to indicate either the combination of two subcombinations or either one of the subcombinations.

**PALLET**

A supporting surface used as a mold bottom or as a green material handling device.

**PARISON**

An intermediate hollow preform from which a bottle or the like is made.

**PARTICULATE MATERIAL**

Minute separate particles which are handled as bulk and not as individual pieces.

**PARTING MATERIAL**

A material that prevents adhesion or sticking of work to the apparatus.

**PLASTIC ARTICLE OR EARTHENWARE**

This generic title embraces the types of material, which have the common property of plasticity under the working conditions of the apparatus and are shaped or reshaped by apparatus within the scope of the class. These materials include the following: (1) natural or synthetic resins or gums; (2) green ceramic compositions, (e.g., clay, etc.); (3) particulate material or powder including powdered metal; (4) melts of solids or softened solids except of glass or of metal where a shaping surface is used; (5) slurries except of paper pulp; (6) dough or paste, including edible types.

**PLASTICITY**

The property of a material to flow either in a fluent or

conditioned solid state, whereby it may be shaped or reshaped into a self-sustaining preform or product.

#### PLATEN

Means providing a press-type shaping surface.

#### PREFORM

A self-sustaining intermediate object having a configuration that contributes in part to the shape or structure of a final product.

#### PRODUCT

The material or article which has been shaped, reshaped or treated by the apparatus; the result of a shaping, reshaping or treating operation. (Note: material which may be "product" for one shaping operation may be "work" for an ensuing operation).

#### PROFILE

Representation of an object in outline, (e.g., a shape obtain by sculpturing, etc.).

#### REBEADING

Restoring a bead or rim on a product, usually a tire.

#### RECAPPING

Restoring the wear surface on a tire casing.

#### REGISTERING

Providing an exact fit of mating parts.

#### RESHAPING

Changing the configuration of a preform to a desired shape (deformation involving a surface rather than an entire layer is included).

#### RESIZING

Changing a dimension but not the overall configuration.

#### ROLL

An endless shaping surface which has a substantially circular cross-section.

#### SCREED

An implement used to scrape off or smooth a surface of material which is being molded.

#### SELF-SUSTAINING

The capacity to retain an imparted shape.

#### SETS

A group of shaping couples each of which generally comprises plural coacting means.

#### SEVER

To separate a portion from a body by cutting or breaking or perforating.

#### SINTERING

The coalescence of parts into one solid mass through heating, generally with melting limited to a surface layer only of each particle.

#### SPINNERET

Means providing a shaping orifice of a size to produce pliable filaments.

#### SPINNING

Extrusion molding of indefinite length filaments.

#### STATIC APPARATUS

Apparatus having no relatively moving parts during the forming or shaping operation.

#### STOCK

A material being worked on or treated by apparatus. Synonym: WORK

#### SUBSTRATE

A workpiece to which a layer or coating of material is applied. Synonym: BASE

#### SURFACE DEFORMATION

A reshaping operation involving only a surface of a preform, i.e., partially through the thickness of a layer.

#### TAMP

To compact by a series of blows and thereby eliminate air pockets or other voids.

#### TEEMING

See Casting.

#### TEMPLATE

A pattern used as a guide to the form of a piece being made.

#### TRAP CHAMBER

A compartment having means for providing a measured charge of material passing therethrough.

#### TRAVELING

A movement to or from a station, (e.g., shaping, feeding or ejecting station, etc.), as opposed to movement at a station essential to an operation, (e.g., mere mold opening or closing, etc.).

#### TREATMENT

Altering or actively maintaining some property or a product or preform.

#### VEHICLE

A fluid, generally a liquid, employed to carry stock material to a molding surface.

#### WITH

As used in a subclass title indicates the combination of basic subject matter of this class and that of a diverse class.

#### WORK

The material being shaped, reshaped or treated by the apparatus. Synonym: STOCK

#### SUBCLASSES

**1** This subclass is indented under the class definition. Apparatus which employs, as an essential element of the shaping force an explosive or thermic composition, charge or device.

#### SEE OR SEARCH CLASS:

149, Explosive and Thermic Compositions or Charges, appropriate subclasses, for explosive and thermic charges, per se. See Note 6 of the Class 149 definition for additional search notes.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 84, for the process of shaping a plastic or nonmetallic article by the use of an explosive force.

**2**

This subclass is indented under the class definition. Apparatus in which a portion of a plant or animal body structure is employed as an impression pattern to impart its shape to a molding material.

#### SEE OR SEARCH THIS CLASS, SUBCLASS:

175+, for a mold forming means including a flask, per se.

#### SEE OR SEARCH CLASS:

19, Textiles: Fiber Preparation, subclasses 148+, for hat forming apparatus.

249, Static Molds, appropriate subclasses for static molds, per se. The line between Classes 249 and 425 is as follows: Class 249 will take only those female molds, per se, disclosed for shaping material around an anatomical body positioned therein. All other molds, (e.g., female molds disclosed for retaining material while the body member is pressed therein, female molds in which the body member constitutes at least a portion of a mold wall, or female molds including means for feeding material thereto, etc.), are proper for Class 425.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 222+, for the related process.

433, Dentistry, subclasses 34+ for devices for taking impressions in plastic material inside the mouth.

**3**

This subclass is indented under the class definition. Apparatus comprising means to effect a direct application of magnetic force to the work or a shape imparting member to magnetically

hold or manipulate said work or member and facilitate, perfect, or expedite a snapping or treating operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

174+, for means involving the direct application of electrical or wave energy to the work.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclasses 54+, for process or apparatus for deforming metal by application of an energy field, especially subclass 56, wherein kinetic energy of a field is used to deform the metal.

164, Metal Founding, subclasses 146+ for metal casting apparatus including means to directly apply magnetic force to work or to manipulate or hold shaping means.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 405+, for related process; see search notes there under.

**4** This subclass is indented under the class definition. Apparatus comprising means specifically designed or modified to cause or aid the generation or expansion of pores within the work during or prior to shaping.

(1) Note. To be included herein, the apparatus must include means to mechanically introduce a gas into the work, (e.g., gas injection means, beaters, gaseous pressure or vacuum chambers, (etc.). Means causing or controlling a chemical reaction, (e.g., heating means, cooling means, means mixing reactive ingredients, etc.), are classified in appropriate subclasses below even though the reaction results in a formed or porous article. Means injecting steam into an area confining partially expanded beads to cause further expansion is within the scope of this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

387+, for reshaping a preform or parison by fluid pressure; see the search notes thereto.

817, for an art collection of means designed to mold pore formable material.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 41+, for process of forming pores in an article either mechanically or chemically. See the notes and search notes under Search Class 41.

**5** This subclass is indented under the class definition. Apparatus for enclosing normally liquid materials within a capsule by forming or molding said capsule around discrete droplets or portions of said liquid.

SEE OR SEARCH THIS CLASS, SUBCLASS:

6, for apparatus for comminuting a liquid or melt materials which are normally solids, solidifying said materials and coating.

SEE OR SEARCH CLASS:

53, Package Making, subclasses 111+, for a packaging apparatus combined with means for shaping the contents material either before, after or during packaging, subclass 140 for packing apparatus combined with a cover production means, and subclasses 558+, for means forming a receptacle combined with downstream filling means; see the search notes in these subclasses of Class 5.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 4 for the related process of encapsulating a normally liquid material.

**6** This subclass is indented under the class definition. Apparatus comprising means dividing or comminuting liquid material to form discrete particles and allowing the liquid to solidify while in particulate form.

(1) Note. Excluded from this and indented subclasses are devices in which the particles are solidified while in contact with a shape imparting surface.

- (2) Note. Where the purpose of the comminution is to effect an operation on the material other than that to produce a product of a desired size or shape the patent is not included herein, but will be found in the class providing for said operation.
- (3) Note. Included herein is a machine for making cotton candy. The fibers are of indeterminate length and thus are considered particles as opposed to strands or filaments.

## SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 1.22+ for apparatus for making bullets, or shot usually involving a plurality of metal working operations, and subclasses 4.51+ for the production of metal shreds by a cutting operation.
- 62, Refrigeration, subclasses 74 and 347 for processes and apparatus for congealing (freezing) material involving spraying, dripping or projecting.
- 65, Glass Manufacturing, subclass 484, for fiber glass making apparatus and processes, subclasses 21.1+ for a process for making self-supporting particles from glass or glass-like material and subclass 141, for apparatus for disintegrating and solidifying a glass or glass-like melt with a cooling fluid.
- 72, Metal Deforming, subclasses 274+, for apparatus for extruding preformed metal.
- 159, Concentrating Evaporators, appropriate subclasses for spray type concentrating evaporators.
- 204, Chemistry: Electrical and Wave Energy, subclass 298.01, for coating or forming by cathode sputtering.
- 239, Fluid Sprinkling, Spraying, and Diffusing, appropriate subclasses, for fluid sprinkling, spraying and diffusing apparatus.
- 241, Solid Material Comminution or Disintegration, subclasses 31+, for apparatus for comminuting solid material, even though combined with a prior comminuting and solidification of a melted material.

- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 5+, for related process.
- 502, Catalyst, Solid Sorbent, or Support Therefor: Product or Process of Making, subclasses 8+ for catalyst composition bead forming process.
- 516, Colloid Systems and Wetting Agents; Subcombinations Thereof; Processes of Making, Stabilizing, Breaking, or Inhibiting, appropriate subclasses for subject matter relating to: colloid systems (such as sols\*, emulsions, dispersions, foams, aerosols, smokes, gels, or pastes) or wetting agents (such as leveling, penetrating, or spreading); subcombination compositions of colloid systems containing at least an agent specialized and designed for or peculiar to use in making or stabilizing colloid systems; compositions and subcombination compositions specialized and designed for or peculiar to use in breaking (resolving) or inhibiting colloid systems; processes of making the compositions or systems of the class; processes of breaking (resolving) or inhibiting colloid systems; in each instance, when generically claimed or when there is no hierarchically superior provision in the USPC for the specifically claimed art.

- 7 This subclass is indented under subclass 6. Apparatus wherein the means for reducing the liquid or melted material comprises a forcible stream of an extraneous fluid directly against said material.

## SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 519+ and 526+ for apparatus utilizing a fluid blast means to form glass fibers or filaments.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 5+, for related process.
- 8 This subclass is indented under subclass 6. Apparatus in which the means for reducing the liquid or melted material comprises a member mounted for angular motion around an axis.

- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclasses 518+ and 523+ for apparatus utilizing a slinger, rotating disc, or centrifuge to form glass fibers or filaments.
- 239, Fluid Sprinkling, Spraying, and Diffusing, subclasses 214+, for slinger, splasher or rotary centrifugal fluid distributors.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 8, for related process.
- 9** This subclass is indented under subclass 8. Apparatus comprising means forming fibrous candy.
- 10** This subclass is indented under subclass 6. Apparatus including a separate fluid medium contacting and aiding the solidification or generation of formed particles.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclass 141, for glass melt disintegrator and solidifier including fluid contact means. See search notes thereunder.
- 264, Plastic and Nonmetallic Articles Shaping or Treating: Processes, subclass 14, for related process.
- 11** This subclass is indented under the class definition. Apparatus comprising means to renew, mend, fix or otherwise treat an article so as to put it into better or usable condition or to the state of newness as originally manufactured.
- (1) Note. To be included herein, the resulting article must be of the same general type as the article being repaired or restored. Mere reclaiming of rubber from worn tires, for example, is not included herein but classified on some other basis.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclasses 402.01+, especially 402.18 for a process of reclaiming, renewing or repairing articles for reuse; see the search notes thereunder.
- 100, Presses, appropriate subclasses for presses of general utility, especially subclass 231, for a frame type reciprocating press. As between Classes 100 and 156, all tire or tire tube patching presses are considered to be specialized and are proper for Class 156.
- 138, Pipes and Tubular Conduits, subclasses 97+ for tubular conduit repairing devices.
- 152, Resilient Tires and Wheels, subclasses 367+ for patches for resilient tires.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 94+ and appropriate other subclasses for apparatus and process for repairing an article by laminating. The line between Classes 156 and 425 is as follows: apparatus wherein no apparent shaping is involved, e.g., opposed pressure members merely applying a patch, and/or valve member and vulcanizing same is properly classified within Class 156; apparatus utilizing opposed pressure members to give at least two dimensional shape or apparatus utilizing the work to afford a shaping cavity, e.g., fusing and vulcanizing repair plug with a toroidal preform, is properly classified within this or appropriate indented subclasses. If it is impossible to determine whether shaping is involved those patents which disclose tire repair means including curved or configured platens are considered proper for this class and all patents which disclose tire repair means including flat platens are considered proper for Class 156.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 30 and 36.1+ for related process for repairing or restoring a device.
- 12** This subclass is indented under subclass 11. Apparatus in which the repair means is both hand portable and hand operated.
- SEE OR SEARCH CLASS:
- 81, Tools, subclasses 15.2+ for repair tools for resilient tires.

- 13** This subclass is indented under subclass 11. Apparatus which includes means for introducing fluent molding material under pressure to the worn or damaged area.
- (1) Note. A cut or blemish in a tire wall or carcass is considered a molding cavity.
- 14** This subclass is indented under subclass 11. Apparatus which includes an enclosing form of (1) a bendable material (e.g., flexible channel) or (2) a flexible web wrapped under tension about the article for applying a force to the repair moldable material and the article repair area.
- 15** This subclass is indented under subclass 11. Apparatus in which there are means defining a generally "U" shaped pressure channel for only a portion of a tire type article being repaired said channel coacting with at least one pressure plate which applies a compressive molding force to the repair molding material and the repair area of the article.
- (1) Note. The pressure plate does not require a flat configuration.
- SEE OR SEARCH CLASS:  
100, Presses, subclasses 240+, for a box and piston type press apparatus.
- 16** This subclass is indented under subclass 15. Apparatus wherein the pressure channel has at least one movable wall.
- 17** This subclass is indented under subclass 11. Apparatus comprising means by which the entire circumferential surface of either the tread, sidewalls or bead area of a tire type article is replaced.
- 18** This subclass is indented under subclass 17. Apparatus in which the apparatus performs the repair operation on two or more tires at the same time.
- 19** This subclass is indented under subclass 17. Apparatus including means to position or center the tire carcass with respect to the mold, or means to align the mold with respect to the tire or tire carcass.
- 20** This subclass is indented under subclass 17. Apparatus comprising a recapping mold so made as to completely encircle the circumference of the tire being repaired, but extending only partly across the width of the sidewall.
- 21** This subclass is indented under subclass 20. Apparatus including bead spreading means for reducing the diameter of the tire or to spread the tire in a manner to cause a proper fitting and force applying relationship with the tire and the recapping mold.
- 22** This subclass is indented under subclass 20. Apparatus including annular opposed movable pressure plates or platens coacting in a supporting and force applying relationship on the sidewalls of a tire being recapped.
- (1) Note. The pressure platens do not have to be acting on the tire sidewalls directly, but be acting on opposed annular mold sections supporting and molding a tire.
- 23** This subclass is indented under subclass 20. Apparatus in which the recapping is accomplished at least in part by means applying a force to the internal portion of the tire being recapped so as to afford a fitting and force applying relationship with the tire and recapping mold.
- 24** This subclass is indented under subclass 23. Apparatus wherein the force applying means is a fluid contacting the interior of the carcass.
- 25** This subclass is indented under subclass 20. Apparatus comprising a tire mold divided into complementary coacting annular sections wherein one section is separable from another section by moving one section generally perpendicular to its diameter.
- (1) Note. Included herein are devices wherein the mold sections are hinged and the motion employed in opening or closing is an arcuate motion.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
71, for means extruding a material into a cooling or liquid reaction tank.

- 89, for means under the class definition utilizing sheet or web type parting material.
- 108, for means under the class definition used for rod end to rod end splicing or joining.
- 130, for means feeding fluent stock from plural sources to a common shaping means to form a composite product, see especially subclass 133.1 for concentric extrusion shaping means encased within a common nozzle housing wherein a lamina is formed within the extrusion device.
- 225+, for cleaning means employing a liquid disclosed and claimed solely for cleaning.
- 500+, for the combination of means to bring preforms into assembled relation in combination with means to bond them together in means which causes a preform reshaping.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclass 169, for glass working apparatus including means to provide a coating or parting material.
- 106, Compositions: Coating or Plastic, subclass 2, for a composition disclosed as a coating repellent (e.g., parting material, etc.); and subclasses 38.2+, for a mold or mold coating composition.
- 118, Coating Apparatus, appropriate subclasses for coating apparatus but especially subclasses 14 and 18, for edible-base or coating type combined with coating decorating means or solid means acting on a coating after application, except where such instrumentalities are in the nature of molds or dies, which latter combination is in this Class 425, and subclass 44 with coating apparatus combined with means to deform work.
- 26** This subclass is indented under subclass 11. Apparatus which comprises means adapted to contact only a segment of the circumference of a tire and to maintain that portion in condition or position for repair.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 15+, for a channel box pressure applying means engaging only a segment of a tire.
- 49+, for internal support means for hollow toroids (e.g., tires) which support the entire circumference.
- 27** This subclass is indented under subclass 26. Apparatus wherein the supporting means is an internal member capable of extending in one or more directions to increase the outward pressure of the tire portion.
- (1) Note. Typically, this includes a fluid impermeable, closed, fabric bag with a shape similar to a segment of the interior of a tire, and generally called an "air bag".
- SEE OR SEARCH CLASS:
- 138, Pipes and Tubular Conduits, subclass 93 for inflatable pipe plugs.
- 279, Chucks or Sockets, subclasses 2.01+ for an expanding mandrel.
- 285, Pipe Joints or Couplings, subclasses 95+ for fluid pressure seal in a pipe joint; subclass 196 for an expandible spigot type pipe to plate joint and subclass 346 for packing expanding means in a packed pipe joint of the friction clutch type.
- 28.1** **RESHAPING, RESIZING, OR VULCANIZING MEANS FOR TIRE, TIRE TUBE OR DRIVE BELT:**
- This subclass is indented under the class definition. Apparatus uniquely adapted for manufacturing by means reshaping, resizing, or vulcanizing performs into (a) flexible or resilient doughnut shaped articles which are used on the periphery or rim of a vehicle wheel (generally to absorb shock and/or control traction), or (b) endless flexible bands (e.g., drive belts, etc.) which are used to transmit power.
- (1) Note. Excluded under the definition are devices of general utility, even though by disclosure they are for use in operating on a portion of a tire tube or belt. For example, a device for holding two ends of a tube in assembled relationship

for vulcanizing are not here but provided for below.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

11, for means for the repair of articles which may be toroidal, and which may include toroidal support means.

SEE OR SEARCH CLASS:

152, Resilient Tires and Wheels, subclasses 151+ for resilient tires.  
 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 394.1+ for an apparatus or subcombination thereof specifically adapted for assembling elements of a tire body either into the form of an endless article or an article which has a circular or horseshoe cross-section with means causing the associated parts to adhere one to the other; see especially subclasses 414+ for a tire building drum, per se.  
 157, Wheelwright Machines, appropriate subclasses for means for assembling wheels, especially subclass 13 for means for mechanically treating outer periphery of a rubber tire casing including means for removal of mold flash from a tire or means for the reclamation of materials from a tire which does not destroy the tire.  
 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 299+, especially subclasses 315+ and 326 for processes of vulcanizing tires and belts.

**29** This subclass is indented under subclass 28.1. Apparatus including means for sensing or detecting a variation in an operating sequence or condition and means responsive thereto to effect a change in operation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

135+, for control means responsive to or actuated by means sensing or detecting a variable condition in apparatus other than for a tire, tire tube or drive belt.

**30** This subclass is indented under subclass 28.1. Apparatus including time limiting means operating independently of the apparatus drive means, said means causing a change in the operation of the apparatus at the end of a selected time period.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

155+, for control means responsive to an independently operated timer in apparatus other than for a tire, tire tube or drive belt.

**31** This subclass is indented under subclass 28.1. Apparatus including means for changing a band or drum (of green rubber) into a hollow toroid.

**32** This subclass is indented under subclass 31. Apparatus including a female shaping or sizing means encasing the preform subsequent to conversion to a toroid.

**33** This subclass is indented under subclass 32. Apparatus comprising means to place an expansible enclosure or bag within the hollow portion of a mold or housing.

**34.1 Plural female molds for plural preforms:**  
 This subclass is indented under subclass 28.1. Apparatus comprising plural female mold means for simultaneously shaping or treating plural preforms.

**34.2 Forming belts (e.g., drive, transmission, endless):**  
 This subclass is indented under subclass 34.1. Apparatus for forming plural belts (e.g., drive, transmission, endless, etc).

**34.3 Within separate vulcanizing chamber:**  
 This subclass is indented under subclass 34.1. Apparatus wherein the plural female molds for plural preforms are enclosed within one separate vulcanizing chamber (e.g., autoclave).

**35** This subclass is indented under subclass 28.1. Apparatus which includes the combination of (1) a shaping means comprising a cavity of generally toroidal or annular shape and (2) means for holding preform material against said means.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
32, for similar structure in combination with means for converting a drum-shaped preform into a hollow toroid.
- 36** This subclass is indented under subclass 35. Apparatus which includes distinct means to support or maintain the bead portion of a tire casing.
- (1) Note. To be included herein the bead engaging means must be other than a unitary extension or part of the mold, (e.g., it must be separable, separately adjustable or movable, etc.).
- 37** This subclass is indented under subclass 35. Apparatus which includes plural means for forming sidewall openings in the solid rubber portion of a tire, the openings being parallel to the tread surface.
- (1) Note. These openings produce a more resilient tire, generally called a "cushion tire".
- 38** This subclass is indented under subclass 35. Apparatus comprising mechanism which either (1) places or positions preform material in the female mold prior to the shaping or treating operation, or (2) extracts the product from the mold after the operation.
- (1) Note. Included under this definition are means breaking the bond between the mold and the tire for subsequent removal of a tire from the mold area.
- 39** This subclass is indented under subclass 35. Apparatus in which the shaping means defining the cavity comprises resilient material capable of being extended or expanded during use.
- (1) Note. To be included herein, the mold surface must change size, not merely be designed for knockdown.
- 40** This subclass is indented under subclass 35. Apparatus comprising means to produce a temperature change on the preform material in the apparatus.
- 41** This subclass is indented under subclass 40. Apparatus in which the temperature change is produced by means of an electric current.
- 42** This subclass is indented under subclass 40. Apparatus in which the temperature change is applied or produced by means within the cavity encompassed by the walls of the preform.
- (1) Note. This includes, for example, the introduction of a hot gas into a tire or inner tube during shaping.
- 43** This subclass is indented under subclass 35. Apparatus in which the means confining the preform in the cavity comprises a member whose size may be varied to press or maintain the preform in position.
- (1) Note. Included herein is an air bag comprising a fabric which does not itself stretch, when such bags change their overall size by changing the interior gas pressure. Solid knockdown cores designed for insertion or removal, are not considered expansible.
- 44** This subclass is indented under subclass 35. Apparatus which includes means applying fluid under pressure into direct contact with an internal surface of a hollow preform.
- (1) Note. This includes, for example, the introduction of air under pressure into a tire or inner tube to hold it in contact with a female mold surface.
- 45** This subclass is indented under subclass 44. Apparatus in which the preform is a tire inner tube and the apparatus include either (1) valve stem means in the shaping or treating device itself adapted to admit fluid pressure thereinto or, (2) means to receive or maintain in position the valve stem of the preform being shaped or treated.
- 46** This subclass is indented under subclass 35. Apparatus wherein the tread shaping means is capable of being removed independently of the rest of the mold.

- 47** This subclass is indented under subclass 28.1. Apparatus comprising a shaping means comprising a plurality of sections provided with specific fastening means for securing the sections together.
- 48** This subclass is indented under subclass 28.1. Apparatus comprising (1) means on the inside of a tire, tube or belt to maintain it in position or (2) means to strip from or place into an article to be treated a bag or other member treating the article.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
182, for other assembly or disassembly means combined with plastic working or treating apparatus.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclasses 700+ for assembly and disassembly apparatus, per se, not elsewhere provided for, especially subclass 239 for such apparatus including means for spreading parts apart, and subclasses 244+ for a puller or pusher type having a force multiplying operator.
- 49** This subclass is indented under subclass 28.1. Apparatus comprising an annular mold or form designed to be positioned interiorly of and to support a toroidal preform.
- 50** This subclass is indented under subclass 49. Apparatus including means to heat or cool the preform material or the support means.
- 51** This subclass is indented under subclass 49. Apparatus wherein the mold or form is capable of changing its size or dimension.
- (1) Note. To be included herein the mold or form surface must change in size, not merely be designed for knockdown to facilitate insertion and removal.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 65 and 178+ for expansible cores of general utility for static molds.
- 285, Pipe Joints or Couplings, subclasses 107, 196 and 338 for pipe joints having expansible or inflatable features; see the search notes thereunder.
- 52** This subclass is indented under subclass 51. Apparatus in which the mold or form comprises an impermeable flexible diaphragm or bag into which fluid under pressure is introduced to cause expansion.
- 53** This subclass is indented under subclass 52. Apparatus comprising a valve or conduit means through which the pressurizing fluid is introduced.
- SEE OR SEARCH CLASS:  
137, Fluid Handling, subclasses 223+ for an inflatable article filling chuck and/or stem; see the search notes thereunder.
- 54** This subclass is indented under subclass 49. Apparatus in which the annular form or mold comprises plural sections.
- 55** This subclass is indented under subclass 54. Apparatus in which one of the plural sections is capable of being removed or separated from the others.
- (1) Note. Generally, the section is removed by movement towards the axis of the toroid, that is, towards the center of the ring-shaped support.
- 56** This subclass is indented under subclass 55. Apparatus provided with a full-circle ring which engages the plural sections of the annular mold or form to hold them in an assembled relationship.
- 57** This subclass is indented under subclass 55. Apparatus comprising cams or wedges to secure the plural support sections in assemble relationship.
- 58** This subclass is indented under subclass 49. Apparatus comprising (1) annular means to complete the closing of a tubeless tire or to support an air bag within a tire casing or (2) means clamping the bead rechain of a tire against an internal support.

**58.1 Post cure inflator:**

This subclass is indented under subclass 28.1. Apparatus comprising a post cure inflation means.

**59** This subclass is indented under the class definition. Apparatus comprising means employing a portion of the earth below ground level as a shape imparting member to form a structure which is at least partially submerged in the earth.

## SEE OR SEARCH CLASS:

249, Static Molds, appropriate subclasses for static molds or forms.  
405, Hydraulic and Earth Engineering, subclasses 150.1+ for method or apparatus for casting a tunnel lining in situ; subclass 223 for apparatus for casting a marine structure in situ; and subclasses 233+ for apparatus for casting a foundation pile or pier in situ.

**60** This subclass is indented under the class definition. Apparatus comprising molding apparatus mounted on a lever pivotally mounted at one end so as to rotate or oscillate around the pivot axis.

(1) Note. At least the shaping or forming members must be mounted for such movement. The feeding means may be stationary.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

63, for progressive molding apparatus.

**61** This subclass is indented under the class definition. Apparatus including means to facilitate the flotation of a formed ship or boat.

## SEE OR SEARCH CLASS:

405, Hydraulic and Earth Engineering, subclasses 1+ for dry docks and vessel apparatus, per se.

**62** This subclass is indented under the class definition. Apparatus wherein an entire molding or shaping device is supported in such a manner as to facilitate its movement from one location to another.

(1) Note. Included herein are molding devices mounted on tracks, trucks, skids, boats, etc.. The mere statement that it includes handles etc., will not being a patent here. For portable devices see appropriate subclasses below and in Class 249, Static Molds; however, wheels and tracks, per se, in the absence of means to move the apparatus, would not indicate classification in Class 425, but in Class 249.

(2) Note. Excluded from this subclass are devices wherein one portion of an apparatus is mounted on a transportation means for the purpose of moving it with respect to another portion of the apparatus without relocating the entire molding apparatus to a different site. Such devices are in appropriate subclasses below. Also excluded are devices in which a mold is repositioned in such a manner that a newly formed structure will be connected to a previously formed structure. For such devices see appropriate subclasses below, especially subclasses 63+.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

59, for means utilizing a subterranean feature as a shaping means.  
63+, for molds with repositioning means for progressive molding.

## SEE OR SEARCH CLASS:

249, Static Molds, appropriate subclasses for a static mold of that class mounted on a vehicle and see especially subclasses 175+ for cores, e.g., tunnel molds, with wheels and tracks.  
280, Land Vehicles, appropriate subclasses for land vehicles, per se.  
405, Hydraulic and Earth Engineering, subclasses 146 and 150.1+ for wheeled apparatus for lining tunnels; and subclass 155 for a mobile pipe or cable laying machine which includes means for casting a pipe or a protective.

**63** This subclass is indented under the class definition. Apparatus comprising means molding a portion of a structural installation and means to incrementally transposition the mold to such a location that an additional portion may be molded and united to the previously molded portion.

- (1) Note. The term “structural installation” is intended to include those structures generally erected by civil engineering techniques, (e.g., buildings, bridges, towers, tunnels, sewer, lines, retaining walls, etc.).
- (2) Note. To be included herein the patent must include more than a static mold mounted on wheels, skids, etc.. Means to advance or move the mold (e.g., hoists, pushing or pulling means etc.), are included herein; see (1) Note in subclass 62, above.

SEE OR SEARCH CLASS:

- 249, Static Molds, for static molds mounted on wheels, skids, etc., so that they may be more easily moved from one location to another.
- 254, Implements or Apparatus for Applying Pushing or Pulling Force, appropriate subclasses for lifting or pulling devices, per se.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 33 for similar processes of forming structural installations in situ and repositioning the mold.

**64** This subclass is indented under subclass 63. Apparatus combined with means to feed material to the molding means.

SEE OR SEARCH CLASS:

- 249, Static Molds, subclass 108, for a static mold combined with means to feed material thereto.

**65** This subclass is indented under subclass 63. Apparatus wherein means supporting or assisting in the support of the mold device is embedded in previously formed material or otherwise adapted to penetrate the previously formed material.

**66** This subclass is indented under the class definition. Apparatus comprising either means forming a continuous thread-like product or a continuous film casting means, combined with means to advance and attenuate the thread or film.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 76, for varying the denier of filaments by altering orifice size or varying flow rate.
- 326.1, for means extruding a tube of indefinite length and means to inflate the tube to a cylinder or film.

SEE OR SEARCH CLASS:

- 26, Textiles: Cloth Finishing, subclasses 71+ apparatus for stretching or spreading a fabric in the form of a plastic film even though combined with a film treating means.
- 28, Textiles: Manufacturing, subclasses 240+ for stretching apparatus for finishing a thread including a monofilament type (e.g., nylon, etc.).
- 57, Textiles: Spinning, Twisting, and Twining, subclasses 287 and 310 for twisting, twining, etc., of textiles combined with stretching.
- 65, Glass Manufacturing, subclasses 484+ for apparatus for glass fiber and filament making, particularly subclass 501 for means to align and draw filaments or fibers; subclasses 535+ for means to draw, advance, or attenuate glass fibers or filaments.
- 226, Advancing Material of Indeterminate Length, appropriate subclasses for feeding indeterminate lengths of material.
- 366, Agitating, subclass 70 for mixing means of the taffy puller type.

**67** This subclass is indented under the class definition. Apparatus comprising an extrusion die with its shaping outlet either submerged in a liquid or mounted in the path of a liquid material being discharged into space.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 71, for means advancing shaped work through a down stream liquid bath or shower means.  
404, for shaping means in general with subsequent product treatment means.

SEE OR SEARCH CLASS:

- 34, Drying and Gas or Vapor Contact With Solids, appropriate subclasses for filament drying means combined with nominal filament forming means.  
57, Textiles: Spinning, Twisting, and Twining, appropriate subclasses for spinning, twisting or twining apparatus combined with nominally claimed filament forming means.  
68, Textiles: Fluid Treating Apparatus, appropriate subclasses for filament treating apparatus combined with nominal filament forming means.  
242, Winding, Tensioning, or Guiding, particularly subclasses 470+ for winding, unwinding, tensioning, or running material guiding with nominal filament forming means.
- 68** This subclass is indented under subclass 67. Apparatus comprising additional distinct and separate means downstream of the initial liquid contact means for contacting and treating the formed product with a fluid.
- 69** This subclass is indented under subclass 67. Apparatus wherein the relative position of the extrusion die is changeable with respect to structure constituting the receptacle for the liquid, or to the means directing liquid against the product being extruded.
- 70** This subclass is indented under subclass 67. Apparatus comprising a tubular passageway positioned at least partially within a bath or shower means and means directing the extruded product through the tube.
- 71** This subclass is indented under the class definition. Apparatus comprising means feeding shaped material of indeterminate length through liquid treating means of the shower immersion or work confined pool type wherein

the liquid is located such that it contacts the shaped work subsequent to the shaping operation.

- (1) Note. Included herein are both combinations of shaping plus downstream liquid treatment, and downstream liquid treatment, per se, wherein the liquid treatment, per se, is within the scope of the basic subject matter of this class.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 67, for devices wherein a shaping orifice discharges directly into a liquid bath or shower means.  
72.1+, for a shaping orifice and downstream gaseous treating means.  
90+, for shaping means and means applying a coating to the shaped work.  
404, for shaping means and subsequent product treatment means.  
445+, for means treating shaped work.

SEE OR SEARCH CLASS:

- 118, Coating Apparatus, appropriate subclasses, especially subclasses 325, 405, and 419+ for means applying a coating to running length work by spraying or in a work confined pool.

#### **72.1 SHAPING ORIFICE AND DOWNSTREAM WORK CONTACTING GASEOUS TREATING MEANS:**

This subclass is indented under the class definition. Apparatus comprising means defining a shaping orifice and means causing a gaseous medium to contact work subsequent to issuing from the shaping orifice to heat, cool, react or otherwise the shaped work.

- (1) Note. The means for contacting the formed product with a gas usually includes a means for forcing the gas past and in contact with the product; however, also included under this definition is a vacuum chamber or a means surrounding the product to retain or confine the atmosphere surrounding to product.
- (2) Note. An inflating gas used in a subsequent inflating type reshaping apparatus is excluded from this subclass except where additional means are provided to

condition or handle that gas as a treating gas.

SEE OR SEARCH THIS CLASS, SUBCLASS:

326.1, for an extrusion means followed by an inflating type reshaping means.

461, for shaping orifice, per se, see Search Notes thereunder relating to combinations thereof.

SEE OR SEARCH CLASS:

72, Metal Deforming, subclass 286 for apparatus for extruding a preformed metal work piece and heating or cooling means.

### 72.2 Orifice for filaments or fibers:

This subclass is indented under subclass 72.1. Apparatus wherein the orifice is for shaping filaments or fibers (e.g., spinneret).

SEE OR SEARCH CLASS:

164, Metal Founding, subclasses 423+ for continuous or semicontinuous filament or wire casting apparatus.

**73** This subclass is indented under the class definition. Apparatus combined with (1) means to manipulate material and (2) an atmospheric confining means enclosing or surrounding at least a portion of the material handling means, said atmospheric confining means having an exhaust or gaseous circulation feature.

SEE OR SEARCH THIS CLASS, SUBCLASS:

72, for a shaping orifice and downstream work-contacting gaseous treating means which may be a hood or chamber.

445+, for means treating shaped work.

SEE OR SEARCH CLASS:

34, Drying and Gas or Vapor Contact With Solids, appropriate subclasses for apparatus and processes for drying material.

**74** This subclass is indented under subclass 73. Apparatus comprising means to collect or to recirculate vaporous material which is (1) part of that used during the molding operation or (2) driven off from the molding material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

86, for apparatus which includes means to handle waste liquid.

215+, for shaping means and means to gather excess or rejected material, especially subclass 217 which recycles the material.

420, for apparatus which includes means to remove entrained air without recovering or recycling.

SEE OR SEARCH CLASS:

65, Glass Manufacturing, subclass 157 for glass working or treating apparatus including means providing a special atmosphere.

164, Metal Founding, subclass 259 for metal founding apparatus including a means to provide an inert or reducing atmosphere.

**75** This subclass is indented under subclass 73. Apparatus in which the material handler is an endless surface on which fluent material is deposited and shaped, subclasses 228+ for a composition having a continuous phase of free metal made by consolidating metal particles, and subclass 256 for a consolidated furnace charge, e.g., a briquette, containing free metal.

**76** This subclass is indented under the class definition. Apparatus comprising means producing filaments which are nonuniform in cross section throughout their length.

SEE OR SEARCH THIS CLASS, SUBCLASS:

66, for forming irregular denier by stretching.

319+, for extruding followed by twisting.

325+, for a shaping orifice and downstream shaping means for forming other than irregular denier filaments.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 167 for processes of forming filaments of irregular denier.

**77** This subclass is indented under the class definition. Devices specifically designed to generate pressures of the order of approximately 100,000 psi or greater.

(1) Note. The devices included herein are frequently for use in changing or controlling crystal structure, e.g., diamond formation, or for testing or studying the chemical or physical effect of ultra high pressures on a test sample of material.

(2) Note. Included herein are press plungers, per se, disclosed for use in ultra high pressure type press.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1, for molding devices utilizing force from explosive or thermic compositions.
- 78+, for presses for molding powdered metal.
- 406+, for press molding apparatus in general under the class definition and see notes thereto.

SEE OR SEARCH CLASS:

- 73, Measuring and Testing, appropriate subclasses for a laboratory type press combined with means to measure or test the material being pressed.
- 100, Presses, appropriate subclasses, especially subclass 232 for multiple plunger presses not designed to generate ultra high pressure.
- 117, Single-Crystal, Oriented-Crystal, and Epitaxy Growth Processes; Non-Coating Apparatus Therefor, for non-coating apparatus for growing therein-defined single-crystal of all types of materials and by use of all means including by high pressure or with shaping means.
- 219, Electric Heating, subclass 50 for reaction vessels, per se, and see especially Note 5 of that subclass definition.

**78** This subclass is indented under the class definition. Apparatus comprising means forming products by uniting associated particles of metallic elements or alloys or amalgams.

(1) Note. Means uniting particles comprising metallic compounds, e.g., metal oxides, etc., are not included herein but are found in appropriate subclasses below.

(2) Note. Included in this and indented subclasses are all devices including a disclosure of molding powdered metal elements, alloys, amalgams, even though the claims may not be so limited.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 419.1 for processes of shaping fibered material.
- 72, Metal Deforming, appropriate subclasses for processes and apparatus for deforming metal; see the line note in the class definition of Class 425.
- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclasses 228+ for a composition having a continuous phase of free metal made by consolidating metal particles and subclasses 313 for consolidated solid treating compositions or charges.
- 164, Metal Founding, appropriate subclasses for a process or apparatus to manufacture metal articles by casting molten metal.
- 266, Metallurgical Apparatus, for sintering apparatus, per se. Apparatus for forming and sintering is proper for this Class 425.
- 419, Powder Metallurgy Processes, appropriate subclasses for making articles from metal powder; e.g., subclasses 61+.

**79** This subclass is indented under subclass 78. Apparatus wherein the particulate material is formed in an indefinite length article.

(1) Note. An article is considered indefinite in length if it is formed in a continuous manner at the forming means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 71, for means advancing continuous work through downstream liquid bath or shower means.  
376.1+, for extrusion shaping means.

**80.1 AIR FELTING TYPE SHAPING MEANS:**  
This subclass is indented under the class definition. Apparatus comprising means for depositing particles on a shaping surface from a gaseous suspension.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 78+, for means for molding powdered metal.  
100, and 103, for pneumatic conveyor means for applying nonmoldable coating materials to apparatus, molding material, or preform material.  
223, for devices comprising an endless casting surface and a cooperating harvesting means.  
224, for means for casting fluent stock to form a product of indefinite length.

SEE OR SEARCH CLASS:

- 19, Textiles: Fiber Preparation, subclasses 296+ for the formation of a nonwoven web from fibers or filaments, and see the notes and search notes in subclass 296, for the line between this class (425) and Class 19 and related fields of search.  
28, Textiles: Manufacturing, subclasses 104+ for entwining filaments by air blast means.  
65, Glass Manufacturing, subclass 507 for glass filament or fiber making combined with means to form a nonwoven mat or batt. See the search note to Class 425 in the III(B) Note of the class definitions of Class 65 for a further statement of the line between the two classes.  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 62.2+ for air felting followed by laminating the felted product to another preform.

- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 109+ for processes of forming products from randomly associated nonmetal particles.  
419, Powder Metallurgy Processes, subclasses 61+ for processes for making articles from powders containing metal particles involving pressure without heat.

**81.1 Means forming stratified products:**  
This subclass is indented under subclass 80.1. Apparatus comprising means for sequentially depositing layers of similar particles in such a manner that a line of demarcation is presented between the deposited layers, or depositing diverse fibers in such a manner as to form distinguishable layers.

SEE OR SEARCH CLASS:

- 19, Textiles: Fiber Preparation, subclass 302 for the formation of a stratified nonwoven web of fibers, and see the search notes therein for related fields of search.

**82.1 With particle liberating means (e.g., cutting, carding, etc.):**  
This subclass is indented under subclass 80.1. Apparatus comprising means for (a) dividing solid nonparticulate material to form particles, or (b) separating particles from a bonded or interfelted mass of particle containing material.

SEE OR SEARCH CLASS:

- 19, Textiles: Fiber Preparation, subclasses 305+ for the formation of a nonwoven web with fiber liberation, and see the search notes in subclass 305 for related fields of search.

**83.1 Means forming running length product:**  
This subclass is indented under subclass 80.1. Apparatus comprising means adapted to form an elongated product of indeterminate linear dimension.

**84** This subclass is indented under the class definition. Apparatus comprising a work contacting element having pores or openings therein of such a size that a liquid component of the work can enter said pores or openings thus separating the liquid from the work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 86, for devices including a handling means or other feature for a treating liquid, vehicle liquid, or condensate.
- 404, for shaping means and subsequent product treatment means.
- 445+, for means treating shaped work.

SEE OR SEARCH CLASS:

- 249, Static Molds, subclasses 113 and 141, for static molds with this feature for removing a liquid component.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 86+, for the related process for removing a liquid component through a porous mold surface.

- 85** This subclass is indented under subclass 84. Apparatus comprising means reducing pressure for facilitating removal of the liquid component of the material.

SEE OR SEARCH CLASS:

- 162, Paper Making and Fiber Liberation, appropriate subclass for forming articles of paper utilizing a vacuum.

- 86** This subclass is indented under the class definition. Apparatus comprising a combination of molding apparatus or fluid handling parts which dispose of and collect a liquid (e.g., vapor condensate, utilized to treat a preform, etc.), generally after it has completed its function as a vehicle or treating material.

- (1) Note. A mere vent or sprue in a mold is insufficient for this subclass.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 84, for a foraminous or absorbent means arranged to remove a vehicle or stock-feed component during shaping or after shaping but in situ.
- 401, for preform reshaping or resizing press apparatus having a reciprocating plunger and mold with a sprue or vent.
- 420, for a male-female press couple for fluent stock with means for removing entrained gas.

SEE OR SEARCH CLASS:

- 137, Fluid Handling, subclasses 312+ for fluid handling system with leakage or drip collecting means.
- 222, Dispensing, subclasses 108+ for drip, leakage or waste catching or disposal in dispensing apparatus. See the collection of search notes in the class definition of Class 222 for similar devices in other arts.

- 87** This subclass is indented under the class definition. Apparatus in which a shaping device is adapted to travel over a surface and deposit a layer of moldable material from a material supply, including means, shaping the material in more than one plane or dimension, the entire device and supply being designed to be either held in the hand during operation or manually guided or steered by an attendant as it traverses a surface against which the material is molded.

- (1) Note. Included herein, for example, are (1) devices for applying a layer of moldable material to a base including means controlling the thickness and edge structure of the applied layer or (2) devices for applying putty to windows in which a guide surface is attached to the putty smoothing surface in such a way as to slide along the window frame and shape the putty at a given angle or in a given configuration.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 375, for apparatus for depositing material on a casting surface including means causing the depositor to travel so as to deposit the material in a pattern.
- 376.1+, for extrusion devices, per se, which may be hand held.
- 458, for similar hand held apparatus without a material supply.

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, appropriate subclasses for hand tools for cleaning by means of a dry brushing, scraping, wiping or using a squeegee, and especially subclass 105 for compound tools where one of the tools is of the Class 15

- type, subclass 236 for scrapers of the same shape as a putty knife, and subclass 243.5 for putty knives, per se.
- 118, Coating Apparatus, appropriate subclasses for coating machines, per se; for the line between Classes 118 and 425, see subclass 90 of Class 425.
- 222, Dispensing, for dispensing, apparatus, per se. For the line between Classes 222 and 401, see the definitions of these classes.
- 401, Coating Implements With Material Supply, appropriate subclasses, for base coating devices which are adapted to be hand held or steered by a walking attendant in which the device includes a member for contacting the coating during or after application, said member being spaced from the base a distance equal to the thickness of the coating. The primary distinction between Classes 401 and 425 is that Class 401, only controls thickness while Class 425 shapes in plural dimension.
- 88** This subclass is indented under the class definition. Apparatus including a specific relationship between the molding device, and the structural installation housing or supporting the device.
- (1) Note. To be included herein factory structure or its environmental features must be claimed. The recitation that a machine is bolted to a floor of the factory, for example, is not sufficient to place the patent herein.
- SEE OR SEARCH CLASS:
- 137, Fluid Handling, subclasses 356+, for static constructional installations involving fluid handling.
- 89** This subclass is indented under the class definition. Apparatus including, a removable sheet or web of flexible material having anti-stick properties disposed between the shaping surface and the material to be shaped.
- (1) Note. To be included herein the sheet must be flexible to the extent that it conforms to the mold surface and must not
- have any shape imparting structure of its own.
- (2) Note. Webs or sheets which serve to advance the work to or from a shaping station, e.g., belts, etc., are classified in appropriate subclasses below even though they also serve as parting means at the shaping station.
- SEE OR SEARCH CLASS:
- 53, Package Making, subclasses 113+, especially subclass 122 for means for making a package out of a web or sheet type parting means combined with means for shaping the material being packaged. For a more detailed statement of the line with Class 53 see the class definition of this Class 425.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 392 for laminating apparatus with or without molding including pipe wrapping type work securing means.
- 249, Static Molds, subclasses 112+, for static molds having a removable or movable liner.
- 264, Plastic and Nonmetallic Articles Shaping or Treating: Processes, subclasses 219+ for a plastic article making process including or comprising a step of making or shaping a mold and subclasses 313+ for a process of shaping against a forming surface utilizing a flexible, deformable or destructible mold surface or material.
- 90** This subclass is indented under the class definition. Apparatus in combination with means to apply a liquid or fluent particulate solid material (1) to preformed work, (2) between a shaping member and the material being shaped or (3) to work contacting means.
- (1) Note. To be included in this and indented subclasses under (1) of the subclass definition the liquid or fluent particulate solid must be applied in such a way that no more than one dimension of the thickness or depth of the layer is controlled by the machine. A means which controls the shape of the applied layer in two or more dimensions are considered

molding means and are classified in appropriate subclasses below.

- (2) Note. To be included under (2) or (3) of the definition the material must be applied for the purpose of conditioning the work contact means or the product, (e.g., parting, release, or lubricating materials, etc.). Means applying materials which are intended to adhere to the product and contribute to the overall shape and structure are considered molding means and are classified in appropriate subclasses below.
- (3) Note. Excluded from this and indented subclasses are patents claiming means for adding, blending or mixing a liquid, particulate, or pulverulent material within a feeding means or mixing means upstream of a shaping means. Such devices are classified in appropriate subclasses below. See especially subclasses 200+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 71, for means extruding a material into a cooling or liquid reaction tank.
- 89, for means under the class definition utilizing sheet or web type parting material.
- 108, for means under the class definition used for rod end to rod end splicing or joining.
- 130, for means feeding fluent stock from plural sources to a common shaping means to form a composite product, see especially subclass 133.1 for concentric extrusion shaping means encased within a common nozzle housing wherein a lamina is formed within the extrusion device.
- 225+, for cleaning means employing a liquid disclosed and claimed solely for cleaning.
- 500+, for the combination of means to bring preforms into assembled relation in combination with means to bond them together in means which causes a preform reshaping.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclass 169 for glass working apparatus including means to provide a coating or parting material.
- 106, Compositions: Coating or Plastic, subclass 2 for a composition disclosed as a coating repellent (e.g., parting material, etc.); and subclasses 38.2+ for a mold or mold coating composition.
- 118, Coating Apparatus, appropriate subclasses for coating apparatus but especially subclass 14 and 18 for edible-base or coating type combined with coating decorating means or solid means acting on a coating after application, except where such instrumentalities are in the nature of molds or dies, which latter combination is in this Class 425, and subclass 44 with coating apparatus combined with means to deform work.
- 164, Metal Founding, subclasses 267+ for metal founding apparatus combined with a coating means.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 129+ for processes of coating combined with a molding step.

- 91** This subclass is indented under subclass 90. Apparatus including more than one coating material applicator wherein at least one applicator is different in kind from one other applicator.

SEE OR SEARCH CLASS:

- 118, Coating Apparatus, appropriate subclasses for diverse or plural coating applicators.
- 92** This subclass is indented under subclass 90. Apparatus having two or more separate and distinct coating material applying means with at least one means applying coating material to work and at least one means applying material to a work contact surface.
- 93** This subclass is indented under subclass 90. Apparatus wherein the work or work contacting apparatus to be coated is introduced or dipped wholly or partially into a bath, puddle,

- pile or other enclosed or restricted bulk supply of coating material.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 67+, for immersed shaping orifice discharging directly into liquid bath or shower means.  
 71, for means advancing continuous length work through downstream liquid bath or shower means.  
 269+, for dipping type shaping means.
- SEE OR SEARCH CLASS:  
 118, Coating Apparatus, subclasses 400+ for immersion apparatus for coating materials.
- 94** This subclass is indented under subclass 90. Apparatus wherein the means applies the coating material to a work conveyor, a re-shaping means or other apparatus acting on work subsequent to a shaping means.
- 95** This subclass is indented under subclass 90. Apparatus wherein the applicator means is secured to or contained within a male type shape imparting member.
- 96** This subclass is indented under subclass 90. Apparatus wherein the means applies a coating material to (1) a shape imparting surface or (2) between a shape imparting surface and material being shaped by said surface.
- (1) Note. Included under this definition of shape imparting surface is a dough divider trap chamber.
- 97** This subclass is indented under subclass 96. Apparatus wherein the means introduces the coating or parting material into an extrusion head or nozzle.
- 98** This subclass is indented under subclass 96. Apparatus wherein the means applies the material to a shape imparting cavity.
- 99** This subclass is indented under subclass 98. Apparatus comprising mold means mounted (1) for movement in an endless path or (2) on a moving carrier.
- 100** This subclass is indented under subclass 99. Apparatus wherein the means comprises a sprayer or a conveyor in which the coating material is carried in a current of air or other gas.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 103, for a similar type applicator used with an upstream material handler.
- SEE OR SEARCH CLASS:  
 406, Conveyors: Fluid Current, appropriate subclasses for fluid current conveyors in general.
- 101** This subclass is indented under subclass 96. Apparatus in which the shaping means comprises at least one body with a continuous shaping surface.
- 102** This subclass is indented under subclass 90. Apparatus comprising means to apply coating material to work manipulating means (e.g., conveyor means, charging means or support means, etc.), prior to contact with the shaping surface.
- 103** This subclass is indented under subclass 102. Apparatus wherein the means comprises a sprayer or a conveyor in which the material is carried in a current of air or other gas.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 100, for the same type applicator used with orbital or conveyor mounted molds.
- 104** This subclass is indented under subclass 90. Apparatus comprising means for applying the coating to the product subsequent to the shaping operation.
- 105** This subclass is indented under subclass 104. Apparatus comprising means for applying the coating in a desired configuration, i.e., striping or a definite pattern.
- (1) Note. Apparatus using means having merely a roughened or other special configured surface, to cut, emboss, score or otherwise indent a product, are excluded.

Such devices are classified in appropriate subclass set forth below.

SEE OR SEARCH CLASS:

- 101, Printing, appropriate subclasses for printing devices.  
118, Coating Apparatus, subclass 211 for coating apparatus, per se.

**106** This subclass is indented under subclass 104. Apparatus comprising reshaping or cutting means positioned downstream of the coating means.

- (1) Note. For the definition of the term reshaping see subclass 383.

**107** This subclass is indented under the class definition. Apparatus which include means for applying anti-friction material to cooperating, contacting, apparatus parts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 90+, for devices including means to apply a coating to a work contacting surface of the device.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclass 170, for glass working apparatus with lubricating.  
164, Metal Founding, subclass 149 for means lubricating cooperating parts of metal founding apparatus.  
184, Lubrication, for apparatus lubricating means, per se.

**108** This subclass is indented under the class definition. Apparatus comprising means to shape fluent material against the juxtaposed terminal portions of tubular or rod-like preforms to unite the preforms.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 383+, especially 392+ for vulcanizing or curing spliced joints while confining in a mold.  
445, for devices for supporting spliced joints and curing.

SEE OR SEARCH CLASS:

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 423 and 502+ for means laminating indefinite length preforms end to end.  
249, Static Molds, subclasses 89+ for static molds for uniting pipes and rod-like materials with a molding material.

**110** This subclass is indented under the class definition. Apparatus comprising means for imparting shape to fluent or bulk moldable material and means especially adapted to position, transport, hold, or in any way handle a preform in such a manner that the preform and the fluent or bulk material will become united to form a composite product.

- (1) Note. To be included herein a portion of the fluent or bulk material which initially contacts the preform during the uniting must be in a moldable, plastic or unsolidified state or condition.  
(2) Note. To be included herein the preform must constitute a desired part of the final product. Shaping elements, (e.g., cores, mold parts, pie pans, etc.) which may remain temporarily with the molded product are not included herein but are placed in appropriate subclasses below.  
(3) Note. For the general definition of the term "bulk stock" see the glossary. Within the scope of this and indented subclasses, however, are rubber charges, e.g., shoe soles and heels, etc., which are confined within a vulcanizing mold and take as their final shape the shape of the mold.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 90+, for means forming a composite by molding and coating.  
269+, for a dipping type shaping means where the object is formed on a shaping mandrel from which it is stripped prior to use.  
383+, for a preform reshaping means wherein the product may be a composite formed from plural preforms.

- 500+, for a combination of means to bring preforms into assembled relation in combination with means to bond them together in means which causes a preform reshaping
- SEE OR SEARCH CLASS:
- 99, Foods and Beverages: Apparatus, subclasses 450.1+ for apparatus for making a laminated edible product by assemble or preforms, especially subclass 450.2 for such apparatus combined with means for shaping or reshaping plural sheets or webs.
- 118, Coating Apparatus, appropriate subclasses for means coating a preform. For the line between Class 118 and this class see the class definition of Class 425.
- 164, Metal Founding, subclasses 332+ for metal founding apparatus including means to hold or position a preform in a shaping area to make a composite product.
- 249, Static Molds, subclasses 83+ for a static mold means for uniting a preform with the material being cast.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 241+ for processes of uniting a preform with fluent material in a molding operation to form a composite product.
- 111** This subclass is indented under subclass 110. Apparatus comprising means to exert or maintain sufficient force on a preform to hold it under a tensile stress below its elastic limit during the molding operation.
- (1) Note. Merely holding a preform taut is not considered placing under stress.
- SEE OR SEARCH CLASS:
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 160+ and 494+ for processes and apparatus for laminating a preform while in a stressed condition.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 228 and 229 for processes of stressing a preform and uniting by a molding operation.
- 112** This subclass is indented under subclass 110. Apparatus which includes (1) Means to either form or shape the preform from bulk or fluent material or (2) means to reshape the preform.
- (1) Note. The preform may be reshaped either before, during, or after the composite formation.
- 113** This subclass is indented under subclass 110. Apparatus in which the fluent or bulk material shaping means comprises means defining a shaping orifice and means forcing the fluent or bulk material therethrough.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 376.1+, for extrusion forming apparatus, per se.
- 461+, for an extrusion nozzle, per se, and see the collection of search notes thereunder relating to combinations inclusive thereof.
- 114** This subclass is indented under subclass 113. Apparatus comprising (1) preform support or feed means adapted to support or feed at least two preforms or (2) at least two separate means to feed or support preforms.
- 115** This subclass is indented under subclass 110. Apparatus wherein the means shaping the fluent material comprises at least one endless shaping surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 363+, for endless type press shaping, reshaping or vulcanizing means.
- 471, for an endless shaping surface, per se.
- 116** This subclass is indented under subclass 110. Apparatus in which the means imparting shape to the fluent or bulk material comprises a mold cavity in each of at least two members, each cavity having an open side so that when the members cooperate in face-to-face engagement, the open sides match and a complete female mold is formed to impart shape to the fluent material.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
233+, for sets of press couples comprising registering coacting female molds.  
408, for a press forming means with opposed coacting recessed mold cavities.
- 117** This subclass is indented under subclass 110. Apparatus comprising at least one walled cavity which acts to confine the fluent material and impart its shape thereto.
- (1) Note. Where the sole confining means is the preform body which becomes part of the united product the patent is classified in subclass 110.
- 118** This subclass is indented under subclass 117. Apparatus comprising a hand operated shaping surface which supports an edible receiver and is adapted to remove a portion of material from a bulk source and thereby shape the portion of material removed.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
221, for ice cream scoops and pluggers having blade type excess removal or smoothing means.  
276+, for ice cream scoops and plugger, per se.
- 119** This subclass is indented under subclass 117. Apparatus including a preform support having the same general shape as the interior of a boot or shoe.
- SEE OR SEARCH CLASS:  
12, Boot and Shoe Making, subclasses 128+, for shoe forms, per se. See the search notes to Class 12 under class definition of Class 425.
- 120** This subclass is indented under subclass 117. Apparatus comprising at least two means to feed fluent material to the cavity.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
130+, for means forming a composite from plural diverse fluent materials.
- 121** This subclass is indented under subclass 117. Apparatus comprising (1) plural cavities in spaced relation and (2) means to feed or support a single preform to or at both cavities.
- 122** This subclass is indented under subclass 117. Apparatus in which the preform is of indefinite or indeterminate length and there is means to advance the preform to the cavity.
- (1) Note. The product formed need not be of indefinite length.
- 123** This subclass is indented under subclass 117. Apparatus comprising means for supporting at least two preforms in spaced relation in or at a single cavity.
- 124** This subclass is indented under subclass 123. Apparatus wherein the preforms are flat thin ring members or perforated plates.
- 125** This subclass is indented under subclass 117. Apparatus comprising means to move either the cavity or support for the preform in a vertical direction.
- 126.1 Means to convey preform to female mold:**  
This subclass is indented under subclass 117. Apparatus comprising means to move the preform to or deposit the preform at the cavity.
- SEE OR SEARCH CLASS:  
164, Metal Founding, subclass 419 for continuous or semi-continuous metal casting means with means to convey a preformed product part to a mold.
- 126.2 Stick inserter:**  
This subclass is indented under subclass 126.1. Apparatus comprising a means for inserting a stick preform into the fluent or bulk material.
- 127** This subclass is indented under subclass 117. Apparatus wherein the preform serves as either a pressing or a press reaction surface and cooperates with the walls of the cavity to shape the fluent or bulk stack.
- (1) Note. Devices wherein the entire female mold is made up of preform stock which remains with the product are classified in subclass 110.

- 128** This subclass is indented under subclass 117. Apparatus on which the cavity is formed by opposed coating shaping surfaces which exert compressive force on fluent material to impart a desired configuration thereto.
- 129.1 Means to charge fluent stock under pressure:**  
This subclass is indented under subclass 117. Apparatus comprising means to dispense fluent stock material under pressure to the cavity.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
542+, for a female mold with means to charge fluent stock under pressure thereto.
- 129.2 Shoe or boot:**  
This subclass is indented under subclass 129.1. Apparatus wherein a shoe or boot is formed.
- 130** This subclass is indented under the class definition. Apparatus comprising plural means delivering diverse fluent stock to a common shaping means to form a composite product.
- (1) Note. To be included herein the delivering means must include more than mere inlets to the shaping surface or mere conduits to which a single feed source may be attached.
- (2) Note. A homogeneous mixture of materials, e.g., concrete, aggregate, and water is not considered a composite.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
90+, for molding combined with a coating step.  
110+, for forming fluent material and uniting with a preform.
- SEE OR SEARCH CLASS:  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 241+ for processes of forming a composite product.
- 131.1** This subclass is indented under subclass 130. Apparatus wherein the shaping means is an orifice.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
113+, for extrusion shaping means combined with preform handling means forming a composite article; see the search notes thereunder.  
461+, for an extrusion nozzle, per se, and see the collection of search notes thereunder relating to greater combinations thereof.
- SEE OR SEARCH CLASS:  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 171.1+ for processes of forming a composite product by extrusion.
- 131.5** This subclass is indented under subclass 131.1. Apparatus wherein the orifice is particularly adapted to the formation of fiber(s).
- SEE OR SEARCH CLASS:  
19, Textiles: Fiber Preparation, for treatment of fiber subsequent to formation thereof.
- 132** This subclass is indented under subclass 131.1. Apparatus comprising means to periodically interrupt and reestablish the feed of at least one of the fluent materials.
- 133.1** This subclass is indented under subclass 131.1. Apparatus comprising plural coaxial circular shaping outlets.
- 133.5** This subclass is indented under subclass 131.1. Apparatus wherein the orifice is particularly adapted to the formation of a planar "film".
- (1) Note. In the patents of this subclass, the specification either sets forth that the extruded product is a film or sets forth that the extruded product is extremely thin; i.e., less than about 0.050 inch (or 1.25 mm.) thick.
- 134** This subclass is indented under subclass 130. Apparatus wherein the shaping means includes a female mold and means to move the mold to or away from a shaping station.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

90, for a shaping or reshaping means combined with a Class 15, Brushing, Scrubbing, and General Cleaning, or Class 118, Coating Apparatus, coating apparatus which applies a coating of diverse material (e.g., a parting material, etc.) to a work press or work contacting means, especially subclasses 104+ for such a means for applying a coating to a preform after removal from a shaping means.

**135** This subclass is indented under the class definition. Apparatus comprising (1) means to sense a condition which may or may not occur, a change in such condition, a lack of such condition, or a result of such condition, and a separate control means for an apparatus part, the sensing means causing or permitting operation of the separate control means without the intervention of a human attendant, or (2) means to control, actuate or initiate an element of the apparatus in proper relationship to the presentation of shaping surfaces or material to shaped.

(1) Note. Control means which merely insure continuous or synchronous operation of a machine or part thereof without detecting a variable relationship are not here but are provided for in appropriate subclasses below on other features.

(2) Note. Spring mounted or biased molding or pressing elements which yield after a given amount of force is applied are not considered to be control means for this subclass and are classified in appropriate subclasses below; see especially subclasses 151+ and 406+. Valves which are spring biased and designed to regulate flow of molding material by yielding to pressure are included herein, see especially subclasses 145+. Spring biased valves as part of a hydraulic system for operating a mold system are not here unless part of a control system responsive to a sensing or detecting means.

(3) Note. To be included under (2) of the definition it is necessary that the molds or work pieces be presented in a purely random manner and not spaced or positioned according to a law of the machine.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

29, for reshaping, resizing or vulcanizing means for tires, tire-tubes or belts in combination with control means responsive to means sensing a condition.

151+, for safety features, e.g., pop off valves, spring release mechanisms, etc.

155+, for control means responsive to an independently operated timer.

162+, for electrical control systems.

SEE OR SEARCH CLASS:

73, Measuring and Testing, appropriate subclasses for sensing means, per se, or such means combined with measuring or testing means; see the collection of search notes in that class definition.

164, Metal Founding, subclasses 154.1+ for metal founding apparatus including control means responsive to or actuated by means sensing a condition or variable.

700, Data Processing: Generic Control Systems or Specific Applications, subclasses 1 through 89 for data processing control systems wherein the control system is claimed generically, and subclasses 197-205 and subclass 206 for the application of a computer in the manufacturing of a product which includes molding or pressing.

**136** This subclass is indented under subclass 135. Apparatus including both (1) means to sense an abnormal or unsafe condition and (2) means to stop operation of a machine due to said condition.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

151+, for safety features not involving automatic control.

- 137** This subclass is indented under subclass 136. Apparatus wherein the sensing means detects the presence of residual molding material, left in the molding cavity, from a previous molding operation.
- 138** This subclass is indented under subclass 136. Apparatus wherein the sensing means detects an improper relationship between the mold and a diverse part of the molding device or between the mold components.
- 139** This subclass is indented under subclass 135. Apparatus wherein the control means operates means to remove or release a formed article from a shaping means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
436, for molding surfaces with ejector or stripper mechanism and see search notes thereto.
- 140** This subclass is indented under subclass 135. Apparatus wherein the control means is responsive to the sensed mass or size of the product.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
148, for means responsive to weight of feed material to control passages of the feed material toward the shaping surface.
- SEE OR SEARCH CLASS:  
83, Cutting, subclass 77 for cutting means in combination with means to weight the product.  
177, Weighing Scales, subclasses 60+ for a weigher responsive to material control including a nominal combination with a Class 425 shaping means, which is recited by name only.  
222, Dispensing, subclass 55 for automatic control of a dispenser by weight of material dispensed.
- 141** This subclass is indented under subclass 140. Apparatus wherein the control means is responsive to distance between opposed surfaces of the product.
- 142** This subclass is indented under subclass 135. Apparatus wherein the means controlled is a severing element.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
289+, for molding and cutting, per se.
- 143** This subclass is indented under subclass 135. Apparatus wherein the means controlled comprises a temperature regulating means.
- 144** This subclass is indented under subclass 143. Apparatus wherein the temperature regulating means controls the temperature of fluent molding material flowing toward a shaping or discharging orifice, or of a shaping cavity.
- 145** This subclass is indented under subclass 135. Apparatus in which the means controlled regulates the flowing or conveying of molding material to a shaping area.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
447+, for forming surfaces and means feeding fluent stock thereto; see search notes thereto.
- 146** This subclass is indented under subclass 145. Apparatus which regulates or controls the flow of molding material by the force exerted by the material upon a closure or upon the actuating means for a closure.
- SEE OR SEARCH CLASS:  
137, Fluid Handling, subclasses 455+ for a valve, per se, responsive to the change in condition of a flow line.  
251, Valves and Valve Actuation, subclasses 12+ for valves which are fluid actuated or retarded, but not by the fluid controlled.
- 147** This subclass is indented under subclass 145. Apparatus which controls or regulates the flow of molding material in response to a predetermined level of molding material in a receptacle or mold.

- 148** This subclass is indented under subclass 145. Apparatus wherein the control means is responsive to the weight of the molding material.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
140, for control means responsive to product weight.
- 149** This subclass is indented under subclass 135. Apparatus comprising means responsive to the force applied to material during shaping for regulating, controlling or adjusting the pressure applying means.
- 150** This subclass is indented under subclass 135. Apparatus wherein the means controlled regulates the movement of a mold or its component parts.
- 151** This subclass is indented under the class definition. Apparatus including means adapted to stop, prevent, or modify the operation of a machine, or relieve a condition when an unguarded, abnormal or unsafe situation which would injure the operator or the machine occurs.
- (1) Note. Designing to prevent undue wear, breakage, leakage, dirt accumulation, etc., during normal operation, are not included herein but found in appropriate subclasses below. Safety valves are included herein, see especially subclass 153.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
135+, especially 136+ for means to completely stop operation of the machine in response to a means sensing an abnormal condition.
- SEE OR SEARCH CLASS:  
100, Presses, subclasses 341 through 352 for a press having a safety control system.  
164, Metal Founding, subclasses 152+ for safety control means in metal founding apparatus.
- 192, Clutches and Power-Stop Control, subclasses 129+ for a safety device (e.g., hand protector, etc.) comprising a stop mechanism.
- 152** This subclass is indented under subclass 151. Apparatus comprising (1) two or more starting switches, wherein both switches must be depressed in order to actuate the devices or (2) means preventing motion of a mold element until a protective means is in the proper position.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
161, for devices having interlocked diverse function elements not for safety purposes.
- SEE OR SEARCH CLASS:  
100, Presses, subclasses 343 through 344 for a press having a safety control system requiring the use of two input triggers.
- 153** This subclass is indented under subclass 151. Apparatus comprising (1) an auxiliary means to hold an element in a given position upon failure of a primary holding means or (2) means to release excessive gaseous pressure.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
812, for a digest collection of venting means, per se.
- 154** This subclass is indented under subclass 151. Apparatus including means to modify the operation of a molding machine due to (1) the presence of extraneous matter or (2) an overloaded condition.
- (1) Note. Included within the scope of this subclass are shear pins.
- 155** This subclass is indented under the class definition. Apparatus having a time period limiting means operating independently of the apparatus drive means, which time limiting means causes a change in the operation of the apparatus at the end of the selected time period.
- (1) Note. Mere cyclical or synchronous operation of complex apparatus is

excluded under this definition. The timing means must be independent to the extent, for example, that a change in apparatus drive speed will not change the period measured by the timing means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

30, for tire, tire tube, or drive belt reshaping, resizing or vulcanizing means in combination with a independently actuated timer control means.

SEE OR SEARCH CLASS:

164, Metal Founding, subclass 157 for metal founding apparatus with control means responsive to an independent timing means.

**156** This subclass is indented under subclass 155. Apparatus in which the time period limited is that during which the forming means is closed or during which a pressure is maintained on the forming means, for shaping of the article.

(1) Note. In this subclass will be found, for example, devices having timers to limit the period during which an injection mold is closed while material is injected under pressure to be formed therein.

**157** This subclass is indented under subclass 156. Apparatus in which the time period limited is that between the application of pressure on the molding material by opposed pressure surfaces and the release of the pressure for removal of the product.

**158** This subclass is indented under subclass 157. Apparatus which includes additional time period limiting means for timing the period during which the molding material is heated prior to introduction into the pressing means.

**159** This subclass is indented under subclass 155. Apparatus in which the time period limited is that during which the molding material is introduced into the mold.

**160** This subclass is indented under subclass 155. Apparatus in which the time period limited is that during which heating or cooling occurs.

**161** This subclass is indented under the class definition. Apparatus which includes an element or arrangement of elements associated with a first part of a molding device and designed to prohibit or restrain a different part of the device from functioning until the first part has operated to release the restraining means.

**162** This subclass is indented under the class definition. Apparatus including an electrical control or power means for at least a part of the molding apparatus comprising more than just a single electrical power means or a single switch.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

135+, for automatically controlled devices which may include electrical control means.

151+, for electrical controls which protect the machine or operator against injury.

155+, where the electrical control means includes independent electrical timing means, e.g., an electric clock or time-delay relay.

**163** This subclass is indented under subclass 162. Apparatus in which the operations controlled include either (1) two or more independent different shaping operations, or (2) two or more spaced similar shaping operations performed by different work-forming means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

324.1+, for diverse shaping means not having an electrical control.

340+, for plural reshaping means not having an electrical control.

**164** This subclass is indented under subclass 162. Apparatus in which the electrical means controls a severing or cutting of an article from a formed body.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

142, for controls for severing by means responsive to a condition or variable, which means may be electrical in nature.

289+, for forming plus cutting, per se.

- 165** This subclass is indented under subclass 162. Apparatus which includes electrical means regulating the separation or evacuation of the molded article from the molding surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
139, where the removal of the product is controlled by automatic means responsive to a variable, which means may be electrical in nature.
- 166** This subclass is indented under subclass 162. Apparatus in which electrical means regulates the periodic feed of fluent material to the shaping area.
- 167** This subclass is indented under subclass 162. Apparatus in which electrical means regulates the movement of a press platen or ram into or out of pressing engagement with the molding material.
- (1) Note. Included under this definition, for example, are multiple pressing contacts of varying force on a mold charge, and repeated pressing contacts with addition of incremental charges between strokes to ultimately form a single product.
- 168** This subclass is indented under the class definition. Apparatus comprising means for (1) changing the relative time or speed of operation of a moving element with respect to the time or speed of operation of a cooperating interdependent moving element or (2) modifying or adjusting the apparatus to maintain a desired operation despite wear.
- (1) Note. The replacement of worn parts are not included herein but may be found in subclasses 182+.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
135+, where the means adjusting synchronization or compensating for wear responds automatically to varying conditions.
- 169** This subclass is indented under the class definition. Apparatus comprising means especially designed to enable an operator to (1) determine the occurrence or extent of a variation in an operating condition or (2) observe or determine the location or condition of an element or material by direct observation.
- (1) Note. Included in this and indented subclasses are, for example, meters, thermometers, warning signals, means permitting or aiding observation or normally concealed parts of objects, graduated marking on machine parts, means determining properties of the work either before or after shaping, etc.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
135+, for control means responsive to means sensing or detecting a condition.  
151+, for safety control means.  
155+, for control means responsive to a timer.  
162+, for electrical control system.
- SEE OR SEARCH CLASS:  
116, Signals and Indicators, appropriate subclasses for mechanical devices for signalling in the nature of indicating or warning means. Class 116 does not provide for conventional signal or alarm devices combined with art devices where the latter structure is specifically claimed or is materially modified in order to cooperate with the conventional alarm or signal. See the collection of search notes in the class definition of Class 116.  
164, Metal Founding, subclasses 150.1+ for a signal, indicator or inspection means combined with metal founding apparatus.  
340, Communications: Electrical, appropriate subclasses for electrical signalling means, per se.
- 170** This subclass is indented under subclass 169. Apparatus comprising means to determine or record the temperature or amount of pressure employed during the forming operation.
- 171** This subclass is indented under subclass 169. Apparatus wherein the position of an adjustable part of a shaping or molding machine is determined, observed or recorded.

- 172** This subclass is indented under subclass 171. Apparatus wherein the adjustable machine element regulates the size of the product to be formed.
- 173** This subclass is indented under subclass 169. Apparatus comprising means which permits or facilitates visual inspection by an operator of the apparatus, the material or the product.
- 174** This subclass is indented under the class definition. Apparatus including means subjecting work to the influence of electrical, wave, or radiant energy by (1) means passing such energy through the work, (2) means establishing an energy field and positioning work therein or (3) means directing such energy against the work.
- (1) Note. To be included herein under part (3) of the definition the type of radiant or wave energy employed must be specified either by wave length or specific type, e.g., sonic ultra violet, corona discharge, etc. Generic terms such as heat, light, wave, etc., are not considered specified types within the scope of this subclass.
- (2) Note. In all cases, the energy form employed must be applied directly to the work. Means converting energy into heat, for example, then applying the heat to the work is not included herein but found in appropriate subclasses below.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 3, for means involving the direct application of a magnetic force to work or shape imparting member.
- SEE OR SEARCH CLASS:
- 72, Metal Deforming, subclasses 54+, for process and apparatus for deforming metal by application of an energy field, especially subclass 56, wherein kinetic energy of a field is used to deform work.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 272.2+ and 380.2+, for processes and apparatus, respectively, for bonding laminae with the application of electrical or radiant energy to the work.
- 249, Static Molds, subclass 78, for a static mold having electric heating means.
- 250, Radiant Energy, subclasses 492.1+ for irradiation of plastics to cause physical changes in the plastic, subclass 495.1 for ray generators combined with means for generating heat or infrared rays.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 405+, for related processes of applying energy while shaping a material.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 186+ for apparatus affecting chemical change by means applying electromagnetic wave energy or corpuscular radiation to reactants for initiating or perfecting chemical reaction.
- 174.2** This subclass is indented under subclass 174. Apparatus wherein the wave energy is specified or identifiable (e.g., by a transducer or vibrator generating waves at a corresponding characteristic frequency or wave length) as being in the sonic (usually above 10 cycles per second) or supersonic range.
- SEE OR SEARCH CLASS:
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 73.1+ for processes of bonding laminae with the application of sonic or ultrasonic energy to the work.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 442 for analogous processes.
- 174.4** This subclass is indented under subclass 174. Apparatus wherein electrical energy rays which influence the work are emitted or transmitted by continuous or intermittent radiation or in the form of energy pulses.
- (1) Note. Included herein is energy specified as infrared, ultraviolet, X-ray, electron, or ion bombardment, etc.

- SEE OR SEARCH CLASS:  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 405+ for similar processes to effect heating of the work.
- 174.6** This subclass is indented under subclass 174. Apparatus wherein electrical energy is passed through the work, i.e., the work constitutes a portion of an electric circuit.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 273.9+ for processes of bonding laminae wherein a portion of the work is a conductor which is to be used as a component of an electric circuit to which an electric current is to be directly applied.  
264, Plastic or Nonmetallic Article Shaping or Treating: Processes, subclasses 405+ for similar processes to effect heating of the work.
- 174.8** This subclass is indented under subclass 174. Apparatus wherein the work is subjected to the influence of an electrical energy field specified or identifiable as of the electrostatic or inductive type.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 273.1 for processes of bonding laminae is electrostatically charged in order to enhance the formation of a permanent bond in the work.  
264, Plastic or Nonmetallic Article Shaping or Treating: Processes, subclasses 405+ for similar processes to effect heating of the work.
- 175** This subclass is indented under the class definition. Apparatus comprising (1) means for forming a mold or shaping surface by utilizing molding means within the scope of this class or (2) any means manufacturing (e.g., laminating, metal casting, etc.) a shaping surface followed by means utilizing the shaping means for performing an operation of this class.
- (1) Note. Flasks, per se, for forming molds for use in this class are considered mold forming means and included herein.
- (2) Note. Mere assembly of parts to bring them together to form a mold is not considered to be manufacturing under this definition. Such devices will be found in subclasses 436+ and 450.1.
- SEE OR SEARCH CLASS:  
164, Metal Founding, subclasses 159+ for apparatus for making molds from sands, plastics or other materials wherein the molds are used for metal founding.  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 219+ for a process including a step of making a mold.  
427, Coating Processes, subclasses 133+ for processes of coating a mold.  
433, Dentistry, subclasses 34+ for means for making dental molds.
- 176** This subclass is indented under subclass 175. Apparatus including means to remove the formed product from the material comprising the mold.
- (1) Note. Included here are sieves to separate molded products from mold forming material which material in many instances is starch or sand.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
197+, for molding means with screens or perforators when said molding means is not a mold forming means.
- 177** This subclass is indented under subclass 175. Apparatus in which the means forming the mold or shaping surface comprises means applying pressure to the mold forming material.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
327, 328, 335+, 352+, 357+, 363+, and 406+, for similar structure in which pressure is applied to form an article instead of a mold.

- 178** This subclass is indented under subclass 175. Apparatus including (1) a container for mold forming material and a rod or ram type feeder to supply molding material thereto or (2) means to remove, eject, or facilitate removal of a mold from a container which confines the mold forming material.
- 179** This subclass is indented under subclass 175. Apparatus wherein fastening means to secure in assembled relationship the sections of the container confining the mold forming material are integral with the container.
- (1) Note. Holes or openings through which fastening means (e.g., bolts, pins, etc.) may be inserted are not considered fastening means within the scope of this subclass.
- 180** This subclass is indented under subclass 175. Apparatus wherein the internal walls of a container confining the mold forming material are made up of at least three parts.
- 181** This subclass is indented under the class definition. Apparatus in which the apparatus may be changed to one in which a diverse shaping operation is effected or in which a nonshaping operation is performed by, disassembling and reassembling or by adding or omitting parts.
- (1) Note. This subclass includes, for example, means converting an injection molding machine to an extrusion machine or means converting a three-roll sheeting press to a two-roll gauging or finishing press. Combinations of diverse function apparatus with selective features which allow an operator to cause intentionally, a member of the combination to remain idle (ineffective) are provided for below in subclasses 182+, not here.
- (2) Note. Mere substitution of a die of a different size or shape (e.g., configuration of a shaping orifice) is not convertible unless the over-all function of the device is also changed.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclasses 560+ for convertible metal working machines.
- 65, Glass Manufacturing, subclass 167 for convertible glass manufacturing apparatus.
- 182** This subclass is indented under the class definition. Apparatus comprising (1) at least a portion thereof equipped with specific means (other than parts making up a shaping surface and means for associating them for a normal working cycle) to aid in assembly or disassembly of the apparatus for repair, cleaning, "set-up", "knockdown", etc., (2) a plurality of parts such as shaping members (e.g., material working means, etc.) having a community feature (e.g., a common handle or support to provide a compound implement or the like), which feature will allow an operator, at his discretion, to select parts to be used and those to remain idle even though by changing the law of a machine, or (3) selectively useable identical wear parts (e.g., opposite duplicate surfaces of a reversible unitary part).
- (1) Note. Excluded from this and indented subclasses are means for opening and closing a mold or means for disassembling a component part of a device if such disassembly is essential to carry out each mold cycle of the device.
- (2) Note. Means to feed separable, distinct shaping means from a reservoir thereof into and out of an operational cycle are included, except for the "pallet" type which is provided for below in subclass 254.
- (3) Note. Plural shaping couples (either diverse or same) which are normally operated, simultaneously or sequentially in a cycle controlled by the law of a machine are classified below under appropriate first-line subclasses, e.g., see subclasses 357+ for plural female molds cooperating with a single press-shaping members.
- (4) Note. Excluded from this and indented subclasses are patents with claims broadly reciting elements which are constructed as to be "detachably mounted"; specifically claimed means to allow assembly or disassembly of the apparatus or elements thereof are required for

patents to be properly classified within this subclass.

- (5) Note. This subclass includes, for example, under part (2) of the definition, supra, means converting a three-roll sheet forming press to a two-roll finishing or gauging press, an extrusion device including a plate with plural, variegated extrusion die orifices which are selectively engageable with the extrusion feed means, and reversible wear elements.
- (6) Note. Excluded under this definition is a device having means to merely facilitate adjustment of parts thereof. Such a device may be found in the subclass involving the member made adjustable (e.g., see subclass 367 for means to adjust the relative position of a roll).

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 48, for inserter, releaser or remover means for inflatable bags or cores in tire or tube making apparatus.
- 110+, for composite article forming means comprising means to support or manipulate preform stock in conjunction with means for shaping fluent stock to form a composite product.
- 168, for means adjusting the machine to compensate for wear or to maintain synchronism of coacting moving parts.
- 253+, for the combination of pallet handling means, a female mold and mold charging means.
- 263+, for a pottery wheel type support and work traversing profile tool combination, especially subclass 265 wherein profile tools of diverse configuration are operated in a given sequence to produce a given article.
- 367, for endless surface type forming means with means to adjust positions thereof.
- 376.1+, for means pressuring stock through shaping orifices with movably mounted inner mandrels and flow controllers.

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, subclass 105.5 for a compound tool including a mortar-joint finishing implement.
- 65, Glass Manufacturing, subclass 171 for glass working apparatus including repair, assembly or disassembly means.
- 137, Fluid Handling, subclasses 315.01 through 329.4 for fluid handling systems with repair, tapping, or assembly means.
- 164, Metal Founding, subclasses 339+ for means to assemble molding apparatus of that class; see the search notes thereunder to other areas of Class 164.
- 249, Static Molds, appropriate subclasses for means permitting, but not positively performing, the assembly or disassembly of static molds.

**183** This subclass is indented under subclass 182. Apparatus which includes a plurality of parts so associated with the apparatus that a choice of one or more is necessary for use in any given operation.

- (1) Note. The plural parts may be for example (1) two wear or shaping surfaces on a part, alternatively useable by reversing the part or (2) a plate having plural extrusion orifices, any one of which may be selectively chosen to be engaged with the extrusion machine material feed.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclass 173 for glass manufacture apparatus with apparatus assembly means which provides for a choice of alternately used parts.
- 137, Fluid Handling, subclasses 329+ for fluid handling apparatus including means providing a choice of use of alternate wear parts; see the search notes thereunder.

**184** This subclass is indented under subclass 182. Apparatus comprising a shaping surface and a severing device arranged such that either may be used in lieu of the other.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
182, for a compound tool comprising plural shaping means mounted on a common handle for alternative use.
- SEE OR SEARCH CLASS:  
7, Compound Tools, appropriate subclasses for a compound tool of general application especially subclass 111 for a combined or convertible rolling pin and 158+ for a cutter combined with other tools on implements; see the search notes therein.
- 185** This subclass is indented under subclass 182. Apparatus wherein means are provided to allow interchange or removal of an element of an apparatus during normal operation of the apparatus without interfering with or interrupting such operation.
- 186** This subclass is indented under subclass 182. Apparatus comprising (1) a means to sustain, hold or retain a part or element in its disassembled state or (2) means to align or direct a part or element while being assembled or disassembled.
- 187** This subclass is indented under subclass 182. Apparatus in which the device involved is designed to excavate material from a bulk source with simultaneous shaping.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
276+, for excavating and shaping apparatus without assembly or dismantling means.
- 188** This subclass is indented under subclass 182. Apparatus wherein two parts or sections of an apparatus are pivotally joined or hingedly connected whereby opening of such parts or sections permits removal of an element of the apparatus enclosed by said sections.
- 189** This subclass is indented under subclass 182. Apparatus which includes means specifically designed to be grasped by the hand to aid in assembling or dismantling.
- 190** This subclass is indented under subclass 182. Apparatus wherein the dismantling means or the idle part is a part of an extrusion or injection type shaping means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
461+, for an extrusion nozzle, per se, and see the collection of search notes thereunder.  
542+, for injection molding devices and see the search notes thereunder.
- 191** This subclass is indented under subclass 190. Apparatus comprising an extrusion die attached to a holding means by threads or by a threaded casing.
- 192** This subclass is indented under subclass 190. Apparatus comprising a plurality of members capable of being separated one from another and means to fasten the members to each other.
- 193** This subclass is indented under subclass 182. Apparatus in which the shaping apparatus comprises a pressure imparting shaping surface.
- 194** This subclass is indented under subclass 193. Apparatus in which the shaping comprises all or part of a roll, or a roll surface portion in a roll pressing machine.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
363+, for molding devices including an endless shaping surface.
- 195** This subclass is indented under subclass 193. Apparatus in which the shaping apparatus comprises a container type shaping member.
- (1) Note. Excluded from this subclass are patents in which the walls of a mold cavity are moveable relative to one another in order to facilitate product removal or as a necessary step to complete each molding cycle. Such patents are classified in appropriate subclasses below, see especially subclasses 412+.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
412+, for press forming devices including a male shaping member and a female mold.
- 196** This subclass is indented under subclass 182. Apparatus wherein the means being dismantled or the idle part consists of either a severing means or means for removing a product from a surface by a scraping-type operation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
289+, for molding plus cutting, severing, or scoring without the assembly-disassembly feature.
- 197** This subclass is indented under the class definition. Apparatus comprising a screen means or perforated plate to separate, filter or cause mixing, homogenization or agitation of material to be shaped.
- (1) Note. Perforated sleeves are considered “plate type” and are classified within this subclass.
- (2) Note. Agitators, mixers, homogenizers or separators which are grooved and depend on cooperating surfaces to form a closure (thereby appearing as perforated) are not considered to be within the scope of this subclass.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
84, for an absorbent or foraminous means to remove a liquid during the molding operation.  
176, for screens and perforated devices in combination with mold forming means.
- 198** This subclass is indented under subclass 197. Apparatus wherein the screen or perforated plate type separator is located upstream of a multi-orificed die in an extrusion type shaping apparatus.
- 199** This subclass is indented under subclass 197. Apparatus comprising a plurality of filter or perforated plates.
- (1) Note. Screens or perforated members in combination or in abutting relationship are found within this subclass.
- 200** This subclass is indented under the class definition. Apparatus including means ahead of a former for agitation, mixing, blending or kneading material to be shaped.
- (1) Note. Disclosure of apparatus for kneading of the material simultaneously with shaping into the desired shape, e.g., as in “balling” dough into loaves, are not included under this definition. However, where such apparatus is combined with separate shaping means, the patent is included herein, e.g., kneading means downstream or upstream of sheeting means.
- (2) Note. Milling means in combination with the shaping or extrusion means are included within the scope of “agitating or kneading means” and are classified within this subclass or appropriate indented subclass.
- SEE OR SEARCH CLASS:  
366, Agitating, subclass 70 for a mixer or kneader of the taffy puller type; subclasses 71-74 for roll type mixers and kneaders (e.g., rubber or clay mills), and subclasses 79+ for an auger type conveyor having structure to enhance mixing or kneading.
- 201** This subclass is indented under subclass 200. Apparatus wherein the agitating, mixing or kneading means are plural milling rolls adapted to work by forming, stripping and recycling of stock material.
- 202** This subclass is indented under subclass 200. Apparatus including means for dividing the material to be agitated or kneaded.
- (1) Note. This subclass does not include screw mills or barrel mills, per se; however, discharge assistants (e.g., screws or pistons) which by configuration or attachments include means to divide and agitate, mix, or knead are properly classified in this subclass.

- (2) Note. The cutting or comminuting elements must be in addition to the kneading or mixing members. That is, if the cutters are formed integral with the mixing members, they must be specifically provided for this function. A mixing or kneading member which inherently also comminutes is not included under this definition.
- 203** This subclass is indented under subclass 200. Apparatus wherein the mixing means is located in a section or area designed for gas withdrawal.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
4, for mechanical means to cause a gas to be entrained in the stock material.
- 204** This subclass is indented under subclass 200. Apparatus in which there are a plurality of mixing or kneading means, at least two of which differ in type, one from the other, or are positioned one within the other or the mixing elements of one interengage or interdigitate with those of the other.
- (1) Note. Included under this definition of “diverse” are two similar means operating on nonparallel axes.
- 205** This subclass is indented under subclass 200. Apparatus which includes plural enclosures or receptacles positioned such that the material to be shaped passes from one enclosure or receptacle to another en route to the shaping area, each receptacle or enclosure having a mixing or kneading means positioned therein.
- (1) Note. The receptacles or enclosures may be in the form of a unitary structure with partitions or baffles dividing the structure into plural chambers.
- 206** This subclass is indented under subclass 200. Apparatus comprising separate means to agitate, mix or knead plastic material on or within the forming or shaping means.
- (1) Note. Disclosure of apparatus for kneading of the material simultaneously with shaping into the desired shape, e.g., as in “balling” dough into loaves, are not included under this definition. However, where such apparatus is combined with separate shaping means, the patent is included herein, e.g., kneading means downstream or upstream of sheeting means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
431, for a device including a tamping rod to compact or densify the material in a mold.
- 207** This subclass is indented under subclass 200. Apparatus wherein the agitating or kneading means is within a receptacle or housing in which the pressure is increased.
- 208** This subclass is indented under subclass 207. Apparatus wherein the agitating or kneading means comprises a rotatable shaft and a vane attached thereto, which vane continuously rotates around the shaft while advancing axially along the shaft.
- (1) Note. The vane may be either continuous or discontinuous.
- (2) Note. Included under this definition is a feed screw or discharge assistant peculiarly constructed to agitate as it feeds.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
202, for an agitating or mixing means peculiarly constructed to also comminute or sever the material.  
376.1+, for a feed screw of similar type which only forces the material along.
- SEE OR SEARCH CLASS:  
366, Agitating, subclasses 79+ for mixing or kneading means comprising a modified screw helix.
- 209** This subclass is indented under subclass 200. Apparatus in which the agitating or kneading means comprises a member rotating about a horizontal axis.
- 210** This subclass is indented under the class definition. Apparatus including means to remove objectionable matter (e.g., dust, particulate

- material, vapor, etc.) from the atmosphere surrounding a molding device to thereby clean and purify said atmosphere.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 73+, for a molding apparatus or plant including a ventilating or drier-type hand or chamber encasing a material handler.
- 225+, for a molding machine or device combined with separate and distinct means to clean a part thereof.
- 211** This subclass is indented under the class definition. Apparatus including means to deaden or eliminate noise or audible vibrations resulting from operation of a molding device.
- SEE OR SEARCH CLASS:
- 181, Acoustics, subclasses 200+ for sound mufflers and filters of general application.
- 212** This subclass is indented under the class definition. Apparatus which includes a control means for an operation designed such that upon completion of a cycle of the operation the operation will stop and not resume until reset or restarted at which time it will operate through a cycle and stop again.
- 213** This subclass is indented under the class definition. Apparatus including means to support the weight of a workman.
- (1) Note. Included herein are for example scaffolds, walkways, seats, etc..
- 214** This subclass is indented under the class definition. Apparatus including means for retarding the motion of or stopping a moving element of the molding or shaping machine by friction, or by the internal resistance of a fluid or field or force.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 151+, for safety devices which may include a braking means.
- SEE OR SEARCH CLASS:
- 188, Brakes, appropriate subclasses for brake means, per se.
- 215** This subclass is indented under the class definition. Apparatus comprising the combination of means to shape fluent material (e.g., molten, plastic, particulate stock, etc.) or means to reshape a "green" preform (e.g., sheeted dough, etc.) and means to catch or collect an unusable or unused portion of the stock, which portion is not necessary to complete a product made by the shaping or reshaping means or is a reject "green" product.
- (1) Note. The gathering must be intentional and not merely inherent catching of undesirable matter associated with apparatus cleaning means (for which see subclass 225).
- (2) Note. A mechanical means (e.g., doctor blade, screed bar, etc.) spanning a work handler for the purpose of spreading and by its nature causing fluent material to build up behind and thereby maintaining a pool of fluent material behind said means is not considered a gatherer for the purposes of this class.
- (3) Note. Sprue of flash are considered excess or rejected stock within the scope of this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 176, for recycling starch material used as a mold forming material.
- 218+, for blade or screed bar type excess stock removal or smoothing means for female molds.
- 222, for a device in which material which is transiently deposited on the interior of a drum as in a tumbling type agglomerating means for shaping particulate material is removed.
- 223, for blade type harvesting means for an endless surface type press forming means or endless surface type casting drum wherein the blade is removing a shaped product.
- 225+, for means to gather or catch dirt, impurities or extraneous material removed by a cleaning operation.

- 216** This subclass is indented under subclass 215. Apparatus in which the catching or collecting means is in motion during its operation.
- (1) Note. Fluid conveyor types or suction means conveying or catching excess stock material are considered “dynamic” gatherers and are properly classified within this subclass.
- 217** This subclass is indented under subclass 216. Apparatus including means to return the unused material back to a shaping or reshaping station for reuse.
- 218** This subclass is indented under the class definition. Apparatus including a shape imparting cavity having a charge opening and means (e.g., wiper blade) cooperating with the opening to remove surplus material or to smooth the outer surface of the material shaped and contained by the cavity.
- (1) Note. Devices in which the smoothing means is also a press surface are not here but placed in presses below.
- (2) Note. The wiper must be a means in addition to means pressurizing the stock to force it into a mold cavity (i.e., a feed hopper closure or valve that inherently smooths while cutting off the flow of material into the mold is included; see the notes under subclass 447.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 289, for a cutting means to smooth the stock or to remove excess stock subsequent to shaping or forming.  
 426+, for a centrifugal or a moving female mold which forms a hollow article and in which a scraper or smoothing means is adapted to move relative thereto.  
 458, for a hand movable substrate traversing, plural dimension shaping means.
- 219** This subclass is indented under subclass 218. Apparatus wherein the means to smooth or remove excess stock material is mechanically a part of, either removably attached to or fixed maintained by, a stock material feeding means.
- (1) Note. Excluded under this definition is a reciprocating feed means comprising a material confining side-wall which acts upon a return stroke thereof to remove excess material as an inherent function thereof.
- 220** This subclass is indented under subclass 218. Apparatus comprising a female mold moved to and from or past a stationary stock smoothing or removing means, the mold moving means being an endless moving member or a roll.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 223, for wiper type harvesting means for endless surface type press forming means or endless surface type casting drum, wherein the wiper is removing a shaped product.  
 231, for apparatus cleaning means coacting with a traveling former.
- 221** This subclass is indented under subclass 218. Apparatus wherein the female mold is mounted to permit scooping a portion of material from a bulk source with simultaneous shaping thereof.
- (1) Note. Included here are the ice cream scoops and pluggers having blade type excess removal or smoothing means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 276+, for scoops and pluggers, per se.
- 222** This subclass is indented under the class definition. Apparatus including means for collecting particulate material into clusters (e.g., balls, etc.) by tossing or rolling the particles about to cause them to come into engagement with and join with each other.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 332+, for means imparting a balling action, whereby balls are formed, to a discrete charge of other than particulate material.  
 425, for means utilizing mold motion to distribute or compact fluent stock (e.g., particulate material, etc.) wherein the material assumes a shape

determined by the mold (e.g., centrifugal casting).

SEE OR SEARCH CLASS:

- 164, Metal Founding, subclass 286 for apparatus to centrifugally cast molten material.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 310 for a process of molding an article by rotating the material or the shaping member.
- 432, Heating, subclasses 103+ for a tumbler type, rotary drum heating furnace.

**223** This subclass is indented under the class definition. Apparatus including a continuous surface (e.g., drum or endless belt, etc.) on which a stock material is coated, by pouring or immersion, combined with means (e.g., doctor blade, etc.) to remove the material as a product from the surface.

- (1) Note. Apparatus comprising cooperating endless surfaces which form the product therebetween is excluded under this definition, and will be found in subclasses 335+ and 363+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 84+, for a foraminous endless shaping surface (e.g., filter-type drum or belt, etc.) and product removal means.
- 201, for mixing rolls which may use a doctor blade to prevent material being worked from adhering to the mixer surface.
- 337, for means between plural sets of endless surface type forming means not acting to harvest a formal product but to guide or convey material being shaped.
- 363+, for a press forming roll with means to strip a product therefrom.

SEE OR SEARCH CLASS:

- 159, Concentrating Evaporators, subclasses 5+, for apparatus of that class including means to form a film from a liquid being processed.
- 165, Heat Exchange, subclasses 89+, for a rotary drum type heat exchanger,

especially subclass 91 when combined with a hollow stirrer or scraper.

**224** This subclass is indented under the class definition. Apparatus including a forming surface upon which a film, sheet or filament of indefinite length is to be formed operately associated with means to deposit or cast a fluent stock material thereon to form the indefinite length product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 67+, for an immersed shaping orifice discharging directly into a liquid or shower bath means.
- 447+, for a shaping surface (e.g., mold, etc.) combined with means to feed fluent material thereto; see the collection of search notes thereunder.

SEE OR SEARCH CLASS:

- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes; subclasses 212+, for a process of casting liquid plastic on a solid shaping surface to form indefinite length work.

**225** This subclass is indented under the class definition. Apparatus comprising means for removing dirt, impurities or extraneous matter from the apparatus or a part thereof.

- (1) Note. Excluded under this definition is apparatus for cleaning material being shaped or already shaped.
- (2) Note. Apparatus disclosing and claiming and element of the apparatus which has the inherent function of cleaning while shaping or ejecting the product with no characteristic cleaning apparatus feature, is excluded from this subclass. For example, a plunger wherein the edge thereof may act to scrape the mold sidewall on an ejection stroke with no particular configuration or attachment provided is excluded from this subclass.
- (3) Note. Means coating an apparatus part is not here, but found in subclasses 90+, even though it may have the dual function of coating and cleaning. Devices disclosing and claiming means cleaning

an apparatus part with a liquid, and having no disclosure that the liquid also applies a coating to the apparatus are found here.

- (4) Note. Means removing a sprue from an apparatus part is considered a cleaning operation and classified in subclasses 227+.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 90+, for means applying a nonmoldable coating material (e.g., parting or cleaning fluid) to a work contact means.  
 107, for means applying a lubricating fluid to apparatus elements.  
 182+, for means or apparatus features permitting disassembly for cleaning purposes.  
 274, for dipping type shaping means having stripper means for shaped work.  
 436+, for a shaping surface with means to release, or remove an article from a shaping surface.

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, appropriate subclasses for mechanical cleaning means of the machine or implement type, per se, and see the search notes cited.  
 134, Cleaning and Liquid Contact With Solids, appropriate subclasses for cleaning apparatus, per se, operative under a "law of the particular machine".

**226** This subclass is indented under subclass 225. Apparatus, wherein either (1) a single cleaning means or assembly cleans plural distinct apparatus parts in separate cleaning operations or (2) the device includes plural distinct cleaning means or assemblies.

**227** This subclass is indented under subclass 225. Apparatus wherein the cleaning means acts on a shaping member or dough divider measuring compartment.

- (1) Note. A portion of an injection molding device to which a sprue is attached is considered a shaping member.

**228** This subclass is indented under subclass 227. Apparatus wherein the cleaning means moves back and forth and on at least one trip moves across a plunger face.

**229** This subclass is indented under subclass 227. Apparatus including means to move the cleaning means into operative engagement with forming means or measuring compartment in order to perform the cleaning operation.

- (1) Note. A cleaner positioned in one place and adapted to be rotated about its own axis (e.g., stationary rotary cleaners) are excluded from this subclass and are classified on some other basis.

**230** This subclass is indented under subclass 227. Apparatus wherein the cleaning means acts on at least one body having a continuous forming surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 223, for endless surface type forming means with harvesting means to remove work or a product.

**231** This subclass is indented under subclass 227. Apparatus wherein the cleaning means cleans a former adapted for movement other than movement necessary to perform a shaping operation.

- (1) Note. See glossary for definition of "traveling" as applied to subclass titles within the class.

- (2) Note. A moving "mold table" which is not mounted for endless movement, but moves into and out of a shaping engagement in a male-female relationship is included.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 218+, for a combination of means for removing excess stock material cooperating with a charge inlet to a mold.  
 223, for an endless surface casting means and harvesting means.

- 232** This subclass is indented under subclass 225. Apparatus including a cleaner cooperating with means acting on or conveying work subsequent to the means performing a shaping operation.
- 233** This subclass is indented under the class definition. Apparatus comprising devices having multiple press couples for press shaping, press forming or vulcanizing under pressure, wherein each press couple comprises means providing a set of opposed mold cavities which register, cavity to cavity, in cooperative pressing relationship.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 371+, for coacting endless belts providing a single press cavity, (e.g., for vulcanizing a continuous length of hose under press, etc.).
- 387.1+, for preform reshaping apparatus of the blow type some of which include registering female mold cavities.
- 408, for press forming means including opposed registering, coacting mold cavities; see the collection notes thereunder.
- 425+, for cooperating, registering mold cavities in slush molding apparatus, see especially subclasses 429+.
- 447, for charging means combined with coacting endless belt means which cooperate to form a single shaping cavity.
- 448, for dough divider type apparatus including volumetric trap measuring chambers which incidentally impart shape to the measured charge.
- 542+, for cooperating, registering mold cavities in injection molding apparatus; see especially subclasses 567+.
- SEE OR SEARCH CLASS:
- 164, Metal Founding, subclasses 427+, for similar structure in continuous metal casting apparatus, see especially subclass 430.
- 234** This subclass is indented under subclass 233. Apparatus wherein the plural sets of female mold sections are super-imposed.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 34.1+, for plural sets of coacting female molds limited to reshaping, resizing or vulcanizing a tire, tire tube or drum belt.
- 235** This subclass is indented under subclass 233. Apparatus comprising cooperating severing edges on the coacting female molds.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 289+, for other apparatus comprising severing means, especially subclasses 292+ for a severing means coacting with the peripheral edge of a female mold.
- 236** This subclass is indented under subclass 233. Apparatus which comprises positive apparatus means, e.g., ejector pin or compressed air means, to eject the formed product.
- 237** This subclass is indented under subclass 233. Apparatus comprising cooperating rolls (e.g., drum, wheel, disc, etc.) wherein the mold cavities are formed in or mounted on an outer peripheral surface of at least one of the rolls.
- 238** This subclass is indented under the class definition. Apparatus comprising a measuring compartment for collecting a dough like material from a feeder and discharging the measured quantity of dough onto a receiver.
- (1) Note. See the glossary for a definition of the term dough.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 96+, for dough dividers including means to apply coating to the trap chamber.
- 227+, for dough dividers including apparatus cleaning means.
- 289+, especially 298+, for cutting devices which divide a preform sheet of dough into shaped segments.
- 447+, especially 448 for measuring trap compartment feed means for material other than dough and see the search notes thereto.

- 239** This subclass is indented under subclass 238. Apparatus comprising a positive discharge assistant in the supply hopper for forcing the dough into the measuring compartment.
- (1) Note. Included under this definition is a discharge assistant comprising fluid pressure.
- SEE OR SEARCH CLASS:  
222, Dispensing, subclasses 251+, for discharge assistant apparatus of general utility for discharging or dispensing material.
- 240** This subclass is indented under subclass 238. Apparatus which includes a reciprocating ram cooperating with the outlet from the dough supply and serving as a valve type pick up for transferring dough into a measuring compartment adapted for rotation about an external axis.
- (1) Note. Partial rotation, i.e., a pivoting action comprising less than a complete revolution, is included herein.
- 241** This subclass is indented under subclass 238. Apparatus in which the trap measuring compartment is mounted for rotation about an external axis.
- (1) Note. Partial rotation, i.e., a pivoting action comprising less than a complete revolution, is included herein.
- 253** This subclass is indented under the class definition. Apparatus comprising a combination of a female mold, means to deliver stock material to the mold either as fluent or as a preformed charge and dynamic means to position a pallet in or on the mold or which conveys a pallet or from a working area.
- (1) Note. The pallet may serve as a part of the mold (e.g., as its bottom, etc.).
- (2) Note. Means merely to vibrate a pallet or pallet-mold combination is not included whereas means merely changing the position of a pallet within the confines of a mold, is included.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
452, for the combination of a female mold and pallet handling means; see the search notes thereunder.  
470, for a pallet, per se; see the collection of search notes thereunder.
- 254** This subclass is indented under subclass 253. Apparatus in combination with means to contain a plurality of pallets in a stacked relationship having means to dispense a pallet and convey same to or away from the female mold.
- SEE OR SEARCH CLASS:  
221, Article Dispensing, appropriate subclasses for article (e.g., pallet, tray, etc.) dispensing means, per se, especially subclasses 289+, for a mechanical release or separation of articles.
- 255** This subclass is indented under subclass 253. Apparatus wherein the pallet means is positioned in and supported by means within mold sidewalls with the pallet means adapted to be moved vertically to eject molded material from the sidewalls.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
443, for a shaping cavity having vertically movable bottom for releasing the product.
- 256** This subclass is indented under the class definition. Apparatus including a female mold and feed means wherein the feed means is especially designed to dispense a predetermined quantity of material to the mold.
- (1) Note. Devices designed to feed material until a mold is filled and where the amount dispensed is determined directly by the capacity of the mold and not by the operation of the feed device are excluded and are placed below on some other feature.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
145+, for automatic control of feed means.  
159, for mold filling means including an independent timer.

- 162+, especially 166 for electrically controlled feed means.
- 238+, for dough dividers of the trap chamber type.
- 447+, for forming means and means feeding fluent stock thereto, especially when only a feeding means including extrinsic limitations to the molding device is claimed.
- 542+, especially 557+, for means feeding fluent material under pressure to a female mold in a closed system relationship wherein the feeding means may include a measuring device.
- SEE OR SEARCH CLASS:**
- 222, Dispensing, appropriate subclasses, especially those having trap chamber in their titles (e.g., 344+ and 424.5+, etc.) for discharging or dispensing devices comprising means to dispense predetermined amounts of material.
- 257** This subclass is indented under subclass 256. Apparatus comprising multiple feed mechanisms which are independently actuated.
- (1) Note. The feed mechanisms may be associated with a single source or hopper.
- (2) Note. Unitary valve or pick up assemblies, (e.g., compartmented or perforated wheels or plates etc.), are not considered independent and are found in appropriate subclasses, below. Valve or feed assemblies connected by way of linkages to insure or provide synchronization are herein.
- 258** This subclass is indented under subclass 256. Apparatus comprising means to advance the feed means into operative relation with the female mold.
- (1) Note. Included within the scope of this and indented subclasses are devices which include a stationary hopper with a charge transfer mechanism moving between the hopper and the female mold.
- 259** This subclass is indented under subclass 258. Apparatus wherein the mold means is mounted for traveling movement, of the type other than that necessary to perform a shaping operation.
- (1) Note. See glossary for definition of "traveling".
- 260** This subclass is indented under subclass 258. Apparatus in which the feed means comprises a sliding chamber which translates between a feed supply where it is filled and a female mold into which the material is deposited, said female mold including a movable bottom.
- SEE OR SEARCH THIS CLASS, SUBCLASS:**
- 200+, for a transfer box type feeder including an agitating or kneading means.
- 219, for a feeder including an attached excess removal or smoothing means.
- 261** This subclass is indented under subclass 256. Apparatus wherein multiple molds are adapted to successively move past the feed means.
- 262** This subclass is indented under the class definition. Apparatus comprising (1) a fluent material confining member which member imparts the extended shape to the fluent material and (2) a traveling type member adapted to be withdrawn axially from within the confining element and thus impart internal shape to the formed product.
- (1) Note. The patents generally found herein relate to pipe formers in which the traveling member smooths and compacts the internal surface of the pipe.
- SEE OR SEARCH CLASS:**
- 118, Coating Apparatus, subclass 105 for apparatus for coating (lining) a pre-formed pipe, which structure may be closely related to subject matter of subclass 262.
- 263** This subclass is indented under the class definition. Apparatus including a work support and a work traversing profile tool wherein the tool turns off, smooths, or polishes the surface of the work by a relative motion between the tool and the work support.

- (1) Note. The profile tool traverse the work during shaping as a result of moving the support, the tool, or both.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 262, for an encasing shaping surface and a spaced travel type shaping member axially moveable therein.  
 289+, for apparatus under the class definition including cutting.  
 418, for a male-female shaping couple wherein the male member rotates, but does not traverse, i.e., travel along, the surface of the work.  
 425+, for a female mold and means utilizing the mold motion to distribute or compact stack therein.  
 459, for a profile tool or potter's wheel, per se.
- SEE OR SEARCH CLASS:  
 82, Turning, appropriate subclasses for turners, per se, disclosed for use in shaping soft clay like materials.
- 264** This subclass is indented under subclass 263. Apparatus which includes both a male type press shaping member and a work traversing profile tool.
- 265** This subclass is indented under subclass 263. Apparatus including two or more profile tools of different configuration each imparting its shape to the work.
- 266** This subclass is indented under subclass 263. Apparatus including multiple work supports.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 265, for multiple tools of diverse configuration.
- 267** This subclass is indented under subclass 263. Apparatus wherein the profile tool turns about an axis.
- 268** This subclass is indented under subclass 263. Apparatus having a profile tool which engages and traverses the outer or external surface of a preform.
- 269** This subclass is indented under the class definition. Apparatus which includes a shaping surface adapted to form an article when immersed in a bath containing a film forming substance.
- (1) Note. Included herein are disclosures in which the coating on the form is intended to be removed as an article of manufacture.
- (2) Note. Subcombinations not elsewhere provided for, (e.g., forms, per se, product stripping means etc.), are included in this and indented subclasses.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 393, for means rolling a bead on an article carried by a nominally recited dipping form.
- SEE OR SEARCH CLASS:  
 118, Coating Apparatus, subclasses 400+ for coating means of the immersion type where there is no disclosure that the coating itself is the product after the coating itself is stripped from a base.  
 162, Paper Making and Fiber Liberation, for forming fibrous articles on a foraminous mold.  
 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 301+, for process of shaping an article by dipping.
- 270** This subclass is indented under subclass 269. Apparatus which includes means to cause movement of the shaping means into contact with film forming material in a bath.
- (1) Note. Manual means for moving the form into the bath is excluded under this definition. See the search notes below.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 269, for manual means for moving the form into the bath.

- 271** This subclass is indented under subclass 270. Apparatus comprising means to apply pressure or suction to the internal portion of the shaping surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
437+, for shaping surfaces, and means to remove or release the article from the surface by gas means.
- 272** This subclass is indented under subclass 270. Apparatus including means to control or impart a motion to the dip form other than that motion essential to submerge and convey the form through the bath.
- (1) Note. Included herein are devices which rotate, or impart other nontransitory motion to the shaping form, usually to control the distribution of the coating on the mold.
- 273** This subclass is indented under subclass 270. Apparatus combined with means imparting motion to the bath.
- SEE OR SEARCH CLASS:  
118, Coating Apparatus, subclass 421, for coating apparatus with means to move the coating tank.
- 274** This subclass is indented under subclass 270. Apparatus including means to separate the formed article from the shaping surface.
- 275** This subclass is indented under subclass 269. Apparatus which comprises the structure of the dipping form, per se.
- (1) Note. Excluded from this subclass is a claim reciting any portion of the device other than that which is to be covered by molding material, (e.g., handles, means attaching the form to a machine, etc., are excluded). See the search note below.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
269, for claims to portions of the device other than that which is to be covered by molding material (e.g., handles,
- means attaching the form to a machine, etc.).
- SEE OR SEARCH CLASS:  
12, Boot and Shoe Making, appropriate subclasses for boot and shoe lasts, per se, when used for other than dipping.
- 276** This subclass is indented under the class definition. Apparatus comprising a shaping surface adapted to scoop out a portion of material from a bulk source and thereby shape, the portion of material removed.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
118, for similar apparatus in combination with a preform support.  
187, for similar apparatus including assembly or dismounting means.  
221, for similar apparatus in combination with a blade type excess removal or smoothing means.
- SEE OR SEARCH CLASS:  
30, Cutlery, subclasses 124+, for a cutlery combination including a material holder, especially subclasses 128+ which also provides for a stripper or ejector therewith, and subclasses 324+ for a spoon or ladle of general application.
- 277** This subclass is indented under subclass 276. Apparatus including a receptacle or enclosure for fluid having a freezing point lower than the freezing point of the material to be removed by the shaping surface.
- SEE OR SEARCH CLASS:  
30, Cutlery, subclass 140 for a cutlery combination with heater means and subclass 141 for a spoon with a fluid conductor.
- 278** This subclass is indented under subclass 276. Apparatus wherein the shaping surface comprises a plurality of components adapted to be brought into assembled relationship subsequent or during insertion of the shaping surface into the bulk source, but prior to removal therefrom.

- 279** This subclass is indented under subclass 276. Apparatus including means to separate the formed product confined within the shaping surface from the remaining bulk.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
278, for devices which assemble the shaping surface after penetration, thus separating the product from the bulk.
- 280** This subclass is indented under subclass 276. Apparatus including means to move the shaping surface or a portion thereof relative to the remaining apparatus to thereby aid insertion of the shaping surface in the bulk material.
- 281** This subclass is indented under subclass 276. Apparatus wherein the shaping surface is provided with a particular edge configuration adapted to cut.
- (1) Note. The cutting edge or particular configuration of the shaping surface edge must be claimed. The fact that the entire shaping surface is extremely thin thereby providing a cutting edge is not enough.
- 282** This subclass is indented under subclass 276. Apparatus including means to separate the material, contained within the shaping surface from the shaping surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
436+, for shaping surfaces with product release means.
- 283** This subclass is indented under subclass 282. Apparatus wherein the shaping surface comprises a plurality of surfaces adapted to be expanded or separated to facilitate removal of the formed product therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
278, for devices which assemble the shaping surface after insertion into the bulk, thus separating the product from the bulk.
- 284** This subclass is indented under subclass 282. Apparatus wherein the means to separate includes a blade adapted to move between the formed product and the shaping surface to thereby separate the product from the shaping surface.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclass 77 for a static mold having a scraper means to separate product from the mold.
- 285** This subclass is indented under subclass 284. Apparatus wherein the movable blade is pivotally fastened to the edge portion of the shaping surface.
- 286** This subclass is indented under subclass 282. Apparatus comprising means for entering or passing through the cavity defined by the shaping surface to expel the formed product therefrom.
- 287** This subclass is indented under the class definition. Apparatus including means defining a delivery or shaping orifice (e.g., nozzle having an internal concentric baffle means) and also combined with fluent stock material handling means compelling flow through the orifice to form a ring shaped relatively short article.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
87, for caulking gun type applicators having distinct manual means for controlling a dimension in addition to the depth.
- SEE OR SEARCH CLASS:  
401, Coating Implements With Material Supply, appropriate subclasses for mere caulking-type guns of the hand manipulable type.
- 288** This subclass is indented under subclass 287. Apparatus in which means defining the shaping orifice includes concentric internal and external members which are relatively movable and which cooperate with the orifice means to provide the shape imparting means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

381, for extrusion apparatus including a movable orifice or a movable mounted mandrel mounted within an orifice.

**289** This subclass is indented under the class definition. Apparatus comprising means to (1) completely remove a portion of a preform from the remainder thereof, (2) form a hole or opening in a preform which extends completely there-through or, (3) partially disjoin a portion of a preform from the remainder by severing the preform through its entire thickness in a direction extending from one edge toward another edge and allowing the severed portions to remain attached to each other.

(1) Note. To be included herein under part (3) of the above definition the intent must be to disassociate the preform in the severed area and not merely to rearrange or reshape the preform by forming a depression or surface deformation therein. For example, forming depressions or decorations in the edge of a brick or concrete building block without removing any material, even though done with a sharp knife-like element, is not severing.

(2) Note. The severing need not be done by a sharp knife-like implement, but may be accomplished, for example, by breaking, heating, tearing, etc..

(3) Note. Included herein are devices for severing and simultaneously reshaping as well as devices wherein the severing and the molding are accomplished sequentially.

(4) Note. The severing of a parison prior to blow molding is not within the scope of this subclass; for such patents see subclasses 324+.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

94, for means applying a parting or other nonmolding material to a cutter, harvesting blade or scores.

106, for molding and cutting combined with a coating means.

142, for cutter control means operated by means responsive to a condition or variable.

164, for electrical control of severing means for a product.

202, for cutting means in combination with means to agitate, knead or other wise mix the cut or comminuted material.

218, for a female mold and means to remove excess stock or to smooth stock prior to the stock being formed or set up.

232, for means for cleaning a cutter or knife element.

238+, for dough divider type devices including a trap chamber.

806, for a cross-reference collection of disclosures on flash removing means.

SEE OR SEARCH CLASS:

65, Glass Manufacturing, subclasses 174+ for cutting means for glass preform or products.

82, Turning, subclasses 46+ for patents claiming cutter, per se, being brought into engagement with the exterior of a rotating workpiece or to trim or cut away portions of the work piece.

83, Cutting, especially subclasses 467+ for a cutter of the class type which cuts material to a desired length.

157, Wheelwright Machines, subclass 13 for grooving, slitting and/or lacerating of rubber tires.

164, Metal Founding, subclass 262, for metal founding apparatus including product severing or trimming means.

225, Severing by Tearing or Breaking, appropriate subclasses for a process or apparatus for severing by tearing or breaking.

**290** This subclass is indented under subclass 289. Apparatus where the severing means is a perforator which includes means to (1) penetrate through one dimension of the work with the resulting perforation not intersecting an edge of the work other than the edges defining the dimension referred to or (2) effect a partial penetration of work by movement into a surface of the work and removal of material there-

from without any significant movement along the surface.

- (1) Note. To distinguish between this subclass, subclass 298 and other similar subclasses the intent of the inventor must be considered to some extent. For example, the primary product of this subclass is a preform with holes therein, the excavated material being waste; in subclass 298 the product may be the excavated material while the waste is the preform with the holes therein.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 385, for apparatus for molding or forming a preform in combination with a surface deformation of the preform.

SEE OR SEARCH CLASS:

- 30, Cutlery, subclasses 358+, for hand operated or material supported perforators; see the class definition thereof for statements of the lines with other classes.
- 83, Cutting, appropriate subclasses for apparatus for perforating without molding.

- 291** This subclass is indented under subclass 290. Apparatus including additional means to cut, sever, score or scribe the preform or product.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 301, for plural diverse severing means wherein none of the severing means is a perforator.

- 292** This subclass is indented under subclass 289. Apparatus wherein the cutting means (1) circumscribes a peripheral edge of a female mold while utilizing said edge as the cutter reaction surface.

- (1) Note. To be included herein the cutter may either traverse the edge of a female mold, or coact with the entire peripheral edge at one time.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 218+, for wiper means (e.g., scraper, screed bar, etc.) which acts to remove excess stock materials from a female mold.
- 263+, for a pottery wheel type support and a profile tool.

- 293** This subclass is indented under subclass 292. Apparatus including means to cause a wavy or undulating configuration of the product or a portion thereof.

- 294** This subclass is indented under subclass 289. Apparatus wherein the severing means comprises (1) a rotating member having cutting edges extending radially in a circumferential direction coacting with (2) either another similar rotating member or a plate member having longitudinally extending grooves and ridge like projections whereby the ridges coact with the cutting edges on the rotating member.

- (1) Note. Devices of this type usually form rod like or ball like products.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 233+, for sets of press couples comprising registering female mold cavities.

SEE OR SEARCH CLASS:

- 83, Cutting, appropriate subclasses for similar cutting devices not combined with molding.

- 295** This subclass is indented under subclass 289. Apparatus wherein the cutting means or its support is mechanically connected, to a guide which transmits diverse movements to the tool by the nature of construction of the guide.

SEE OR SEARCH CLASS:

- 83, Cutting, subclass 565 for a cutter which is template controlled or surface guided.

- 296** This subclass is indented under subclass 289. Apparatus comprising means to form a product from bulk material combined with means to reshape and sever the formed product.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
302.1+, for serially arranged cutting means and preform reshaping means.
- 297** This subclass is indented under subclass 296. Apparatus wherein the severing means is designed to operate prior to the reshaping means.
- 298** This subclass is indented under subclass 289. Apparatus wherein the configuration of the cutting means is such that the severed material is confined within a cavity outlined by the cutting means, said cavity serving to reshape the severed material.
- (1) Note. Severing to form a particular configuration, (e.g., disc, star, animal, etc.), is not included herein unless the severing means also reshapes. For such cutting devices not involving reshaping, see Class 83, Cutting, appropriate subclasses.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
233, for sets of press couples comprising registering female mold cavities.  
276+, for means excavating from bulk with simultaneous shaping.
- 299** This subclass is indented under subclass 298. Apparatus which includes means to score, emboss, inscribe or otherwise deform the surface of the material being shaped.
- 300** This subclass is indented under subclass 298. Apparatus wherein a plurality of cutting means, of cell-like construction, penetrate the confines of a mold or mold sidewalls to sever and shape material contained by said mold or mold sidewalls.
- 301** This subclass is indented under subclass 289. Apparatus comprising plural severing means wherein one severing means differs in kind from at least one other.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
291, for diverse severing means where one severing means is a perforator.
- 306+, for plural similar severing means.
- 302.1** This subclass is indented under subclass 289. Apparatus comprising serially arranged severing means and preform reshaping means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
296+, for forming from bulk, severing and preform reshaping.  
527, for means for blow molding combined with means to trim the product.  
531, for means to sever a parison combined with means to blow mold the parison to final shape.
- 303** This subclass is indented under subclass 302.1. Apparatus wherein the preform reshaping means forms alternate ridges and grooves or wrinkles.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
396, for corrugating means, per se; see search notes thereunder.
- 304** This subclass is indented under subclass 302.1. Apparatus comprising means in addition to the cutting element to score, emboss, inscribe or otherwise deform the surface of the performed material.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
299, for cutting implements having a shaping cavity and a surface deformation means.  
385, for preform reshaping means wherein the reshaping means is acting to deform the surface of the preform material.
- SEE OR SEARCH CLASS:  
83, Cutting, subclasses 875+ and 879+ for grooving or scoring methods or means with product handling means wherein no shaping of the material or product is involved.
- 305.1** This subclass is indented under subclass 302.1. Apparatus in which the means to sever preform material is followed by means to reshape the severed preform material.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
297, for forming, cutting and reshaping product in that order.  
531, for means to sever a parison combined with means to blow mold the parison into final shape.
- 306** This subclass is indented under subclass 289. Apparatus comprising multiple cutting means each of which has its own mounting or support.
- (1) Note. Plural similar cutters coacting or cooperating with the same stationary reaction surface (e.g., a stationary forming means) solely or one cutter coacting with one reaction surface (e.g., scissors type) are not considered “plural” and are not included within the scope of this subclass. However, plural like cutters cooperating with moving work or a moving reaction surface (e.g., plural like cutters, work conveyor, etc.), are considered properly classified herein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
291, and 301, for diverse severing means.
- 307** This subclass is indented under subclass 306. Apparatus wherein the severing means operate subsequent to the shaping means.
- 308** This subclass is indented under subclass 289. Apparatus comprising means to shape fluent or bulk material and means to sever said shaped material.
- (1) Note. Included herein are molds with guides to guide a knife even though the knife is not claimed.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
296+, for means forming from bulk, severing, and reshaping.
- 309** This subclass is indented under subclass 308. Apparatus wherein the severing means includes a moving surface operated and supported by means extending from a shaping orifice or extrusion nozzle.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
287+, for similar devices disclosed as doughnut formers.
- 310** This subclass is indented under subclass 308. Apparatus wherein the severing is accomplished by a coaction between a forming surface and severing means by utilizing the forming surface as a cutter reaction surface.
- (1) Note. Devices wherein the cutter extends within a forming means, e.g., a female mold, are included herein provided some portion of the molding surface serves as a cutter reaction surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
292+, for a cutter guided by or cooperating with the peripheral edge of a female mold.
- 311** This subclass is indented under subclass 310. Apparatus wherein the cutting is effected by moving the cutter with respect to a coacting stationary shaping means.
- (1) Note. A traveling cutter edge, e.g., a disc or chain type cutter, is not considered a moving cutter unless the support for the cutter is moved from one position to another.
- 312** This subclass is indented under subclass 311. Apparatus wherein the severing means is supported on a pliant continuous carrier.
- 313** This subclass is indented under subclass 311. Apparatus comprising a common mounting means for multiple cutting means.
- 314** This subclass is indented under subclass 310. Apparatus comprising an immobile severing means and multiple shaping means.
- 315** This subclass is indented under subclass 308. Apparatus comprising a product conveyor, positioning or support means downstream of the shaping means, said downstream means serving as a cutter reaction surface for a cutting means.

**316** This subclass is indented under subclass 315. Apparatus comprising a unitary severing assembly means having multiple severing means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

313, for this apparatus with a moving cutter utilizing a stationary former as a cutter reaction surface.

**317** This subclass is indented under the class definition. Apparatus in combination with either (1) means to perfect basic subject matter of this class or (2) means for treating or working stock material wherein the means is other than that within the class definition.

(1) Note. Transmitting intelligence by special design form-type printing involving surface deformation has been classified below on the basis of preform reshaping. Features that are so common to a molding apparatus as to make it impractical to consider them as perfecting or combined features have been collected below on the basis of the basic subject matter: (a) heating or cooling means. (b) conveying or handling means.

(2) Note. Subject matter listed at the end of this statement, although generally classified, per se, in other classes, is considered so essential or common to Class 425 apparatus that is considered basic subject matter of Class 425 and not combined; therefore, a combination of Class 425 therewith is assignable to subclasses below subclass 317 unless specifically provided for thereabove: (a) static or dynamic material handling means for feeding to, from or between shaping or reshaping or treating means; (b) static or dynamic apparatus supports or guides; (c) mechanical movement means; (d) power or pump means; (e) fluid handling means; (f) material or product treating means; (g) vibrating or tamping means; (h) heating means; (i) cooling means.

(3) Note. The combination of pretreatment means with basic subject matter is here unless specifically provided for above in

contrast to other treatment combinations which are provided for below this subclass.

(4) Note. The following subjects matter are to be found in combination with apparatus under the class definition of this class throughout the schedule and have been considered either A+B or A+P types of subject, namely: (1) material (e.g., fluent, article, etc.) handlers-see subclass 403.1 and notes thereunder; (2) mechanical movements or parts thereof see e.g., subclass 457 as a nonlimiting example; (3) treating means, heating or cooling means or the like see subclass 445 as a nonlimiting example.

(5) Note. Means to heat or cool the apparatus in the nature of a safety means therefor are included in this subclass.

(6) Note. Apparatus including means for applying a liquid spray, or applying currents of air, per se, where air constitutes the normal atmosphere even when heated or cooled or air under pressure or vacuum, is not included within the scope of this subclass.

(7) Note. Steam treating apparatus, due to its conventional use is not included herein.

(8) Note. Examples of combined features found in this subclass are: comminuting devices upstream of the former, winding and reeling devices for filaments formed upstream thereof, pie crust crimpers, shipping crates, egg beaters.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

181, for apparatus convertible to different species of this class or to apparatus of a different class by interchanging of parts or by addition or removal of parts.

183, for plural wear or shaping surfaces mounted for alternative use.

184, for a compound tool including a shaping and severing means mounted for alternative use.

- 202, for apparatus under the class definition combined with separate and distinct upstream agitating or kneading means and also cutting or severing or comminuting means.
- 289+, for apparatus under the class definition combined with severing means, especially 308+ for pellet mills comprising an extruder and a cutter or comminutor.
- 241, apparel combined with molding apparatus.
- 241, Solid Material Comminution or Disintegration, subclass 101.01 for combined or convertible of that class.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for processes of forming or shaping material combined with a non-molding step not otherwise classified.

## SEE OR SEARCH CLASS:

- 12, Boot and Shoe Making, appropriate subclasses for boot and shoe making apparatus combined with molding apparatus.
- 53, Package Making, subclasses 113+, especially subclass 122 for package making means combined with shaping means for the material being packaged.
- 59, Chain, Staple, and Horseshoe Making, subclass 42 for apparatus for making horseshoes combined with a rotary die block.
- 62, Refrigeration, subclasses 340+, for refrigeration means combined with means producing a shaped product.
- 69, Leather Manufactures, subclass 8, for apparatus for forming and pressing leather.
- 72, Metal Deforming, appropriate subclasses for metal deforming apparatus combined with molding apparatus.
- 131, Tobacco, subclasses 78+ for cigar or cigarette making comprising molding or forming combined with disparate functions.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for methods and apparatus for laminating products, combined with means shaping the products or portions thereof.
- 162, Paper Making and Fiber Liberation, subclasses 232+, for paper making and fiber liberation apparatus combined with molding apparatus.
- 199, Type Casting, appropriate subclasses for type casting apparatus combined with specific molding apparatus.
- 223, Apparel Apparatus, appropriate subclasses for apparatus for making
- 318** This subclass is indented under the class definition. Apparatus comprising coacting shaping surfaces adapted to be held in the hand and operated by manual movement during the shaping operation.
- (1) Note. In determining if a patent is proper herein the intent of the inventor must be considered. The fact that a device is of such a size that it could be held in the hand is not sufficient to place a patent here. To be included here it must be intended that the device be held in the hand during use.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 11, for hand manipulable repair devices.
- 276+, for hand held devices for excavating from a bulk source with simultaneous shaping, (e.g., ice cream scoop, or plugger etc.).
- 287+, for extrusion apparatus limited to making doughnut shapes many of which are hand manipulable shaping couples.
- 289+, especially subclass 298 for cutting implements providing or shaping cavity, many of which are hand held and manipulated.
- 319** This subclass is indented under the class definition. Apparatus comprising means to shape fluent or bulk stock into a preform and means to reshape the preform by twisting or forming into a coil, helix or spiral.
- (1) Note. Means to shape stock followed by reshaping into rows of waves, i.e., corrugating is not here but found in appropriate subclasses below. See especially subclasses 324.1+.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 323, for pretzel bending devices which may disclose forming from bulk and twisting or convoluting.
- 324.1+, for diverse shaping apparatus.
- 334, for sets of convoluting or twisting means.
- 363+, for preform reshaping, per se, utilizing and endless shaping surface.
- 383+, especially subclass 391 for preform reshaping, per se, by convoluting or twisting means.
- 320** This subclass is indented under subclass 319. Apparatus where the convoluting or twisting means includes at least one endless surface in direct contact with the material being reshaped.
- (1) Note. A mandrel which serves as a form around which a preform is wound to form an article containing a cavity corresponding to the shape of the mandrel, (e.g., tube or hollow cane forming, etc.), is not found here, but is proper for subclass 319.
- 321** This subclass is indented under subclass 320. Apparatus where the convoluting means includes two or more endless surfaces in direct contact with the material being reshaped.
- 322** This subclass is indented under subclass 320. Apparatus where the convoluting means includes a roll in direct contact with the material being reshaped.
- 323** This subclass is indented under the class definition. Apparatus for reshaping a preform stick or rod of pretzel dough by permanently distorting a portion of the preform throughout its entire thickness relative to a second portion thereof.
- 324.1** This subclass is indented under the class definition. Apparatus comprising multiple shaping means for fluent material or for a preform, identifiable as separate and individual units, each unit performing a complete shaping operation of a kind different than that of the other (e.g., roll forming means and surface embossing means, press forming means and flow reshaping means, etc.).
- (1) Note. Included herein are distinct different types of presses as well as different species of the same type of press, (e.g., roll presses and platen presses or diverse species of platen presses, etc.). Excluded, however, are plural sequential shaping means of the same general type differing only in size or shape but not in mode of operation, and which are designed to act sequentially to progressively shape or alter the shape of the material being molded. Such patents are placed below on other features.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 66, for a continuous filament forming means or film casting means with a stretching means consisting of work advancing means.
- 112, for a combination of diverse means of the class including means to make a composite stock and means to form or reshape a preform.
- 163, for diverse shaping means combined with a significant electrical control system.
- 176, for apparatus to form a mold combined with means utilizing the mold to produce a product.
- 181, for convertible apparatus.
- 264, for a potter's apparatus combined with a separate and distinct male plunger.
- 290, for a perforator combined with a shaping or reshaping means, especially subclass 291 for such means combined with scoring means.
- 296, for a combination of means for forming from bulk, means for severing and means for reshaping.
- 317, for basic subject matter of this class in combination with other types of apparatus where the combination is not provided for elsewhere.
- 323, for diverse shaping means utilized in forming pretzels.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclasses 33+, for plural diverse manufacturing apparatus including metal shaping or metal assembly; see the search notes thereunder and the line note between

- Classes 29 and 425 in the class definition of Class 425.
- 65, Glass Manufacturing, subclasses 227+, for combinations of diverse glass working apparatus generally contributing to produce a given product (e.g., press and below machines used to make bottles).
- 131, Tobacco, subclasses 280+ for cigar or cigarette making, especially subclasses 77+, for combined molding or forming.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for diverse manufacturing apparatus including laminating means of Class 156 combined with Class 425 apparatus (e.g., subclasses 443+, etc.); see the line note in the class definition of Class 425.
- 325** This subclass is indented under subclass 324.1. Apparatus having (1) a shape imparting opening through which fluent material is extruded and (2) means to stretch, shrink, or otherwise change the configuration of the extruded material, or vulcanizing means including a preform support generally to retain the shape of the product during vulcanization.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 28.1+, for tire, tire tube or drive belt type vulcanizers.
- 160, for vulcanizing means in combination with means for timing or heating cycle.
- 461+, for an extrusion nozzle, per se; see the collection of search notes thereunder to more comprehensive combinations which include a nozzle shaping means.
- 542+, for injection molding apparatus when the configuration of a charging nozzle or orifice does not contribute to the configuration of the product.
- 326.1** This subclass is indented under subclass 325. Apparatus wherein extruded material is reshaped by means establishing a fluid pressure different on one portion of the preform than that maintained on another portion.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 405.1+, for shaping means utilizing differential gas pressure in the shaping operation; see the search notes thereunder.
- 532, for apparatus for extruding a parison combined with apparatus for blow molding that parison.
- 567+, for an injection molding machine including fluid pressure means to expand the material against mold sidewalls.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclasses 187+, for means for drawing tube stack from a molten glass bath including fluid pressure differential inflating means.
- 327** This subclass is indented under subclass 325. Apparatus wherein the means to change the configuration of the extruded material includes opposed coating shaping surfaces exerting compressive force on material therebetween.
- 328** This subclass is indented under subclass 324.1. Apparatus having (1) press-shaping couple means comprising at least one body having a continuous pressure surface, i.e., roller and (2) an opposed coating shaping surface (other than roll means) exerting compressive force on material therebetween.
- 329** This subclass is indented under the class definition. Apparatus including three or more continuous force applying surfaces grouped in such a manner that said surfaces form a shaping aperture.
- SEE OR SEARCH CLASS:
- 100, Presses, subclass 158 for apparatus having rolls with intersecting or inclined axes.
- 330** This subclass is indented under the class definition. Apparatus comprising three or more relatively movable coating force applying surfaces grouped in such a manner that said surfaces are movable on crossing paths into a molding relationship to define a molding cavity.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 77, for ultra high pressure devices which include plural plungers.  
 352+, for a female mold and opposed co-axial dynamic press members.
- SEE OR SEARCH CLASS:  
 100, Presses, subclass 158 for press apparatus having rolls with intersecting or inclined axes, and subclass 232 for press apparatus with three or more pressure surfaces to co-compress material.
- 331** This subclass is indented under the class definition. Apparatus comprising (1) a solid endless shaping surface (i.e., roll means) cooperating with an apertured shaping surface, or (2) an apertured endless shaping surface (i.e., roll means) cooperating with a solid shaping surface, to form shaped product by forcing fluent material through the apertures.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 310+, for similar apertured structure in combination with a product severing means (e.g., a pellet mill, etc.).  
 364, for an endless belt coating with stationary platen or reciprocating shaping means.  
 382, for an extruder machine having plural orifices and having means other than a roll forcing the work through such orifices.
- 332** This subclass is indented under the class definition. Apparatus comprising means forming ball like products by imparting rolling motions to discrete pieces of work material wherein the rolling motions imparted are either in two or more intersecting paths or include two or more axes of rotations.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 222, for a tumbling type agglomerating means for particulate material which inherently produces pellets that are approximately spherical in shape.  
 294, for rotating means comprising circumferentially extending cutting and
- shaping channels coating with a roll or platen having complementary channels.
- 363+, for endless surface shaping means and see especially subclasses 364 and 374 for an endless shaping surface cooperating with a stationary surface.
- SEE OR SEARCH CLASS:  
 65, Glass Manufacturing, subclass 228 for marvering means (rolling to shape a glob of glass) with blow means.
- 333** This subclass is indented under subclass 332. Apparatus wherein the balling means comprises curved members defining a curved pathway through which the material being shaped is rolled.
- 334** This subclass is indented under the class definition. Apparatus comprising plural reshaping couples to (1) convolute plural preforms in parallel or (2) convolute a single preform a plurality of times in series.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 319+, for means for forming a preform combined with means to convolute that preform.  
 324.1+, for diverse shaping means in series.  
 391, for convoluting means to reshape one preform at a time.
- SEE OR SEARCH CLASS:  
 493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, appropriate subclasses, especially subclasses 303+ for a convoluting-type machine for making a paper tube.
- 335** This subclass is indented under the class definition. Apparatus comprising multiple couples for press reshaping, press forming or vulcanizing wherein at least one shaping body of each press couple is a continuous traveling pressure surface.
- (1) Note. The combination of two rolls coating with a common roll to provide two pressure areas is excluded see subclasses 363+, below.

- (2) Note. Feed means which may include one or more endless surfaces but which in no way contribute to the shape of the product are not considered a shaping couple for this subclass.
- (3) Note. Included within the scope of this subclass are devices which one endless surface cooperates with multiple shaping surfaces to provide plural press areas. Also included are devices which feed a work back through a shaping couple including an endless surface to perform multiple press operations.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
329, for three or more endless surfaces cooperating to define a shaping aperture.
- SEE OR SEARCH CLASS:  
26, Textiles: Cloth Finishing, subclasses 99+ for web stretching devices which may include sets of roll couples see, moreover, subclass 78, for roll couple nip control means responsive to the detection of the web condition.  
28, Textiles: Manufacturing, subclasses 240+ for filament stretching devices which may include sets of roll couples.  
100, Presses, subclasses 144+ for endless surface pressing device of general utility.
- 336** This subclass is indented under subclass 335. Apparatus comprising means for shaping an advancing length of work into ridges and grooves.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
369+, for endless type press forming a reshaping means, or vulcanizing means with preform corrugating.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 459+ for corrugating in combinations with laminating.
- 337** This subclass is indented under subclass 335. Apparatus which includes means positioned between the sets of shaping couples to guide, convey or deflect material as it passes from one shaping couple to another.
- 338** This subclass is indented under the class definition. Apparatus comprising three or more cooperating platens arranged in parallel fashion to provide multiple shaping areas each such area being separate and distinct from the other.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
383+, for a preform reshaping or resigning means, or for a vulcanizing means including a conforming preform support, see especially subclasses 394+ for coacting pressure surfaces.  
406, for press forming apparatus having opposed press members; see the search notes thereunder.
- SEE OR SEARCH CLASS:  
100, Presses, subclasses 193+ for plural presses of general application; see the search notes under the class definition of Class 100.
- 339** This subclass is indented under subclass 338. Apparatus in which the shaping areas are used to reshape a previously formed product or comprise a support area similar shape of the preform or the shape desired and are used to vulcanize the previously formed product.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
340+, for plural reshaping or vulcanizing means generally.  
383+, for single reshaping or vulcanizing means for a preform.
- 340** This subclass is indented under the class definition. Apparatus comprising a plurality of separate and distinct dynamic means, identifiable as separate units, each of which has a working (e.g., shaping) motion independent of the others to change the configuration of one or more preforms or (2) to vulcanize one or more preforms which are maintained in an operative position by a support of the same general configuration as the preforms.

- (1) Note. A press couple in which different parts thereof act sequentially on a common preform are included; whereas a “gang” mold type is classified under the appropriate main line subclasses appearing below.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
28.1+, for apparatus especially adapted to reshape, resize or vulcanize a tire casing, tire inner tube or endless drive belt.
- 263+, especially subclass 265 for preform reshaping means of the pottery type which includes work traversing profile tools.
- 363+, for a press reshaping or vulcanizing means of the endless type, including a corrugating roll having plural ridges and the like.
- 383+, for a single preform reshaping means or vulcanizing means including a conforming preform support capable of working on plural preforms.
- 341** This subclass is indented under subclass 340. Apparatus comprising multiple means to feed preform material to a reshaping or vulcanizing area; e.g., plural magazine type dispensers to plural molds.
- 342.1** This subclass is indented under subclass 340. Apparatus comprising means for applying fluid under pressure to the preformed material either directly or indirectly.
- 343** This subclass is indented under subclass 340. Apparatus in which (1) a preform sequentially passes through spaced, serially arranged reshaping or vulcanizing stations or (2) diverse portions of a preform are individually reshaped by a separate and distinct reshaping or vulcanizing members.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
325, for similar apparatus combined with diverse shaping or reshaping means.
- 344** This subclass is indented under the class definition. Apparatus comprising sets of devices, each set including a female mold having opposed movable plunger type press members positioned therein and means acting on the press members and causing them to move and apply pressure to material during the shaping operation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
352, for a single device of the type herein provided for.
- 345** This subclass is indented under subclass 344. Apparatus wherein either the mold or press members are adapted to move in a direction transverse to the direction of the pressing action.
- (1) Note. The traveling movement of the mold or press members may be either during or between molding operations.
- 346** This subclass is indented under the class definition. Apparatus comprising plural sets of male-female molding means for forming plural articles.
- (1) Note. Included herein a unitary structure having a plurality of female mold cavities therein cooperating with press surfaces which project into the cavities to form plural articles.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
357+, for plural female mold cavities with a single press member which may or may not project into the cavities.
- 406+, for a single female mold and press member or for plural female mold cavities with plural press members, which plural press members do not project into the cavities.
- 347** This subclass is indented under subclass 346. Apparatus comprising female molding means mounted for movement other than that necessary to perform the molding operation.
- (1) Note. Excluded under this definition of traveling is motion caused by vibrating in situ or moving a limited yielding surface in the female mold.

- 348** This subclass is indented under subclass 347. Apparatus wherein the motion of the plural female molding means is in an endless path.
- 349** This subclass is indented under subclass 348. Apparatus wherein the female molding means move back and forth along a linear path and are brought into pressure engagement with male molding means which are stationary or move along a nonlinear path.
- 350** This subclass is indented under subclass 348. Apparatus comprising an element (e.g., pin, pressurized gas source, etc.) to positively expel the formed article from the mold cavity.
- 351** This subclass is indented under subclass 346. Apparatus comprising an element (e.g., pin, pressurized gas source, etc.) to positively expel the formed article from the mold cavity.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
436+, for means to positively expel a formed product from a forming surface and see the notes thereunder for a complete list of subclasses involving ejecting means.
- 352** This subclass is indented under the class definition. Apparatus including a tubular female mold having opposed movable plunger type press members positioned therein and means moving the press member to apply pressure to material in the female mold.
- (1) Note. Included herein are devices in which the pressure applied is by means of a spring on which a press member is mounted.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
415, for a press mold comprising a female mold which is movably associated (e.g., floating, etc.) with opposed press surfaces positioned therein.
- 353** This subclass is indented under subclass 352. Apparatus wherein the mold or the plunger moves in a direction across the normal molding motion (i.e., a direction of motion of the press members).
- (1) Note. The cross motion need not be during the pressing operation, but can be any time during the cycle.
- SEE OR SEARCH CLASS:  
100, Presses, subclasses 226 through 229 for a press construction having a transversely displaceable piston or platen.
- 354** This subclass is indented under subclass 352. Apparatus in which the press members are both mounted for movement in the same direction the pressing being effected by one press member moving less than the other member with the space between the members decreasing.
- (1) Note. Included herein are devices in which one press member is spring mounted and the spring is depressed as the other press member applies pressure.
- 355** This subclass is indented under subclass 352. Apparatus in which each press member in turn moves to apply pressure while the opposing press member is stationary.
- 356** This subclass is indented under the class definition. Apparatus comprising a single female mold and a plurality of shape imparting plunger or roll means each of which is capable of coacting with the mold at a time or depth different from the other.
- (1) Note. Included under this definition is a device in which each of the shape imparting means is individually actuated, or a device in which the shape imparting means are integrally mounted on a crankshaft for simultaneous movement but sequential coaction with the mold.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
77, for ultra high pressure devices which may include plural plungers.  
457, for a plunger, per se, comprising a single carrier type support with plural projections thereon each of which produces a cavity in a material.

- SEE OR SEARCH CLASS:  
100, Presses, appropriate subclasses, especially subclasses 137+ for a press construction comprising a single platen and a plurality of plunger members coacting therewith.
- 357** This subclass is indented under the class definition. Apparatus having two or more female molds and a single press member coacting with the molds.
- (1) Note. The press member may operate with the molds either sequentially or simultaneously.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
220, for a plurality of female molds mounted on a conveyor and a screed type smoothing means shaping fluent stock at an open side of the mold.  
369+, and 396, for a single female mold having plural corrugating depressions.
- 358** Apparatus under subclass definition 357 wherein the press member is a male type plunger.
- 359** Apparatus under subclass definition 358 wherein the female molds are adapted to move across the line of pressing motion of the male member.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
353, for apparatus comprising a female mold and opposed moveable plungers and means to move either the mold or the plungers across the normal motion of the plungers.  
575, for a pressure charger for plural molds and means to move the molds past the charger.
- 360** Apparatus under subclass definition 359 wherein the molds move about a horizontal axis in an endless path.
- 361** This subclass is indented under subclass 359. Apparatus wherein the molds move about a vertical axis in an endless path.
- 362** This subclass is indented under subclass 357. Apparatus wherein the press member is a roll and the female molds are defined by a continuous surface, e.g., web, roll, etc..
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
220, for apparatus comprising a plurality of female molds mounted on a conveyor and a screed type smoothing means shaping fluent stock at an open side of the mold.  
331, for roll means associated with a perforated member.  
363+, for endless surface press means in general.
- 363** This subclass is indented under the class definition. Apparatus including a press coupling, at least one part of which has a continuous pressure surface (e.g., roll, endless belt, etc.) which moves during an operation to reshape, resize, form, or vulcanize an article.
- (1) Note. Under the definition the endless surface must be a part of a shaping surface and not merely a moveable support for a male or female shaping member.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
28.1+, for similar structure peculiar to use with a tire, tire tube or drive belt.  
66, for apparatus comprising an endless surface used in forming a continuous filament and advancing and stretching the product; see the search notes thereunder.  
222, for apparatus for shaping particulate material (e.g., pelletizing, etc.) comprising a tumbling type agglomerating means which includes an endless surface.  
223, for an endless casting surface and a cooperating means for harvesting the product.  
224, for apparatus for forming an indefinite length product comprising fluent stock casting means operably associated with a shaping surface which may be endless.  
319, for apparatus comprising means to form a preform combined with means

- to convolute or twist the preform, either of which means may be an endless shaping surface.
- 327, for an extruder and a downstream roll type reshaping or vulcanizing means.
- 328, for apparatus comprising diverse distinct type shaping means, one of which is a roll.
- 335+, for sets of shaping, reshaping or vulcanizing couples comprising an endless surface.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclasses 196+ for glass sheet manufacturing apparatus which may include an endless surface.
- 100, Presses, subclasses 151+ for an endless conveyor type press and subclasses 155+ for a roll type apparatus which concurrently presses and conveys.
- 364** This subclass is indented under subclass 363. Apparatus including a stationary platen or a reciprocating forming means (e.g., plunger, etc.) which coacts with an endless belt type conveying means so that the material being worked is carried bodily from one point to another while being compressed.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 320+, and 334, for convoluting or twisting means including an endless surface.
- 332, for a device imparting a rolling motion to a discrete charge to form a ball and which may include an endless surface.
- SEE OR SEARCH CLASS:
- 100, Presses, subclasses 151+ and 155+ for press means provided for therein and including an endless surface.
- 365** This subclass is indented under subclass 363. Apparatus comprising a tubular member and a roll means mounted therein to provide a press couple shaping area between the outside periphery of the roll and the inside periphery of the member.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 331, for a traversing roll pressuring means operably associated with a downstream plate which plate may be an endless surface.
- 426+, for a female mold utilizing mold motion to distribute or compact stock therein including an internal shaping member other than a roll means.
- 435, for a female mold rotatably mounted for rotation about a horizontal axis for utilization of mold motion to distribute or compact stock therein.
- 366** This subclass is indented under subclass 363. Apparatus in which the pressure surface comprises a plurality of rolls having axes which intersect.
- 367** This subclass is indented under subclass 363. Apparatus including means to regulate the location of a roll relative to its opposed work contacting surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 168, for adjusting means comprising means to compensate for wear.
- SEE OR SEARCH CLASS:
- 100, Presses, subclasses 168+ for a press means of the roll type provided for therein and comprising means to adjust the relative position of a roll.
- 368** This subclass is indented under subclass 363. Apparatus comprising a roll means including means to provide for adjustment of at least a portion of the diameter or length of a roll.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 417, for press forming apparatus comprising an inflatable male shaping element (e.g., core, etc.); see the search notes thereunder.
- 369** This subclass is indented under subclass 363. Apparatus wherein a reshaping means creates accordion-like pleats or wrinkles or the like in a preform (generally a sheet or web) by distort-

- ing a section thereof transverse to its axis into a plurality of reversing curves.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
336, for sets of shaping couples comprising an endless surface which corrugates running length work.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 461+ for laminating means combined with longitudinal bending means (e.g., corrugating means, etc.) for running length work.
- 370** This subclass is indented under subclass 369. Apparatus wherein the corrugating means has at least one reaction surface in the form of a corrugating roller or endless belt band with a surface configuration defining a corrugating means.
- 371** This subclass is indented under subclass 363. Apparatus wherein the press couple is defined by cooperating endless bands arranged to coat with the stock material therebetween.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
320+, and 334, for cooperating endless bands arranged to convolute or twist a preform.  
329, for three or more endless surfaces arranged to define a shaping aperture.  
332, for means which may include cooperating endless belts to impart a rolling motion to a discrete charge to form a ball.
- 372** This subclass is indented under subclass 371. Apparatus comprising means to regulate the speed of one band relative to that of the other.
- 373** This subclass is indented under subclass 363. Apparatus wherein the press couple is defined by a roll coacting with an endless band.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
362, for a roll type press member coacting with an endless surface which has shape imparting cavities therein.
- 374** This subclass is indented under subclass 363. Apparatus wherein the press couple comprises a roll coacting with a static forming surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
332+, for a similar combination modified to impart a balling action to the work.
- SEE OR SEARCH CLASS:  
7, Compound Tools, subclass 111 for a combined or convertible rolling pin.  
269, Work Holders, subclass 302.1 for kneading boards, per se.  
492, Roll or Roller, subclass 14 for a rolling pin, per se, not elsewhere provided for.
- 375** This subclass is indented under the class definition. Apparatus comprising a movable forming means (e.g., nozzle, plunger, etc.) and a means controlling the movement thereof to obtain an article of a predetermined shape.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
381, for a movable orifice or a movably mounted inner mandrel within an orifice.  
461+, for extrusion nozzles, per se, and see the search notes thereunder for combinations comprising nozzle type shaping means.
- 376.1 Stock pressurizing means operably associated with downstream shaping orifice:**  
This subclass is indented under the class definition. Apparatus including means defining a shaping orifice (e.g., a nozzle) combined with fluent stock material handling means comprising means ahead of the orifice to increase pressure on the material to force flow through the orifice.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
204, for apparatus in which the pressurizing means comprises plural diverse or parallel, intersecting means which may also agitate or knead the stock.  
461+, for an extrusion nozzle, per se; see the search notes thereunder for special

combinations including extrusion type forming means.

SEE OR SEARCH CLASS:

- 162, Paper Making and Fiber Liberation, subclass 408 for injection molding apparatus for paper.
- 222, Dispensing, subclasses 92+ and 206+ for collapsible or resilient wall containers to force material through an outlet; subclasses 216+, 226+ and 251+ for means forcing material from a supply to an outlet where no forming is involved.
- 377** This subclass is indented under subclass 376.1. Apparatus including distinct means for conveying, receiving or otherwise manipulating the material after extrusion.
- 378.1 Including heating or cooling means:**  
This subclass is indented under subclass 376.1. Apparatus having means to heat or to cool the fluent stock.
- 378.2 Spinneret:**  
This subclass is indented under subclass 378.1. Apparatus wherein the orifices are sized so as to produce pliable filaments.
- 379.1 Plural spaced:**  
This subclass is indented under subclass 378.1. Apparatus comprising multiple heating or cooling means, each one a discrete distance from the other; (e.g., heating or cooling means at the injection cylinder and also at the feed hopper area).
- 380** This subclass is indented under subclass 376.1. Apparatus including additional means operatively associated with the extruding orifice, either in, part of, or connected thereto, to impart a definite shape to the extruded product.
- 381** This subclass is indented under subclass 380. Apparatus which comprises (1) auxiliary shaping means (e.g., a shaping mandrel) movably mounted within the confines of the orifice means, or (2) means supporting an orifice means to provide movement thereof.
- 381.2** This subclass is indented under subclass 376.1. Apparatus wherein the fluent material is subjected to shearing stress usually produced by

relatively rotating feeding surfaces to cause a flow of the material in a direction towards a central shaping orifice.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 200+, for similar apparatus used for agitation, mixing or kneading material to be shaped.
- 382** This subclass is indented under subclass 376.1. Apparatus comprising multiple downstream shaping orifices.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 331, for apparatus comprising a plate having perforations therein associated with means upstream thereof to pressurize and force stock material through the perforations.
- 463, for plural shaping orifices, per se.
- SEE OR SEARCH CLASS:
- 99, Foods and Beverages: Apparatus, appropriate subclass for food treating apparatus having plural orifices a part thereof.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 47+, 166+, 433+ for methods and apparatus for making and bonding together indefinite length filaments, comprising plural orifices.
- 382.2** This subclass is indented under subclass 382. Apparatus wherein the orifices are sized so as to produce pliable filaments.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 461+, for a spinneret, per se, and see the collection of search notes thereunder relating to combinations inclusive thereof.
- 382.3 Including additional rotating means downstream of the primary pressurizing means:**  
This subclass is indented under subclass 376.1. Apparatus having an additional rotating means downstream of the primary pressurizing means and upstream of the shaping orifice; (e.g., a metering or mixing device).

**382.4 Including restriction upstream of shaping orifice and downstream of primary pressurizing means:**

This subclass is indented under subclass 376.1. Apparatus having a constriction upstream of the shaping orifice and downstream of the primary pressurizing means.

**383** This subclass is indented under the class definition. Apparatus comprising (1) means to deform, stretch, shrink or otherwise change or control the configuration or size of a preform, or (2) means to vulcanize a preform which means includes a preform support having the same shape as the preform or capable of causing the preform to retain its shape.

(1) Note. The first means does not necessarily include a preform support of the same shape as the preform.

(2) Note. A shaped "charge" generally has not been considered a preform for this group.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 17+, for a tire recapping, retreading or sidewall replacing means.
- 28.1+, for apparatus under the class definition for reshaping, resizing or vulcanizing means especially adapted to a tire, tire tube or drive belt.
- 108, for apparatus comprising means for joining a rod-like preform end to end with another rod-like preform.
- 112+, for means to reshape a preform in a composite article making apparatus.
- 181, for apparatus convertible from a type of reshapener to another type of former or reshapener.
- 233+, for apparatus under the class definition comprising sets of press couples comprising opposed registering coacting female molds.
- 263+, for preform reshaping means of the pottery type which comprises a work traversing profile tool.
- 289+, for apparatus under the class definition including preform severing means, especially subclasses 290+ for a preform perforator, subclasses 296+ for the combination of means for

forming from bulk and means for severing and means for reshaping, and subclasses 302.1+ for serially arranged severing means and preform reshaping means.

- 319+, for means to convolute or twist a preform combined with upstream means to form the preform from bulk.
- 324.1+, for the combination of shaping means and preform reshaping means.
- 334, for apparatus under the class definition comprising plural sets of convoluting or twisting means.
- 340+, for apparatus under the class definition comprising plural independent reshaping means or plural independent vulcanizing means including a preform support.
- 363+, for an endless surface type press reshaping or vulcanizing means, especially subclasses 369+ for such a means for corrugating a preform.

SEE OR SEARCH CLASS:

- 26, Textiles: Cloth Finishing, subclasses 71+ for apparatus to stretch or spread a textile (e.g., a plastic film, etc.).
- 65, Glass Manufacturing, appropriate subclasses for preform reshaping in the glass manufacture art, especially subclasses 286+ for preform reshaping means, per se; see the search notes thereunder.
- 72, Metal Deforming, appropriate subclasses for article making apparatus or process involving a permanent deformation of the stock.
- 131, Tobacco, especially subclasses 77+ for cigarette or cigar making comprising molding or forming.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for a laminating means or step combined with reshaping means or step, especially subclasses 446+ for a laminating combination including a rotating mandrel or such a mandrel, per se. See the class definition of this class for the line between Classes 156 and 425.
- 164, Metal Founding, subclasses 332+ for metal founding apparatus comprising means to support or position a preform.

- 223, Apparel Apparatus, appropriate subclasses for apparatus for shaping apparel, especially subclasses 12+ for hat shaping forms, subclasses 66+ for other apparel forms.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclass for a process including reshaping of a plastic or nonmetallic preform.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 242 and 295+ for autoclaves including those having a disclosed use as a vulcanizing chamber.
- 493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, especially subclasses 405+ for sheet folding, per se.
- 384** This subclass is indented under subclass 383. Apparatus including separate and distinct heating means and cooling means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
407, for apparatus comprising opposed press members and means to both heat and cool; see the search notes thereunder.
- 385** This subclass is indented under subclass 383. Apparatus comprising a means for altering only the surface configuration of a preform by creating a protuberance or a depression.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
35+, for surface deformation means combined with a shaping couple comprising a toroidal female mold and contacting means for holding a preform thereagainst.  
290, for a surface deformation means comprising a perforator.  
291, for the combination of a shaping or reshaping means combined with a perforator and a scoring means or a diverse severing means.  
299, for a preform severing means in which the cutting implement provides a shaping cavity (e.g., cookie cutter, etc.) and also having a surface deformation means.
- 304, for preform severing means serially arranged with a separate and distinct surface deformation means.
- 324.1+, for surface deformation means combined with a diverse distinct shaping or reshaping means; see especially subclasses 325+.
- SEE OR SEARCH CLASS:  
101, Printing, subclasses 3.1+ for embossing or penetrating printing machines utilizing inking means or perforators shaped to impart intelligence.  
400, Typewriting Machines, subclasses 127+ for a typewriting machine of the embossing or penetrating type.
- 386** This subclass is indented under subclass 385. Apparatus especially designed to form a design or impression in sealing wax.
- 387.1** This subclass is indented under subclass 383. Apparatus in which the reshaping is accomplished at least in part by means applying fluid pressure directly upon at least one surface of the preform to effect shaping thereof.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
44+, for a toroidal female shaping means and means to apply fluid pressure directly to a preform in a tire or tube reshaping, resizing, or vulcanizing apparatus.  
80.1+, for an air felting type shaping means for forming self-sustaining webs or bodies of particulate material (e.g., mica flakes, spiny rubber, etc.); and see the search notes thereunder.  
326.1, for diverse distinct shaping or reshaping means including a downstream preform reshaping means which utilizes a fluid pressure differential.  
342.1, for means contacting work by fluid pressure in (1) plural reshaping means, or (2) plural vulcanizing means with a preform support.  
389, for a preform reshaping means or vulcanizing means including shaping surface or shape retaining surface comprising a fluid pressure actuated flexible diaphragm.

- 405.1+, for fluent or bulk material shaping means utilizing differential fluid pressure.
- 503, for preform reshaping means utilizing differential fluid pressure combined with means for bonding plural preforms.
- 522+, for blow molding by application of fluid pressure directly to move a tubular workpiece into engagement with a female mold.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclasses 421.1+, for a process of mechanical manufacture comprising shaping by direct application of fluid pressure.
- 65, Glass Manufacturing, subclasses 484+ for apparatus used to form glass fibers or filaments, particularly subclass 490 for means to measure, control, indicate, time, or test fluid pressure utilized with the glass fiber or filament forming apparatus; subclasses 300+ for glass article making apparatus comprising means applying pneumatic pressure inside of a discrete charge (e.g., bottle blowing means, etc.); see the search notes thereunder.
- 164, Metal Founding, subclasses 253+, for metal founding apparatus including means to apply vacuum directly to work or to hold or manipulate a shaping means of that class.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 500+, for plastic or nonmetallic article shaping or treating comprising direct application of fluid pressure differential to permanently shape, distort, or sustain work, and subclasses 320+, for a process of shaping by applying pressure fluid to work against a solid forming surface.
- 388** This subclass is indented under subclass 387.1. Apparatus in which the reshaping is accomplished at least in part by means creating a reduced pressure on at least one surface of the preform to thereby provide a differential pressure which is utilized as a shaping force.
- 389** This subclass is indented under subclass 383. Apparatus wherein the reshaping is accomplished at least in part by means of a flexible diaphragm, actuated by fluid pressure, which diaphragm contacts a surface of the preform to effect shaping thereof.
- (1) Note. Inflatable bags, etc., used to force a solid press member against the work are included (See subclasses 394+).
- (2) Note. The fluid pressure may be due solely to the weight of a super-imposed shaping surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 27, for an "air bag" type fluid pressure actuated diaphragm as an expansible internal support in combination with means supporting a tire in tire repair apparatus.
- 43, for a toroidal female shaping means and a coacting fluid pressure actuated internal diaphragm in a tire or tube reshaping, resizing or vulcanizing apparatus.
- 52+, for an internal mold, form or support of the fluid pressure actuated diaphragm type in a tire or tube reshaping, resizing or vulcanizing apparatus.
- 387.1+, for preform reshaping or vulcanizing apparatus comprising means to contact the work directly with fluid pressure.
- 405.1+, for press molding machine utilizing differential fluid pressure in shaping bulk material; see the search notes thereunder.
- 390** This subclass is indented under subclass 389. Apparatus comprising means providing opposed cooperating shaping cavities having meeting portions of co-extensive area.
- (1) Note. Excluded under this definition is a device in which either cavity portion includes a protuberance that extends into the other cavity.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 43, for a similar combination limited to toroidal female molds for making a tire, tube or endless belt.
- 408, for a press couple means for shaping fluent stock; see the collection of search notes thereunder.

**391** This subclass is indented under subclass 383. Apparatus comprising means to generate a product having complex circularity by a winding or twisting or turning operation whereby a preform is reshaped into a coil, helix, corkscrew, spiral or the like.

- (1) Note. Included under this definition is any means, no matter how simple, (e.g., mandrel, etc.) which has features provided specifically for this function.
- (2) Note. Corrugating, per se, is excluded; see subclasses 396+ below.
- (3) Note. Means generating less than a 360° turn are included only if a projection of the motion would result in a product defined above.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 319+, for convoluting means downstream of means to form a preform.
- 323, for apparatus peculiar to pretzel bending action.
- 334, for sets of convoluting or twisting means.
- 363+, an endless belt or roll means which may convolute or twist material.
- 372, for reshaping means comprising cooperating endless belts operated at different speeds some of which are disclosed as convoluting means.
- 393, for means forming beaded edge on a tube by rolling an end portion back over the tube.

SEE OR SEARCH CLASS:

- 132, Toilet, subclasses 226+ for toilet articles comprising hair crimpers or curlers.
- 223, Apparel Apparatus, subclasses 28+ for a machine or machine method for

plaiting, fluting, and shirring of apparel articles.

**392** This subclass is indented under subclass 383. Apparatus peculiarly adapted to reshape or size rod or tube like preforms.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 66, for apparatus under the class definition combined with a stretching means comprising advancing means for continuous length work.
- 76, for a means imparting irregular denier to a filament.
- 325+, for a preform reshaping means downstream of an extrusion shaper, see especially subclass 326.1 for reshaping means to blow a tube into a receptacle.
- 522+, for means to blow a tube into a receptacle (e.g., bottle, etc.).

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 276+ for the combination of reheating means and mechanical means to reshape tubular type glass preforms and subclasses 292+ for reshaping means for cylindrical preforms of glass.

**393** This subclass is indented under subclass 392. Apparatus comprising a mandrel type supporting and shaping means placed within the preform and additional means exerting a force on at least a portion of the preform urging it against the mandrel.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 296+ for glass manufacturing apparatus comprising forcing means both internal and external of a cylindrical glass preform reshaping.

**394** This subclass is indented under subclass 383. Apparatus comprising cooperating shaping surfaces which confine a preform to retain a desired configuration thereof or which exert a compressive force to impart a change in configuration of a preform.

- (1) Note. A ball type impact member coacting with a preform support is considered to be a shaping surface under this definition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 35+, for similar devices specially adapted for the manufacture of tires, tubes or drive belts.
- 327, for an extruder in combination with down-stream press type reshaping or vulcanizing means.
- 335+, for sets of shaping couples including an endless surface for press reshaping or vulcanizing.
- 339, for a gang press comprising plural parallel leaves or platens for reshaping or vulcanizing preforms.
- 363+, for a press reshaping means or vulcanizing means including an endless surface type (e.g., roll, belt, etc.) reshaping surface.
- 393, for co-acting shaping surfaces comprising a mandrel inside of a tubular preform reshaping apparatus.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 229+ for diverse distinct glass working apparatus including a preform reshaping means, subclass 244 for spaced preform reheating means with reshaping means, subclasses 275+ for a mechanical means to reshape a glass preform combined with a reheating means and subclasses 286+ for press means to reshape a glass preform; see the search notes under subclasses 229+.

- 395** This subclass is indented under subclass 394. Apparatus comprising means providing opposed cooperating shaping cavities having meeting portions of co-extensive area.

- (1) Note. Excluded under this definition is a device in which either of the cavity forming means includes a protuberance which enters into the other cavity; such apparatus will be found in subclasses 398+ or 412+ for example.

- (2) Note. Included under this definition is a device comprising a mandrel sandwiched between mold halves.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 408, for a press couple means comprising opposed coacting female molds forming fluent material into a preform; see the collection of notes thereunder.

- 396** This subclass is indented under subclass 394. Apparatus wherein at least one of the opposed coacting shaping surfaces has furrowed and ridge-like configurations whereby a row of wave-like elements are formed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 303, for a preform severing means and with a preform reshaping means of the corrugating type serially arranged therewith.
- 336, for corrugating means for running length work including sets of shaping couples comprising an endless surface.
- 369+, for preform corrugating means including an endless surface type reshaping means.

- 397** This subclass is indented under subclass 394. Apparatus comprising a combination of a reshaping or vulcanizing means and specific means of delivering or discharging a preform thereto or manipulating a preform at a shaping station (other than means for ejecting or stripping).

- 398** This subclass is indented under subclass 394. Apparatus comprising (1) cooperating male and female shaping members and (2) means for imparting relative reciprocation between the male and female members.

- 399** This subclass is indented under subclass 398. Apparatus wherein the male member is stationary and the female member reciprocates.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 349, for a similar mold-plunger relationship in a machine having orbiting

female mold members of sets of male-female press molds.

- 400** This subclass is indented under subclass 398. Apparatus comprising means for orienting a preform with respect to male and female members.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclass 323 for glass working apparatus comprising means for centering or positioning a product or preform.

- 401** This subclass is indented under subclass 398. Apparatus comprising, in addition to the inlet for the stock material, an additional opening to permit escape of fluids or excess stock material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 84+, for apparatus including foraminous or absorbent means for removal of vehicle or component in liquid form during, or after, shaping.  
86, for apparatus including handling means or other features for treating liquid or vehicle liquid or condensate.  
420, for forming apparatus comprising opposed press members and a vent or other means to remove or permit removal of entrained gas.

- 402** This subclass is indented under subclass 383. Apparatus providing means whereby a preform is rotated to effect shaping thereof or to enhance vulcanization thereof, e.g., centrifugally shaping a preform.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 263+, for a pottery wheel type support and profile tool.  
425+, for apparatus comprising a female mold and means utilizing the mold motion to distribute or compact stock therein, especially subclasses 425 and 435 for means to rotate the mold.

- 403** This subclass is indented under subclass 383. Apparatus which comprises a shaping member, per se, against which a preform is shaped.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 49+, for an internal mold, per se, specialized to tire or tire-tube making.  
391, for a mandrel structurally restricted to means for convoluting a preform.  
393, for tubular stock reshaping means comprising a mandrel to interiorly support the work.  
470+, for other shaping surfaces, per se.

SEE OR SEARCH CLASS:

- 12, Boot and Shoe Making, subclasses 128+ for forms for boot and shoe making, especially subclasses 133+ for shoe last type.  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 414+ for tire building drums, per se.  
223, Apparel Apparatus, subclasses 66+ for a conforming preform support (i.e., a form) in apparel apparatus used for forming, pressing, molding or stretching.  
428, Stock Material or Miscellaneous Articles, for a stock material product duct in the form of a single or plural layer web or sheet embodying a component of nonplanar uniform thickness material and having an ornamental design or indicia thereon, and subclasses 195+ for such a product which has a differential coating, impregnation or bond which may be in the form of an ornamental design or indicia.

**403.1 Including product handling means:**

This subclass is indented under subclass 383. Apparatus including distinct means for subsequently conveying, receiving, or otherwise manipulating the reworked preform.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 38, for means removing a product from toroidal female-shaping means.  
135+, for automatic control of a product conveying means.  
165, for apparatus under the class definition including an electrical control system for removal from a molding surface.

- 315, for a product handler utilized as a cutter and in a former-cutter combination.
- 337, for a preform handler intermediate sets of endless surface-shaping couples.

## SEE OR SEARCH CLASS:

- 226, Advancing Material of Indeterminate Length, appropriate subclass for a process or apparatus, per se, for forwarding continuous length material, especially subclass 88, for such apparatus combined with means to temporarily deform the material laterally for stiffening.
- 414, Material or Article Handling, appropriate subclass for material or article handling apparatus, per se, for bringing work to or removing a product from a forming surface. See the search notes in Class 414 for classification of combinations of handling or conveying means and fabricating, shaping, or conditioning means for the material or article.
- 404** This subclass is indented under the class definition. Apparatus comprising means for forming a product and subsequent means for altering the physical or chemical nature of the product.
- (1) Note. When molding fluent material the product need not be removed from the mold prior to the treatment providing there is evidence that the product is self-sustaining prior to being subject to the treatment.
- (2) Note. When reshaping or vulcanizing utilizing a conforming preform support, the treatment must be performed after the preform has been removed from the shaping surface.
- (3) Note. The term treatment for the purpose of this subclass includes all procedures in which any chemical or physical property of a product is controlled or modified by other than mechanical shaping, i.e., causing a shaping force to be applied to the product. Included under this definition of treatment are, for example, heating, cooling, washing, dry-

ing, etc.; however, heating of a product to release it from a mold is not considered to be treatment, and will be found in subclasses 436+.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 289+, for shaping followed by cutting. 326, for a downstream treating means in an extrusion nozzle type shaping means combined with a fluid pressure reshaping means.
- 339, for gang press vulcanizing means including a conforming preform support.
- 363+, and 383+, for preform reshaping means or vulcanizing means which may include treating means, and specifically subclass 384 for such reshaping or vulcanizing means and including both heating and cooling means.
- 378.1+, for extrusion apparatus including heating or cooling means.
- 405, for a press means and a treating means to perfect the press operation by using a fluid pressure differential.
- 407, for press having opposed members and including heating and cooling means.
- 425+, for female mold including tamping means.
- 445+, for simultaneous shaping and treating.
- 456, for vibrating means including mechanical movement or power means.

**405.1 Means to create a vacuum or apply fluid pressure within a press forming mold:**

This subclass is indented under the class definition. Apparatus comprising means utilizing differential fluid pressure to shape fluent or bulk material.

- (1) Note. Using a fluid pressure to cause movement of a press member is excluded, and will be found in other subclasses, for example 43, 389+ and 457.
- (2) Note. The fluid pressure may directly contact the work, as in isostatic or hydrostatic shaping apparatus, or may effect shaping force to an intervening flexible pressure transmitting means which con-

tacts the work, as in inflatable bag shaping apparatus.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 43, for a toroidal female shaping means combined with a fluid pressure actuated internal diaphragm for holding a preform against the female shaping means.
- 387.1+, for preform reshaping means by contacting work directly with fluid.
- 389+, for preform reshaping means by a fluid pressure actuated flexible diaphragm.
- 406+, for apparatus comprising press members which may be caused to move by hydraulic or other fluid pressure, and especially subclass 417 for an expandible male shaping member.
- 437+, for a shaping surface having means for ejecting the work with a differential gas.

#### 405.2 Isostatic type:

This subclass is indented under subclass 405.1. Apparatus comprising means utilizing an equal application of pressure to all sides of the quantity of material.

**406** This subclass is indented under the class definition. Apparatus comprising opposed cooperating shaping surfaces having relative movement for exerting compressive force on material therebetween to impart a desired shape thereto.

- (1) Note. Injection molding apparatus of somewhat similar structure are excluded; see the search notes below for such devices.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 11+, for product or preform repair devices utilizing a press.
- 110+, especially 128 for press shaping devices used in forming composite articles.
- 175+, for press means for forming a mold.
- 193+, for press means including an assembly or dismantling feature.
- 218+, for a female mold having a charge inlet and cooperating means to

smooth or remove the fluent stock at the orifice.

- 335+, for sets of shaping couples including an endless surface.
- 338+, for gang-presses.
- 346+, for sets of male-female press molds.
- 352+, for a female mold and opposed coaxial dynamic press members.
- 356+, for a female mold coacting with plural plungers or rolls.
- 357+, for plural mold cavities and a single press member.
- 363+, for an endless surface press couple.
- 383+, for press means for reshaping a preform.
- 450.1+, for means to open and close injection molding means.
- 457, for a dynamic male shaping member, per se.
- 542+, for injection molding apparatus including means to charge fluent stock under pressure thereto.

**407** This subclass is indented under subclass 406. Apparatus comprising separate and distinct heating means, and cooling means.

- (1) Note. A disclosure of a molding apparatus combined with heating means alone or cooling means alone is classified in the subclass providing for the specific molding apparatus.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 40+, for a tire, tube or drive belt reshaping, resizing or vulcanizing means comprising a toroidal female shaping means and coacting means holding a preform thereagainst and including heating or cooling means.
- 277, for a shaping dispenser of the ice-cream scoop type including a fluid heat accumulator.
- 378.1+, for an extrusion type shaping means including a heating or cooling means.
- 384, for a preform reshaping or vulcanizing means including both heating and cooling means.
- 404+, for a shaping means and downstream treatment means for a product which may be heating and/or cooling means.

- 445+, for means, per se, to treat shaped work, which may be heating and/or cooling means.
- 548, for plural distinct means for heating or cooling in injection molding apparatus.
- 408** This subclass is indented under subclass 406. Apparatus comprising facing shaping cavities which coact to press fluent stock into a desired shape, the cavities having meeting portions of co-extensive area.
- (1) Note. Excluded under the definition is a device in which either of the cavity forming means includes a protuberance which enters into the other cavity. Such apparatus will be found in subclasses 398+ or 412, for example.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 35+, for coacting mold halves having a toroidal configuration in combination with internal means holding a preform thereagainst.
- 47, for a sectional female mold of toroidal configuration having a locking or clamping means.
- 116, for sets of opposed registering coacting female molds which not only shape fluent material but include a feature to form a composite article using a preform.
- 233+, for sets of press couples each set comprising registering coacting female molds.
- 278, for opposed coacting mold cavities serving as the ice cream scoops.
- 296, for a preform reshaping means comprising opposed female mold sections with cooperating, registering cutting edges.
- 395, for coacting shaping surface in preform reshaping or vulcanizing means comprising opposed, registered female cavities.
- 425+, for "slush" molding means for apparatus that is similar in structure, especially subclasses 433, 434 and 435, which are used to make hollow articles (e.g., a ball, doll-head, etc.).
- 450.1+, for subcombinations of injection molding apparatus having similar structure but diverse operation.
- 542+, for similar structure in injection molding apparatus including means to charge fluent stock under pressure.
- 409** This subclass is indented under subclass 406. Apparatus comprising a force applying shaping surface moving in an arcuate path to apply pressure.
- (1) Note. Excluded under this definition of "arcuate path" is rotation (e.g., of male shaping member) about an axis.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 418, for a rotating male member co-operating with a female member.
- 410** This subclass is indented under subclass 406. Apparatus comprising a female mold and a co-operating dynamic press member in which the movement of the press member toward or into the female mold is limited by a portion of the press member, or a member attached thereto, coming into contact with the peripheral edge of female mold.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 175+, for mold forming members including cover type press member, e.g., flasks.
- 218+, for a female mold and a stock smoothing means (e.g., screed, etc.) or excess stock removing means co-operating with the charge opening of the mold.
- 352, for a female mold and opposed co-axial dynamic press members.
- 411** This subclass is indented under subclass 406. Apparatus comprising an assembly including opposed shape imparting press surfaces wherein said assembly is designed to be inserted between pressure applying surfaces of a press.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 89, for devices utilizing an interposed non-adhering web or sheet type parting means.

- 175+, mold forming flasks positioned in a press.
- 182+, for molding devices assembly or dismantling means.
- 338, for gang-presses including plural parallel leaves or platens.
- 412** This subclass is indented under subclass 406. Apparatus comprising a male shaping member adapted to penetrate within a female mold cavity to exert a compressive force on a plastic material contained therein.
- (1) Note. The device must include means to move either the male member or the female mold into an operative association.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 23+, for a female tire repair mold and a male shaping member.
- 35+, for a female tire mold and a male shaping member.
- 117+, for devices uniting a preform to a fluent material within a female mold which devices may include a male shaping member.
- 195, for a press shaping surface and a female mold including an assembly or dismantling means.
- 346+, for sets of male-female press molds.
- 352+, for a female mold and opposed co-axial dynamic press members.
- 356+, for plural female mold cavities and a single press member.
- 398, for reshaping presses including a plunger and a female mold.
- 426+, for a female mold and a relatively moving internal reshaping member.
- 542+, for a discharge assistant which provides a shaping surface in a combination comprising a female mold and means to charge fluent stock thereto under pressure.
- 413** This subclass is indented under subclass 412. Apparatus which includes a pallet and means to move the pallet from one position to another or means to guide or assure proper positioning of the pallet.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 452, for a female mold with a pallet handling means; see the search notes thereto.
- 414** This subclass is indented under subclass 412. Apparatus which includes means to move a core member with respect to a mold cavity prior or subsequent to shaping a material within the cavity against the core.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 11+, for positioning a core in a tire repair mold.
- 28.1+, for positioning a core in a tire manufacturing mold.
- 355, for co-axial press members in a female mold and including a core member.
- 468, for a core and positioning means therefor.
- 577, for a female mold, means to charge fluent stock, and a core positioning means.
- 415** This subclass is indented under subclass 412. Apparatus which includes opposed or coating press elements mounted or positioned within a female mold in which the female mold is designed to move with respect to the press surfaces.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 352, for opposed dynamic press members in a female mold.
- 423, for a female mold moving into mating relationship with a male shaping member; see search notes thereto.
- 416** This subclass is indented under subclass 412. Apparatus comprising means reciprocating a male shaping member from a position below a mold into a pressing relationship with the mold.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclass 321, for similar apparatus for pressing glass.

- 417** This subclass is indented under subclass 412. Apparatus in which the male shaping member includes means to increase the area of its pressing surface while applying pressure to material being shaped within the female mold.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 11+, for especially subclasses 23+ and 27+ for expansible male shaping members designed for use in tire repair apparatus.
- 28.1+, for expansible male shaping members used in tire manufacture apparatus.
- 283, for expansible shaping members for excavating from a bulk source with simultaneous shaping.
- 368, for an expansible roll in a press couple.
- 438, for contractible shaping members for releasing products therefrom.
- 418** This subclass is indented under subclass 412. Apparatus including means to rotate a male shaping member about its own axis.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 262, for a trowel type member shaping the material as it is moved within a pipe forming mold.
- 263+, for pottery wheel and profile tool type shaping devices.
- 272, for rotating dipping molds.
- 280, for excavating tools or shaping members which rotate.
- 383+, for devices for reshaping a preform and which may include a rotating member.
- 425+, for devices utilizing mold motion to distribute or compact work.
- 460, for rotating trowels, per se.
- 419** This subclass is indented under subclass 412. Apparatus combined with means to change the compressive force applied to a material during a continuous pressure application.
- 420** This subclass is indented under subclass 412. Apparatus comprising means especially adapted to permit trapped gas to escape or be removed from within a mold cavity or the material being shaped.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 153+, for molding devices which including safety means to relieve gaseous pressure.
- 203, for molding devices which include a mixing chamber with a vent.
- 401, for devices for reshaping preforms including a sprue or vent.
- 405.1+, for molding devices including means to apply a vacuum within a press form mold.
- 812, for a collection of means to vent molding devices in general.
- 421** This subclass is indented under subclass 412. Apparatus which includes means for disturbing the equilibrium of the particles of a fluent material by causing relative motion of its particles to cause the material to be compacted.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 456, for vibrators or tampers with mechanical movement of power means; see the search notes thereunder.
- 422** This subclass is indented under subclass 412. Apparatus comprising positive means to remove or expel a formed article from a shaping member.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 352+, for male-female press type mold wherein the bottom of the female is a dynamic plunger.
- 436+, for ejecting, per se; see the search notes thereunder.
- 423** This subclass is indented under subclass 412. Apparatus comprising a reciprocating female mold cavity adapted to move into a coacting relationship with a male shaping member to compress material therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 125, for forming a composite by moving a female mold toward a preform support.
- 349, for sets of reciprocating molds and stationary plungers.

- 399, for similar devices for reshaping a preform.
- 415, for a female mold movably associated with opposed press surfaces positioned therein.
- 424** This subclass is indented under the class definition. Apparatus comprising (1) a shape imparting receptacle and (2) means to vibrate the shape imparting receptacle, or to contact and density the material therein, and (3) means to release the formed product from the shape imparting receptacle.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 425+, for a female mold and means to vibrate the mold or to tamp the material therein.
- 469, for a tamp rod, per se.
- 425** This subclass is indented under the class definition. Apparatus comprising means defining a shaping cavity combined with (1) means to compact fluent stock therein by vibration or agitation (i.e., wherein the said means is a tamper, vibrator or means providing centrifugal force) or (2) means mounting a mold for motion to assist distribution of fluent stock within the cavity.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 200, for apparatus combined with agitating or kneading means upstream of a forming means, especially subclass 206 which includes such a means within or at a forming means.
- 218, for a container type female mold having means removing or smoothing excess stock at the mouth of the mold.
- 365, for similar structure in a press forming or reshaping means of the endless type (e.g., roll, etc.) comprising a roll telescopically mounted within a cooperating drum. See the notes thereunder.
- 418, for a press couple shaping means consisting of a shaping plunger and female mold including means to rotate the plunger.
- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclass 302 for centrifugal casting of glass articles.
- 118, Coating Apparatus, subclasses 52+ for a coating apparatus utilizing means to centrifuge work.
- 162, Paper Making and Fiber Liberation, subclass 384 for pulp molding means utilizing a centrifuge.
- 164, Metal Founding, subclasses 286+ for centrifugal metal casting apparatus.
- 249, Static Molds, subclasses 137+ for a centrifugal mold, per se.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 311, for a process of shaping against a forming surface utilizing centrifugal force; see the search notes thereunder.
- 366, Agitating, for an agitator, per se.
- 426** This subclass is indented under subclass 425. Apparatus including means (e.g., core, etc.) to impart shape to an internal surface of the product formed in the shaping cavity and means to impart relative movement between the cavity defining means and the internal surface shaping means.
- (1) Note. Means for vibrating a shaping surface of the female or internal mold in situ are not here but are in subclass 432 unless there is other relative motion between the female and internal mold.
- 427** This subclass is indented under subclass 426. Apparatus wherein the internal surface shaping means moves with respect to a stationary cavity means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 365, for a roll type press forming means telescopically mounted within a cooperating drum.
- 398, for preform reshaping means comprising a stationary female mold and a reciprocating plunger.
- 416, for press forming apparatus having a male member moving upwardly into cooperation with a female mold thereabove.

- 428** This subclass is indented under subclass 426. Apparatus including a bar type element movably mounted to poke into the fluent stock to eliminate voids (e.g., air pockets, etc.) therefrom.
- 429** This subclass is indented under subclass 425. Apparatus comprising plural means, each imparting a separate diverse motion to the shaping means, which motion contribute to a distributing or compacting function.
- (1) Note. Traveling support means for a mold which merely presents a mold to a shaping area are not here; see appropriate subclasses provided for plural molds or subclass 453 for a dynamic mold carrier, per se.
- (2) Note. When one of said means is a vibrator directly vibrating a shaping surface, the disclosure is here. However, a tamp rod acting on the stock is not considered means to impart motion to a shaping surface and has been collected in subclass 431. Further, the indiscriminate motion caused by a vibrator is not considered diverse motion for this subclass--thus, it follows that electrical or pneumatic vibrators which produce indiscriminate vibrating motion of a shaping surface are not here but are in subclass 432.
- 430** This subclass is indented under subclass 429. Apparatus wherein the shaping means comprises separate and distinct units each of which provides a shaping cavity.
- 431** This subclass is indented under subclass 425. Apparatus comprising a rod-like element to compact material within the female mold by a poking action.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 206, for forming means or mold and an agitating or kneading means to mix the material in the forming means or mold.
- 421, for a tamper or vibrator in a female mold-plunger type press shaping couple.
- 424, for the combination of a female mold, tamper and release means for the product.
- 428, for a tamper in a female mold and core combination wherein there is relative rotation between the mold and core.
- 432** This subclass is indented under subclass 425. Apparatus including means to cause a shaping surface to shake or quiver.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 421, for a tamper or vibrator in combination with a male-female press couple.
- 424, for the combination of a female mold, vibrator and release means.
- 426, for a female mold and core combination having relative motion therebetween and a vibrator for a shaping surface.
- 429, for the combination of a shaping surface, means to vibrate same and means to impart diverse motion to the surface.
- SEE OR SEARCH CLASS:
- 164, Metal Founding, subclasses 203+ for mold making apparatus and 260+ for metal founding apparatus including vibrator means; see the search notes thereunder.
- 366, Agitating, subclasses 108+ for a vibrating agitator of general utility.
- 433** This subclass is indented under subclass 425. Apparatus including an endless belt means supporting the mold on its external surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 365+, for a roll type shaping means telescopically mounted within a cooperating drum.
- 434** This subclass is indented under subclass 425. Apparatus comprising multiple units each providing a shaping cavity.
- 435** This subclass is indented under subclass 425. Apparatus comprising means to rotate a shaping cavity about a horizontal axis.

## SEE OR SEARCH CLASS:

118, Coating Apparatus, subclasses 52+ especially subclass 55 for related structures adapted to a coating operation.

**436** This subclass is indented under the class definition. Apparatus comprising shaping members which are equipped with distinct means, other than those for associating or separating parts making up the shaping means, to remove or facilitate removing the product from the shaping surface.

- (1) Note. Means for retracting or withdrawing a mold surface from the molded material (e.g., segmented molds or cores) are not included herein but are classified on some other basis. Means moving a mold bottom to force the product out of a mold is considered a form of ejecting and not merely separating of mold parts and is included herein.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

38, for means for removing a product from a toroidal female mold.

139, for automatic control of an ejector or stripper.

165, for an electrical control system of a product removal means.

176, product removal means in a combination comprising mold forming means.

223, for an endless surface type shaping surface and associated means to harvest a preform therefrom.

282+, for a product release means in a shaping means of the ice-cream scoop or plugger type.

346+, for a machine comprising sets of male-female press molds including positive means to eject a product, see especially subclasses 350 and 351.

363+, for an endless surface type press couple which may include means to strip or eject a product from the surface.

422, for a male-female press couple including positive means to remove or eject a product.

## SEE OR SEARCH CLASS:

65, Glass Manufacturing, appropriate subclasses for ejection means combined with glass forming means, especially subclasses 305+ for a press molding machine including an ejector.

72, Metal Deforming, subclasses 426+ for product handling means in metal deforming apparatus.

162, Paper Making and Fiber Liberation, subclass 410 for article ejecting means in a foraminous pulp molding mold.

164, Metal Founding, subclasses 213+ for a stripping or ejecting means for separating a forming surface from a shaping means in an apparatus for making a forming surface; subclasses 344+ for ejection means in a means to shape metallic material; and subclasses 401+ for a stripper or ejector peculiar to metal founding.

249, Static Molds, subclass 66.1 for ejector means in a static mold.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 334+ for a process of ejecting or stripping in a plastic article shaping process.

**437** This subclass is indented under subclass 436. Apparatus wherein the means to separate the molded article from its shape imparting surface includes a gas pressure differential across article.

**438** This subclass is indented under subclass 436. Apparatus comprising a member around which the article is formed and means causing the article to be released from the member.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

577, for injection mold apparatus utilizing a core and means to release or remove the core from the product.

**439** This subclass is indented under subclass 436. Apparatus wherein the mold containing the molded product is turned 180° so that gravity aids in removing the product therefrom.

- SEE OR SEARCH CLASS:  
164, Metal Founding, subclass 409 for means to invent a pattern plate or mold in metal founding apparatus.
- 440** This subclass is indented under subclass 436. Apparatus in which at least one surface of a mold shaping surface is bent, reshaped or distorted to break the bond between the mold surface and the product.
- 441** This subclass is indented under subclass 436. Apparatus wherein the means to separate the molded article from its shape imparting surface includes a portion of the shaping surface which moves relative to the remainder of the shaping surface to release the molded article therefrom.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 161+, for movable mold sections in static mold.
- 442** This subclass is indented under subclass 441. Apparatus wherein the mold sections are pivotally movable.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 170+, for hinged sections in a static mold.
- 443** This subclass is indented under subclass 441. Apparatus including means to cause relative vertical movement between the mold sections.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 74+, for a static mold and force applying means to remove the product comprising means to move the mold bottom, and subclass 136 for a mold having a movable bottom.
- 444** This subclass is indented under subclass 436. Apparatus comprising a member which enters into the confines of a mold cavity and applies pressure to the molded product to break the bond between the product and the mold.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
443, for similar structure but where the ejector comprises the mold bottom.
- 445** This subclass is indented under the class definition. Apparatus wherein shaped material is subjected to an operation which controls or modifies the chemical or physical properties of the work by other than causing a shaping force to be applied to the work.
- (1) Note. Included under this definition are heating, cooling, washing, dyeing, etc..
- (2) Note. Included in this and indented subclasses is both the treatment of fluent material which has been shaped but not yet solidified and the treatment of previously molded articles. Apparatus for treatment, per se, are generally classified in the appropriate treatment classes but are included herein when so specialized as to be excluded from the definition of the other classes.
- (3) Note. Included in the indented subclass of this subclass is shaping means and concurrent treating means.
- (4) Note. Vibrating or tamping means are not considered to be treating means for this group but are provided for in subclasses 456+ below.
- (5) Note. Included under this definition are heating or cooling means which are necessary for the molding operation (e.g., thermosetting, etc.), not merely for treating the material.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
86, for means handling or treating liquid or vehicle condensate combined with shaping means.  
174, for means applying radiant energy to a shaped product.  
317, for means to heat or cool the apparatus in the nature of a safety means for the apparatus.  
404+, for shaping followed by a subsequent treating.  
407, for apparatus comprising press forming apparatus with opposed press members and having distinct means for heating and for cooling; see the search notes thereunder.

## SEE OR SEARCH CLASS:

- 8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, subclasses 115.51+ for process and composition for chemically modifying fibers, 130.1+, for process of swelling or plasticizing artificial fibers, 137+, for process of cleaning and laundering fibers, and 147+ for process of fluid treating fibers.
- 28, Textiles: Manufacturing, subclasses 219+ for thread finishing, per se.
- 34, Drying and Gas or Vapor Contact With Solids, appropriate subclasses for process and apparatus for drying or contacting a shaped product with a gas or vapor.
- 65, Glass Manufacturing, subclasses 484+ for apparatus used to form glass fibers or filaments, particularly subclasses 509+ having forming means combined with glass fiber heating and shaping; subclasses 512+ having forming means combined with cooling; subclasses 531+ having forming means combined with coating or other treatment; subclasses 111+ and 348+ for processes and apparatus, respectively, for glass treatment.
- 134, Cleaning and Liquid Contact With Solids, appropriate subclasses, for process and apparatus for cleaning or contacting a shaped product with a liquid.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 340+, for process of treating a shaped or solid article.
- 383, Flexible Bags, subclass 901 for hot water bags.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 198+ for heating apparatus involving a chemical reaction; and subclasses 242 and 295+ for heating a shaped product with heat and pressure, e.g., vulcanizer, etc.
- 432, Heating, subclasses 120+, for a heating kiln of general utility.
- 446** This subclass is indented under subclass 445. Apparatus in which the treating of the work is accomplished while it is on or in the shaping surface thereto.
- (1) Note. The work support may be a mold if the chemical or physical modification is done concurrently with the molding.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
28.1+, for means treating (e.g., vulcanizing, etc.) a toroid (i.e., a tire, tube or belt).  
407, for press forming apparatus including both heating and cooling means; see the search notes thereunder.  
548, for plural distinct heating or cooling means in injection molding type apparatus.
- SEE OR SEARCH CLASS:  
249, Static Molds, subclasses 78 and 79+ for a static mold having an electric heating means and means within a surface of a mold to confine a heat exchange medium, respectively.
- 447** This subclass is indented under the class definition. Apparatus including means providing a surface adapted to shape fluent material in combination with means to feed fluent stock thereto.
- (1) Note. A fluent material feeding means is here when specialized to Class 425 as evidenced by inclusion of extrinsic limitations thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
60, for a boom mounted depositing and forming means.  
64, for progressive molding apparatus including mold charging means.  
87, for a hand movable, substrate traversing, plural dimension shaping means including a material supply.  
90, for apparatus under the class definition combined with coating apparatus.  
130+, for means feeding fluent stock from plural sources to a common shaping means to form a composite product.

- 145+, for automatic feed control of material en route to a shaping means.
- 159, for an independently operated timer controlling means filling a mold.
- 166+, for apparatus under the class definition combined with an electrical control system causing intermittent delivery of fluent charges to a shaping surface.
- 178, for means under the class definition for forming a mold including a ram type feed of the molding material.
- 200+, for shaping means under the class definition including means feeding fluent material thereto, which latter means also agitates or kneads the fluent material.
- 224, for a means casting fluent stock operably associated with a shaping surface to form indefinite length work.
- 239, for a positive discharge assistant in a supply hopper of a dough divider type forming means which includes a trap chamber.
- 253+, for the combination of a female mold, charging means and pallet handling means.
- 256+, for the combination of a female mold and means to feed measured charges thereto.
- 276+, for a means which simultaneously excavates and shapes stock material from a bulk source (e.g., ice cream scoop, etc.).
- 464, for a shaping nozzle or orifice having a single inlet and plural shaping outlet.
- SEE OR SEARCH CLASS:
- 53, Package Making, for encasing material in a cover, generally, especially subclasses 266.1+ for package making with means to fill and close a preformed receptacle.
- 65, Glass Manufacturing, subclasses 207+ for a gob charging means in combination with a female mold and subclasses 324+ for molten glass dispensing apparatus, per se.
- 137, Fluid Handling, subclass 263 for a tank type manifold; see the search notes thereunder.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, appropriate subclasses for a dispensing means combined with a receiver, especially subclasses 311+ for a dispenser with a receiver coacting means.
- 164, Metal Founding, subclasses 335+ for metal founding apparatus including a ladle or crucible type melt receptacle.
- 222, Dispensing, appropriate subclasses for fluent material dispensing means, per se, especially subclasses 145.1+ for a dispenser having plural sources with a common discharge; see the search notes under the class definition of Class 222.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses for a process of plastic article shaping including a step of feeding fluent stock thereto, see especially subclasses 298 and 299+.
- 285, Pipe Joints or Couplings, subclasses 125.1+ for a pipe felting of the manifold type.
- 448** This subclass is indented under subclass 447. Apparatus wherein the means to feed the material comprises means to isolate a predetermined volume thereof and to deliver it as a charge.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 238+, for forming means comprising a dough divider type having a trap chamber.
- 256+, for a female mold and means to feed measured charges thereto.
- 557+, for a closed system comprising a female mold and means charging fluent stock thereto under pressure, said means including a trap chamber, (e.g., injection molding apparatus, etc.).
- SEE OR SEARCH CLASS:
- 222, Dispensing, subclasses 251+ for a dispenser having a movable trap chamber and subclass 424.5 for a dispenser comprising a supply container with a trap; see the search notes thereunder.

**449** This subclass is indented under subclass 447. Apparatus wherein the means to feed the fluent material utilizes means providing a positive force (e.g., piston, screw, vibrator, etc.) in lieu of or in addition to gravity.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 13, for means feeding fluent stock under pressure in a preform repair means.
- 129.1+, for a composite article making apparatus under the class definition which utilizes means to charge fluent under pressure to a female mold containing a preform.
- 130+, for means feeding fluent stock from plural sources to a shaping means to form a composite product.
- 145+, for apparatus under the class definition including automatic control of fluent molding material en route to a shaping means.
- 200+, for apparatus under the class definition combined with a separate and distinct upstream agitating or kneading means within a fluent material feeding means.
- 219, for a cooperating stock smoothing means or excess stock removing means carried by or attached to means feeding a female mold.
- 375, for pattern control of a depositing type forming means.
- 376.1+, for a stock pressurizing means in combination with a downstream shaping orifice.
- 425+, for the combination of a female mold and tamping means or means utilizing mold motion to distribute or compact stock therein.
- 542+, for the combination of a female mold and means to charge fluent stock thereto under pressure (e.g., injection molding apparatus, etc.).

**450.1** This subclass is indented under the class definition. Apparatus comprising a female mold formed of separable segments and an associated mechanism that moves at least one of the segments relative to another into or out of mold forming relationship wherein the moving is sequential operation of the apparatus for forming a product.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 182+, for apparatus comprising means for assembling and disassembling the shaping surface but for a purpose other than shaping an article.
- 406+, for dynamic means to force mold segments together under the resistance of work already within the mold cavity.
- 436+, for a shaping surface including means to release or remove a product therefrom, especially subclass 441 for such apparatus involving movable mold sections.
- 451.9, for dynamic means to hold previously closed mold segments together.
- 542+, for an injection molding apparatus including means to feed the stock material combined with means for opening and closing the mold parts, see especially subclasses 247+ for an injection molding type.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 357+ for a mold to shape molten glass having mold separating means.
- 164, Metal Founding, subclasses 339+, for means to assemble mold parts used to shape molten metal.
- 249, Static Molds, subclasses 160+ for a static female mold comprised of plural sections.

**451** This subclass is indented under subclass 450.1. Apparatus in combination with a dynamic type mechanism to carry the means providing a shaping cavity through space in other than a mold opening or closing operation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 453, for a female mold and a dynamic support or carrier; see the search notes thereunder.

SEE OR SEARCH CLASS:

- 164, Metal Founding, subclasses 323+ for metal casting apparatus including translocating means for plural independent molds.

- 451.2** This subclass is indented under subclass 450.1. Apparatus including structure that moves one of the segments relative to the other at a first velocity and/or a first force and further includes provision for moving the segments during the same closing operation relative to each other at a second velocity and/or second force.
- 451.3** This subclass is indented under subclass 450.1. Apparatus wherein the segment moving structure includes an elongated member movable along the elongated extent, extending generally away from a mold segment attached thereto and includes an annular member rotatable about an axis normal to the direction of movement of the elongated member having a peripheral surface adapted to frictionally engage the elongated member and transmit moving effort thereto.
- 451.4** This subclass is indented under subclass 450.1. Apparatus wherein the segment includes a surface for receiving force and wherein the moving means includes a rotatable member having a periphery of differing distances from the rotational axis adapted to slidably engage the force receiving segment surface so that as the rotatable member is rotationally displaced the distance between the axis of the member and the force receiving surface of the segment is changed.
- 451.5** This subclass is indented under subclass 450.1. Apparatus wherein the segment moving means includes a first joint member pivotally connected to the mold segment so that there is relative pivotal movement of the members as the segment is moved.
- 451.6** This subclass is indented under subclass 451.5. Apparatus wherein the segment moving means includes a second joint member pivotally connected to supporting frame structure, the first and second joints intermediately pivotally connected to each other so that movement of the intermediate connection towards alignment between the other two pivotal connections causes movement of the segment relative to the frame structure.
- 451.7** This subclass is indented under subclass 450.1. Apparatus wherein the segment moving means includes a surface that is adapted to slide relatively to a corresponding surface on the segment, which moving means surface is inclined with respect to a fixed reference on the frame.
- (1) Note. The inclined surface may be on a member that turns about an axis (screw) or may be fixed to the frame (cam-track).
- 451.9** This subclass is indented under the class definition. Apparatus comprising a female mold of separable segments and dynamic means for securing the segments together during a shaping operation.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
450.1+, for dynamic means to bring mold segments together.
- SEE OR SEARCH CLASS:  
65, Glass Manufacturing, subclasses 357+, for a mold to shape molten glass having mold clamping means.  
249, Static Molds, subclasses 160+, for a static female mold comprised of plural sections.
- 452** This subclass is indented under the class definition. Apparatus comprising (1) a shape imparting cavity and (2) means to handle or transport a pallet thereto or therefrom.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
439, for means inventing a mold to release or remove a product therefrom.  
470, for a pallet, per se; see the search notes thereunder.
- SEE OR SEARCH CLASS:  
414, Material or Article Handling, appropriate subclasses for individual handling of discrete articles (e.g., trays, etc.), especially subclasses 788+ for article arranging apparatus.
- 453** This subclass is indented under the class definition. Apparatus comprising (1) means providing a shape imparting cavity and (2) machine

type mechanism to support or carry the shaping cavity or portions thereof.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

261, for means to sequentially move female mold to a means delivering measured charges.

425+, for a female mold and means for supporting same to impart motion utilized in the molding function, see especially subclass 429 for diverse motions, subclass 433 for an endless belt type support and 435 for means to rotate a female mold about a horizontal axis.

439, for product removal means including means to invent a mold.

441+, for product removal means including movable mold sections.

450.1+, for a segmented mold with mold operating or clamping means, especially subclass 451 for that combination with means to transport the mold from station to station.

575, for means to sequentially move molds past a charger in a closed system comprising a mold and pressure charging means (e.g., injection molding apparatus, etc.).

SEE OR SEARCH CLASS:

164, Metal Founding, subclasses 323+ for metal casting apparatus including translocating means for plural independent molds.

249, Static Molds, subclass 139 for a female static mold including means for securing the mold to a detachable separate and distinct support.

**454** This subclass is indented under subclass 453. Apparatus including means to lift or lower the shape imparting cavity.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

63+, for a mold with repositioning means for progressive molding.

**456** This subclass is indented under the class definition. Apparatus which comprises a means (e.g., a vibrator or tamp rod, etc.) disturbing the equilibrium of particles of fluent material by

causing relative motion thereof to cause the material to be compacted and means to supply energy to the disturbing means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

424, for a female mold, a vibrator, and a product release means.

425+, for a female mold utilizing mold motion, including vibrating or tamping to compact or distribute work therein.

428, for the combination of a relatively moving female shaping means, a male shaping means and tamping means.

SEE OR SEARCH CLASS:

53, Package Making, subclass 525 for package making apparatus including agitating means for compacting the material being packed.

601, Surgery: Kinesitherapy, subclasses 46+ for kinesitherapy apparatus comprising vibrators.

**457** This subclass is indented under the class definition. Apparatus comprising a shape imparting member (e.g., male die plunger, etc.) adapted to co-operate with a shaping surface and means to actuate or impart motion to said male shaping means during the shaping operation.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

157, for a timer controlled press mold cycle.

195, for a male-female press couple distinguished by its assembly means or by an idle part.

346+, for sets of male-female press couples.  
352+, for opposed co-axial dynamic press members coacting within the same cavity.

356, for plural shaping plungers coacting with a single mold cavity.

358+, for a single male press member coacting with plural mold cavities.

398+, for a preform reshaping apparatus including a male-female press couple.

406+, for a press forming apparatus having opposed press members, especially subclasses 412+ for a male-female press couple.

- SEE OR SEARCH CLASS:
- 65, Glass Manufacturing, subclasses 305+ for a press molding machine in the glass art; see the search notes thereunder.
- 162, Paper Making and Fiber Liberation, subclasses 396+ for press felting in a foraminous forming mold in pulp molding.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 319+ for a press molding process in plastic article manufacturing.
- 458** This subclass is indented under the class definition. Apparatus comprising hand operable means for shaping in plural dimensions, e.g., thickness plus width or thickness plus the angle of a edge.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 87, for similar apparatus in combination with a material supply.
- 218, for a female mold and nonpress means cooperating with a charge inlet thereof to shape (e.g., smooth, etc.) or remove protruding stock.
- SEE OR SEARCH CLASS:
- 15, Brushing, Scrubbing, and General Cleaning, subclass 105.5 for a combined tool (i.e., one with two or more working surfaces) where one tool is for a Class 15 purpose e.g., scraping, and another tool is for a Class 425 purpose, e.g., shaping; subclass 235.3 for mortar joint finishing tool; and subclasses 236.01+ for putty knives, per se.
- 222, Dispensing, appropriate subclasses for mere dispenser of material, especially subclasses 323+ and 386+ for caulking gun type dispensers.
- 401, Coating Implements With Material Supply, appropriate subclasses for manually operated coating implements in combination with a material supply where the implement contacts the work surface and any shaping which may be done is limited to one dimension, e.g., thickness.
- 459** This subclass is indented under the class definition. Apparatus especially adapted for shaping clay like materials and comprising either (1) a tool for shaping a clay like mass by a traversing action with respect thereto generally having a point or line contact between the tool and the mass while there is relative rotation therebetween or (2) means for rotating a mass to be shaped by a tool as defined in (1).
- (1) Note. The patents in this subclasses comprise an art group and placement herein is on a disclosure basis relative to potter's wheel, profile tool, jigger tool or pottery working.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 263+, for a pottery wheel type support and a profile tool.
- 418, for a female mold and a rotating male press member.
- 425+, for means using mold motion generally to shape work.
- 460, for trowel type shaping members for the interior of hollow work.
- SEE OR SEARCH CLASS:
- 72, Metal Deforming, appropriate subclasses, especially 67+ for a similar profile or jigger tool used for deforming metal.
- 460** This subclass is indented under the class definition. Apparatus comprising means especially designed to contact the walls of a cavity in a work piece and impart a shaping or smoothing action thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 262, for an encasing shaping surface and a trowel axially movable therein.
- 365, for a press shaping couple comprising a roll mounted internally of a cooperating drum; see the search notes thereunder.
- 418, for a female mold and a rotating male shaping member.
- 426+, for a relatively moving female mold and internal shaping member.
- 459, for profile tools, per se.

## SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, appropriate subclasses, for means cleaning the interior of a hollow work and for trowels for shaping a flat or single dimension surface.
- 118, Coating Apparatus, appropriate subclasses, especially subclass 105 for machines for applying and troweling a lining to hollow work.

**461** This subclass is indented under the class definition. Apparatus comprising a shape imparting aperture through which material is forced.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 67+, for an extrusion die former discharging directly into a liquid bath.
- 71, for apparatus for extruding into a liquid bath or shower means.
- 72.1+, for extrusion shaping means with downstream gas-contact type treating means.
- 113+, for an extrusion type shaping means including means to unite with a preform for forming a composite product (e.g., insulated wire).
- 133.1, for extrusion die combinations in plural sources feeding stock to common means forming common means forming composite product.
- 190+, for means dismantling an extrusion nozzle from the rest of a mechanism.
- 309, for a shaping orifice and means extending within the orifice for cutting the product.
- 325+, for diverse formers including an extrusion nozzle.
- 331, for perforated plates having roll means to press material therethrough.
- 375, for an extrusion nozzle in combination with pattern control for directing travel thereof.
- 376.1+, for the combination of a shape imparting orifice and means for pressurizing stock fed thereto.

## SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, appropriate subclasses for nozzles used in glass manufacturing. See especially subclasses 492 and 524.

- 72, Metal Deforming, subclasses 253.1+ for metal deforming by extruding through an orifice; see the search notes thereunder; see also subclasses 467 for an extrusion orifice, per se.
- 118, Coating Apparatus, especially subclasses 400+ for devices for coating a preform by advancing it through a nozzle.
- 239, Fluid Sprinkling, Spraying, and Diffusing, appropriate subclasses for spray nozzles; see subclass 601 for orifice shapes.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 165+ for methods of extruding articles.

**462** Apparatus under subclasses 461 wherein at least two separate and distinct feed inlets for fluent moldable material are provided for directing material to the shape imparting orifice.

**463** Apparatus under subclasses 462 comprising multiple shape imparting outlets.

**464** Apparatus under subclasses 461 comprising a single inlet having multiple shape imparting outlets.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

- 198, for plural orifices and upstream straining or filtering means.
- 331, for a plate having plural perforations therein and a roll forcing stock therethrough.
- 382, for means placing pressure on material to force it through a plurality of orifices.

**465** Apparatus under subclasses 461 which includes means for forming irregular shaped products by changing the size of configuration of the shaping orifice during the product formation.

**466** Apparatus under subclasses 461 comprising means for adjusting either the orifice opening or a shape imparting surface positioned with said orifice.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 168, for adjusting means to compensate for wear.
- 465, for an orifice provided with means to change the size of configuration thereof during shaping of the product to form products of irregular or varied shapes.
- 467** This subclass is indented under subclass 461. Apparatus in which a core, pin or other insert member is provided in the extrusion nozzle.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 288, for a die expressing former for making doughnut shapes including concentric members coating with the shaping orifice means.
- 465, for shaping nozzles including relatively movable core members to form irregular shaped products.
- 466, for shaping nozzles with adjustable inserts.
- 468** This subclass is indented under the class definition. Apparatus comprising a core and means to move or maintain the position of said core.
- (1) Note. A core is distinguished from a dynamic shaping member in that a core is stationary during the shaping operation. See the glossary for a definition of a core.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 275, for a dipping core, per se.
- 403, for reshaping mandrel, per se.
- 414, for a press forming apparatus and core positioning means.
- 457, for dynamic male shaping member and means to cause movement.
- 466, for a shaping orifice and a core.
- 577, for a female mold, means to charge fluent stock, and a core positioning means.
- SEE OR SEARCH CLASS:
- 164, Metal Founding, subclass 340 for a core positioning means and subclasses 397+ for a core centering or support-  
ing means in metal founding apparatus.
- 249, Static Molds, appropriate subclass, especially subclasses 63+, 142+ and 175+ for static molds including cores. For the distinction between a static and dynamic molding device see the class definition of this class.
- 469** This subclass is indented under the class definition. Apparatus comprising means adapted to be associated with a female mold to compress, compact or distribute material therein.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 403, for preform reshaping surfaces, per se.
- 456, for a tamp rod including mechanical movement or power means.
- 457, for a male shaping means including mechanical movement or power means.
- 468, for a core and a positioning means therefor.
- SEE OR SEARCH CLASS:
- 249, Static Molds, subclass 187.1 for static mold elements.
- 470** This subclass is indented under the class definition. Apparatus comprising a surface upon which a material shaped.
- (1) Note. Included under this definition is a mold bottom (e.g., pallet) or other device such as a support which may serve as a shaping member or to which the product may be transferred.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 253+, for a female mold, pallet handling means and means to charge the female mold.
- 403, for shaping surfaces for use in preform reshaping.
- 413, for a press forming apparatus and a pallet handling means.
- 452, for a female mold and a pallet handling means.
- SEE OR SEARCH CLASS:
- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Con-

- solidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, subclass 237 for a consolidated metal powder composition containing carbide and another nonmetal.
- 106, Compositions: Coating or Plastic, subclasses 38.2+ for a core film casting surface, matrix, mold or plunger claimed solely in terms of the composition of which they are formed.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses, especially subclass 598 for building forms on which an article may be formed by laminating.
- 427, Coating Processes, subclasses 133+ for processes of coating a mold.
- 471** This subclass is indented under subclass 470. Apparatus comprising an endless surface.
- (1) Note. This subclass includes a singular roll having male or female surface featured thereon which are limited by intent to shaping plastic material under the Class 425 definition. However, a roll having a smooth surface and identified as a "casting roll" is proper for Class 425. A roll having a combination of cutting means and a region that shapes by plastic flow into a molding area; i.e., as found in certain briquetting rolls or cookie shaping rolls; is proper for Class 425.
- (2) Note. Also included herein are belts, casting drums, briquetters, pelletizing means, etc., when disclosed as a shaping surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 194, for an apparatus assembly or dismantling means or with an idler part having a press shaping surface including a calendar roll or roll face.
- 223, for a casting or felter type forming means and a harvesting means.
- 224, for means casting a fluent stock associated with a shaping surface to form an indefinite length product.
- 363+, for shaping couples which include an endless surface shaping member; see the search notes thereunder.
- 374, for a press couple wherein a roll coacts with an endless surface which has shape imparting cavities therein.
- 375, for a press couple comprising a roll coacting with a static forming surface.
- SEE OR SEARCH CLASS:
- 198, Conveyors: Power-Driven, subclasses 606+ and 804+ for endless conveyors.
- 492, Roll or Roller, for a roll, per se, not elsewhere provided for, and see the search notes provided under the general definition.
- 472** This subclass is indented under the class definition. Apparatus comprising apparatus not provided for above.
- (1) Note. Examples of apparatus found under this definition are: an end closure for a brick mold, a stencil for use in molding, a mold support, a fabric or other type cover for a dough forming surface, etc.
- SEE OR SEARCH CLASS:
- 7, Compound Tools, subclass 111 for a rolling pin combined with a diverse device or convertible to a diverse device.
- 432, Heating, subclasses 258+, for structure for supporting ceramic articles in a furnace during heat treatment.
- 492, Roll or Roller, subclass 14 for a rolling pin, per se, not elsewhere provided for.
- 500** This subclass is indented under the class definition. Apparatus comprising handling or support means for bringing together individual preforms into contacting relationship and bonding means for causing the preforms to become united by adhesion, fusion or vulcanization, wherein (1) the bonding is accompanied by a reshaping of at least one preform in the bonding area, or (2) in the case of vulcanization, the shape of the assembled uncured preforms is maintained or retained through the use of a conforming support means.
- (1) Note. To be included herein, the handling or support means which bring the preforms together must be dynamic

rather than static, e.g., manual devices which aid the operator to assemble the preforms by hand are not included. Also, mere reshaping of previously assembled preforms is not included even though there is a uniting of the preforms.

- (2) Note. A shaped charge which is handled as a discrete unit is considered a preform when it contributes to the final shape of the product.
- (3) Note. Included herein are also devices for assembling plural parts or portions of a single preform wherein the parts are handled individually in the same manner as plural preforms.
- (4) Note. Including herein is the forcible inserting or embedding of one preform into the plastic body of another preform even though the only reshaping is the displacement of material accompanying and resulting from the preform inserting, see subclass 517.
- (5) Note. Overlapping or contacting pieces of dough (e.g., by coiling, twisting or lapping, etc.) are not included herein unless particular means are provided to reshape the contacting areas subsequent to assembly to effect a uniting thereof. Such patents are found in other appropriate subclasses. All patents for uniting overlapping portions of pretzel dough are found in subclass 323.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 5, for a means encapsulating a normally liquid material including means for making a package and comprising apparatus for assembling and bonding plural preforms involving preform reshaping.
- 110+, for means shaping fluent material and uniting the same to a preform to make a composite product.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 36+ for processes of fusion bonding of a glass part to a preform; subclasses 152+ for fusion bonding apparatus

uniting preforms and involving a glass working operation.

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for means uniting plural preforms without reshaping at the joint. See the class definition of Class 425 for a more detailed explanation of the lines concerning Class 156.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 241+ for processes of uniting plural preforms involving joint reshaping.

- 501** This subclass is indented under subclass 500. Apparatus comprising means to vulcanize or cure the assembled preforms which includes a support for the preforms having the same shape as the composite of preforms so as to maintain or retain the shape of the assembled preforms.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 383+, for preform vulcanizing means including a conforming support and see the search notes thereunder.

- 502** This subclass is indented under subclass 501. Apparatus including means to facilitate separation of the vulcanized or cured product from the conforming support.

- 503** This subclass is indented under subclass 500. Apparatus comprising means to deform, stretch, shrink or otherwise reshape the configuration or size of at least one of the preforms wherein the reshaping is accomplished by means of applying pressurized fluid directly upon a preform surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 387.1+, for means utilizing fluid pressure to reshape a preform and see the search notes thereunder.

- 504** This subclass is indented under subclass 503. Apparatus in which the reshaping is accomplished by means producing a reduced fluid pressure on at least one preform surface so as to provide a differential pressure utilized as a shaping force.

- 505** This subclass is indented under subclass 500. Apparatus comprising means for forming an elongated product or article having an indeterminate linear dimension.
- 506** This subclass is indented under subclass 500. Apparatus including means to subject the work or product to an operation which modifies or controls the chemical or physical properties of at least one of the preforms before, during or after the bonding operation other than by an operation which (1) brings the preforms together into assembled relation, (2) unites or joins the preforms, or (3) applies a shaping force thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
445+, for means treating shaped work and see the search notes thereunder.
- 507** This subclass is indented under subclass 506. Apparatus including means to effect a change in the temperature of at least one of the preforms before, during or after the bonding operation.
- 508** This subclass is indented under subclass 507. Apparatus wherein a heating means is utilized to increase the temperature of the work.
- 509** This subclass is indented under subclass 508. Apparatus including a cooling means to reduce the temperature of the work.
- 510** This subclass is indented under subclass 506. Apparatus including means for cutting, tearing, separating, breaking, scoring or otherwise severing at least one of the preforms before, during or after the bonding operation.
- (1) Note. For the definition of the term "severing" see subclass 289 of this class and Notes 1 through 3 thereunder.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
289, for preform severing means and see the search notes thereunder.
- 511** This subclass is indented under subclass 510. Apparatus including means preceding the bonding operation, to form at least one preform from fluent or bulk material.
- 512** This subclass is indented under subclass 510. Apparatus comprising two or more separate and distinct cutting means or stations.
- 513** This subclass is indented under subclass 512. Apparatus wherein one of the cutting means or stations differs in kind from at least one other.
- 514** This subclass is indented under subclass 510. Apparatus wherein the severing means operates subsequent to the bonding operation.
- 515** This subclass is indented under subclass 500. Apparatus including means preceding the bonding operation to (1) form at least one preform from fluent or bulk material, or (2) deform, stretch, shrink or otherwise reshape the configuration or size of at least one of the preforms.
- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 500+ for casting, plastic molding or extruding apparatus combined with laminating without reshaping at joint.
- 516** This subclass is indented under subclass 515. Apparatus wherein the shaping means has a shape imparting aperture or orifice through which work material is forced.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
461+, for a shaping orifice, per se, and see the search notes thereunder.
- 517** This subclass is indented under subclass 500. Apparatus comprising means for forcibly inserting, embedding or otherwise press fitting a first preform into the plastic body of a second preform involving plastic flow or material displacement in at least one of the preforms accompanying or resulting from the press fitting.

- SEE OR SEARCH CLASS:  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 303.1 for processes of inserting a lamina into a preformed plastic body.
- 518** This subclass is indented under subclass 500. Apparatus comprising two or more separate and distinct reshaping means or stations.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
340+, for plural reshaping means to change the configuration of one or more preforms and see the search notes thereunder.
- 519** This subclass is indented under subclass 518. Apparatus comprising facing, shaping cavities which coact to press work material into a desired shape, the cavities having meeting portions of co-extensive area.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
395, for preform reshaping means having opposed, registering coating mold cavities and see the search notes thereunder.
- 520** This subclass is indented under subclass 500. Apparatus comprising opposed cooperating shaping surfaces having relative movement for exerting compressive force on work material therebetween so as to impart a shape thereto.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
406+, for opposed cooperating shaping surfaces and see the search notes thereunder.
- 521** This subclass is indented under subclass 520. Apparatus comprising a male shaping member adapted to penetrate within a female mold to exert a compressive force on the work material.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
412+, for a male-female press couple and see the search notes thereunder.
- 522** This subclass is indented under the class definition. Apparatus particularly adapted to shape a preformed hollow workpiece including (1) a closed shaping surface facing radially inwardly adapted to be engaged by and to shape preformed material moving radially outwardly thereagainst, and (2) means to provide a fluent medium under pressure to the interior of the preformed workpiece, whereby the interior pressure exceeds the ambient pressure and causes the preformed workpiece to stretch and move radially outwardly into shaping engagement with the closed shaping surface.
- (1) Note. The closed shaping surface facing radially inwardly (female mold) of this subclass is stationary with respect to the molded product at the instant that molding is completed.
- (2) Note. Included in this subclass is, for example, means to form a container such as a bottle.
- SEE OR SEARCH CLASS:  
65, Glass Manufacturing, subclass 110, for shaping a hollow, green glass preform by utilization of gas pressure.  
156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 287, for process of laminating in which fluid pressure differential is applied in the lining of a hollow body; subclass 444, for means to bend a work part by pneumatic blast combined with means to laminate; and, subclass 475, for means to bend a work part to the configuration of another part to which it is secured.  
264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 512+ and 523+ for the process of blow molding.
- 523** This subclass is indented under subclass 522. Apparatus particularly adapted to shape a hollow preformed workpiece consisting of a first and a second layer of material.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
503+, for means to cause a preform to be bonded to work being reshaped by the

application of fluent pressure; e.g., for the application of a label to a bottle being blow molded.

**524** This subclass is indented under subclass 522. Apparatus wherein the fluent medium utilized to force the parison into engagement with the closed shaping surface is intended to remain with the product of the shaping operation.

SEE OR SEARCH CLASS:

53, Package Making, appropriate subclasses, for molding of a package combined with subsequent filling of that package.

**525** This subclass is indented under subclass 522. Apparatus adapted to form a product of particular characteristics for a peculiar use.

(1) Note. Included herein is, for example, means for forming a handle on a container and means for forming prescribed baffles inside a container.

**526** This subclass is indented under subclass 522. Apparatus including means to alter the thermal condition of the work or product.

**527** This subclass is indented under subclass 522. Apparatus including means to divide one portion of the product of the blow mold operation from another.

SEE OR SEARCH THIS CLASS, SUBCLASS:

289+, for means to mold combined with means to sever the product, generally.

531, for means to divide one portion of a preform parison from another before blow molding of the parison.

806, for an art collection of patents directed to removal of flash from a molded article.

**528** This subclass is indented under subclass 522. Apparatus including means to treat or condition the preformed hollow workpiece prior to final shaping thereof.

**529** This subclass is indented under subclass 528. Apparatus wherein the means to treat or condition includes means to elongate the molecular

structure of a preformed member and form that member into a preformed hollow workpiece.

**530** This subclass is indented under subclass 529. Apparatus wherein the means to elongate the molecular structure of the member in the formation of a preformed hollow workpiece includes means to fill the member with fluid to cause the member to be enlarged.

**531** This subclass is indented under subclass 528. Apparatus wherein the means to treat or condition includes means to divide one portion of the preformed hollow workpiece from another portion.

SEE OR SEARCH THIS CLASS, SUBCLASS:

527, for blow molding means combined with means to sever the blow molded product.

**532** This subclass is indented under subclass 528. Apparatus wherein the means to treat or condition includes means to form a hollow workpiece by forcing fluent material through a shaping orifice.

SEE OR SEARCH THIS CLASS, SUBCLASS:

376.1+, for a shaping orifice combined with means to force fluent material through the orifice.

461+, for a shaping orifice, per se.

**533** This subclass is indented under subclass 528. Apparatus wherein the means to treat or condition includes means to form a hollow workpiece by forcing fluent material into a mold.

SEE OR SEARCH THIS CLASS, SUBCLASS:

542+, for means to form a product by forcing fluent material into a mold.

**534** This subclass is indented under subclass 528. Apparatus wherein the means to treat or condition includes means other than the mold structure adapted to move the preformed hollow workpiece from one location to another.

- 535** This subclass is indented under subclass 522. Apparatus including detailed structure of the means to provide a fluent medium under pressure to the interior of the preformed workpiece.
- 536** This subclass is indented under subclass 535. Apparatus including a slender tubular member adapted to pierce the wall of the preformed hollow workpiece and provide the fluent medium thereto.
- 537** This subclass is indented under subclass 522. Apparatus combined with structure intended to force the molded product from the closed shaping surface.
- 538** This subclass is indented under subclass 522. Apparatus including (1) a plurality of members, each including a closed shaping surface facing radially inwardly adapted to be engaged by and to shape preformed material moving radially outwardly thereagainst, and (2) a plurality of means to provide a fluent medium under pressure to the interior of the preformed workpiece.
- 539** This subclass is indented under subclass 538. Apparatus including means to permit continuous travel of preformed hollow workpieces and means to move the shaping surfaces and the fluent medium supply means in the same direction and at the same speed so that there is no relative movement between the preformed hollow workpiece and the corresponding shaping surface at the time of molding.
- (1) Note. The closed, radially inwardly facing, shaping surface (female mold) of this subclass is stationary with respect to the molded product at the instant that molding is completed.
- 540** This subclass is indented under subclass 538. Apparatus including means for supporting the members having inwardly facing shaping surfaces for movement from one position to another about a fixed axis.
- (1) Note. An endless belt supporting the molds is not considered proper for this subclass, even if at some time during movement, as when passing over a drive gear, the molds are moved about an axis.
- 541** This subclass is indented under subclass 522. Apparatus including (1) means to force portions of the inwardly facing shaping surface into operational position, or (2) means to secure the portions of the surface in operational position.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 450.1, for means to force a mold closed, generally.
- 451.9, for means to lock a mold closed, generally.
- 542** This subclass is indented under the class definition. Apparatus comprising means defining a shaping cavity structure (i.e., a female mold) and means to force fluent stock material along a passage into the shaping cavity thereof under pressure, the shaping cavity and the stock forcing means adapted to function as a closed hydraulic system.
- (1) Note. At the time of molding there is no movement between the molded article and the shaping cavity structure of this subclass.
- (2) Note. Included in this and the indented subclasses are means for "injection molding", "briquetting", etc.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 117+, for composite article making apparatus utilizing preform handling or support means; if the injection molding type, see especially subclass 129.
- 253+, and 256+, for a shaping cavity combined with means to supply fluent material thereto by gravitational flow.
- 533, for injection molding means combined with blow molding means.
- SEE OR SEARCH CLASS:
- 100, Presses, subclasses 145+, for auger conveyor type press means.
- 164, Metal Founding, subclasses 303+, for injection type metal shaping apparatus.

- 198, Conveyors: Power-Driven, subclass 550.6, for a combination of a bin and screw conveyor; and subclass 625, for a screw conveyor, per se.
- 222, Dispensing, subclasses 251+, for apparatus for discharging or dispensing a material comprising a discharge assistant to pressurize a material.
- 249, Static Molds, subclasses 105+, for an injection mold including a static filling means in contact with the work.
- 366, Agitating, subclasses 79+ and 318+, for a mixer or kneader, including screw conveyor means in the working zone.
- 543** This subclass is indented under subclass 542. Apparatus including specific provision making that apparatus adapted to shaping of material which hardens by the application of heat.
- 544** This subclass is indented under subclass 543. Apparatus wherein the means to force the stock material to move comprises a chamber adapted to receive a substantially solid block of stock material and includes means to pressurize the block sufficiently to cause the stock material to flow as a liquid to the shaping cavity.
- 545** This subclass is indented under subclass 542. Apparatus comprising means to mold one of the component parts of a slide fastener.
- (1) Note. A slide fastener is an assembly of elements normally used to temporarily fasten together garment portions and is comprised of a pair of opposing stringers, (e.g., elongated members adapted to be each fastened permanently to a garment portion and adapted to detachably connect to each other by an interlocking fit), a slider (adapted to travel along the stringers and cause the stringers to connect or disconnect from each other), a lower stop (limiting the extent of travel of the slider in the opening direction of the stringers), and an upper stop (limiting the extent of travel of the slider in the closed direction of the stringers).
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
814, for an art collection of other means for shaping the component parts of a slide fastener.
- SEE OR SEARCH CLASS:  
29, Metal Working, subclass 33.2, for apparatus for assembling a slide fastener combined with additional apparatus for shaping a work part, e.g., for trimming a component; subclasses 766+ for apparatus for assembling the component parts of a slide fastener; and subclasses 408+, for a process of assembling a slide fastener.
- 546** This subclass is indented under subclass 542. Apparatus including means to assure the emptiness of the shaping cavity; or to regulate the atmosphere about the shaping cavity structure.
- (1) Note. Included herein is means to clean the mold prior to operation and means to create a reduced atmosphere, i.e., vacuum of power vent means.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
812, for an art collection of patents directed to mold venting in general.
- 547** This subclass is indented under subclass 542. Apparatus including means to alter the thermal condition of the work, machine, or product.
- 548** This subclass is indented under subclass 547. Apparatus including a first means to alter the thermal condition of the work, machine, or product; and a second, independent means to alter the thermal condition of the work, machine, or product.
- 549** This subclass is indented under subclass 547. Apparatus including, along the stock material passage, a coupling between the forcing means and the shaping cavity wherein a projection is provided from the structure extending from the forcing means and a corresponding pocket is formed in the structure extending to the shaping cavity, such that the projection is adapted to sealingly fit into the pocket; and including

- means to alter the thermal condition of that portion including the projection.
- 550** This subclass is indented under subclass 547. Apparatus wherein the means to force fluent stock includes an exteriorly walled portion wherein the stock is kneaded and milled to become fluent, and including means to alter the thermal condition of the exterior wall.
- 551** This subclass is indented under subclass 547. Apparatus including a stock supply bin up stream of the stock pressurizing means, and including means to alter the thermal condition of the supply bin.
- 552** This subclass is indented under subclass 547. Apparatus comprising means to lower the thermal condition of the shaping cavity structure, which means is positioned outside the shaping cavity.
- 553** This subclass is indented under subclass 542. Apparatus combined with means to subdivide one portion of shape sustaining work or product from another, wherein the means to subdivide is independent from the shaping cavity structure.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 289, for other molding, combined with means to sever a preform.  
 531, for severing means for a parison, combined with blow molding means.
- 554** This subclass is indented under subclass 553. Apparatus combined with structure intended to force the molded product from the shaping cavity.
- 555** This subclass is indented under subclass 542. Apparatus including provision to compensate for the normal reduction in size of the molded article brought about by cooling or setting of the article.
- 556** This subclass is indented under subclass 542. Apparatus combined with structure intended to force the molded product from the shaping cavity.
- 557** This subclass is indented under subclass 542. Apparatus wherein (1) volumetric compartment means is provided to receive and temporarily contain a specific portion of fluent stock material, or (2) plural valve means are sequentially arranged between a discharge assistant of the charging means and a shaping cavity.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
 448, for a forming surface and means feeding fluent stock thereto comprising a trap chamber; see the collection of search notes thereunder for apparatus under the class definition with a charger for delivering a measured charge.
- 558** This subclass is indented under subclass 557. Apparatus including a volumetric compartment, and including means to change the capacity of the compartment.
- 559** This subclass is indented under subclass 557. Apparatus including a volumetric compartment, and including a valve means for permitting fluent stock to flow into the compartment, but preventing the stock to flow in the opposite direction.
- 560** This subclass is indented under subclass 557. Apparatus including means to alternatively cause fluent stock material to flow into a volumetric compartment or to flow directly into the female mold cavity without passing first through the volumetric compartment.
- 561** This subclass is indented under subclass 557. Apparatus including a volumetric compartment wherein reciprocating means is provided to transfer the fluent stock to the shaping cavity, which reciprocating means also functions to seal the volumetric compartment against flow of fluent stock from the shaping cavity or from the supply line coming into the compartment.
- 562** This subclass is indented under subclass 542. Apparatus including structure adapted to stop the flow of fluent stock to be molded, which structure is functionally located between the shaping cavity and the means to force the fluent stock therein.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
146, for an automatic valve actuated by differential pressure of fluent molding material en route to a shaping area.
- 563** This subclass is indented under subclass 562. Apparatus wherein the flow stopping means is resiliently urged out of stopping condition and wherein pressure of the fluent stock acts on a portion thereof to bring about the stopping condition thereof.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
135+, for means to sense a pressure change of fluent stock and activate a stopping means in response thereto.  
146, for an automatic valve actuated by differential pressure of fluent molding material en route to a shaping area.
- 564** This subclass is indented under subclass 562. Apparatus including, along the stock material passage, a coupling between the forcing means and the shaping cavity wherein a projection is provided from the structure extending from the forcing means and a corresponding pocket is formed in the structure extending to the shaping cavity, such that the projection is adapted to sealingly fit into the pocket; wherein the blocking means is positioned in the projection, in the vicinity of the portion to be received by the pocket.
- 565** This subclass is indented under subclass 564. Apparatus including means engaging a portion of the structure surrounding the shaping cavity to actuate the means to selectively block or permit passage of stock material to the shaping cavity.
- 566** This subclass is indented under subclass 564. Apparatus wherein the receiving pocket is constructed such that the projection extends at least as far as the inwardly facing wall of the shaping cavity.
- 567** This subclass is indented under subclass 542. Apparatus including as part of the closed hydraulic system a distinct member located between the shaping cavity and the forcing means, which distinct member includes a passage for permitting flow of fluent stock material therethrough from the forcing means to the shaping cavity.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
450.1+, for a subcombination of means opening and closing or clamping a mold and an injection type mold.
- 568** This subclass is indented under subclass 567. Apparatus wherein the distinct member includes a projection extending therefrom toward the shaping cavity, which projection is adapted to detachably, sealingly interfit with a pocket in the shaping cavity structure such that the passage extends through the projection and continues in the pocket to the shaping cavity.
- 569** This subclass is indented under subclass 568. Apparatus including means, other than a primary power means, for securing the distinct member including a protuberance to the receiving structure of the shaping cavity or connected structure.
- 570** This subclass is indented under subclass 568. Apparatus including at least one distinct member and including more than one protuberance extending therefrom, adapted to permit passage of fluent stock to at least one shaping cavity.
- 571** This subclass is indented under subclass 568. Apparatus wherein the receiving pocket is constructed such that the projection extends at least as far as the inwardly facing wall of the shaping cavity.
- 572** This subclass is indented under subclass 567. Apparatus wherein the distinct member located between the shaping cavity and the forcing means is intended to supply fluent stock material to a plurality of such shaping cavities within the same structure including the cavities.
- 573** This subclass is indented under subclass 567. Apparatus wherein the distinct member is intended to supply fluent stock material to a shaping cavity via more than one path or runner.

- 574** This subclass is indented under subclass 542. Apparatus including means to relocate the shaping cavity structure or means to relocate the means to force fluent stock, such that the shaping cavity structure is relocated with respect to the means to force fluent stock thereto.
- 575** This subclass is indented under subclass 574. Apparatus comprising means to relocate the shaping cavity structure.
- 576** This subclass is indented under subclass 575. Apparatus comprising means to rotate the shaping cavity structure about an axis.
- 577** This subclass is indented under subclass 542. Apparatus wherein a movable core, sprue pin or compression pin is provided within a shaping cavity.
- (1) Note. Ejector pins are excluded; see the search notes below.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 444, for a shaping surface and movable ejector means (e.g., pin, etc.) which enters the shaping cavity after shaping.
- 468, for a core and core positioning means combination; see the collection of search notes thereunder.
- 522+, for a blow mold including an internal mandrel used to inflate a parison.
- 578** This subclass is indented under subclass 542. Apparatus wherein the means to force fluent stock includes a supply vessel which is for holding the fluent material prior to transfer to the shaping cavity, and is open to the atmosphere during filling thereof.
- 579** This subclass is indented under subclass 578. Apparatus wherein the means to force fluent stock into the shaping cavity includes a surface adapted to serve as a portion of the shaping cavity wall and thereby impart shape to the product.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 406+, for similar structure wherein a portion of the mold surface moves inwardly to compress material, wherein the fluent material is not transported from a remote location by the moving mold surface.
- 522+, for a blow mold including transport means adapted to shape the parison.
- 577, for a movable core member adapted to provide shape to the inner surface of a workpiece being formed.
- 580** This subclass is indented under subclass 578. Apparatus including means to transfer fluent stock material from a remote location, usually the open supply vessel, to the means to force the fluent stock into the shaping cavity, wherein the fluent stock is composed of individual solid articles that flow en masse as a fluid.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
- 585, for similar structure not combined with an open supply vessel.
- 581** This subclass is indented under subclass 580. Apparatus including more than one shaping cavity.
- 582** This subclass is indented under subclass 580. Apparatus wherein the means to transfer fluent stock from a remote location turns about an axis.
- 583** This subclass is indented under subclass 580. Apparatus wherein the means to transfer fluent stock from a remote location moves along a straight line, to and fro.
- 584** This subclass is indented under subclass 580. Apparatus wherein the means to transfer fluent stock from a remote location includes means to apply positive atmospheric pressure upstream of the stock, or includes means to apply negative atmospheric pressure downstream of the stock.
- 585** This subclass is indented under subclass 542. Apparatus including means to transfer fluent stock material from a remote location to the

- means to force the fluent stock into the shaping cavity.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
580, for similar apparatus combined with an open supply vessel.
- 586** This subclass is indented under subclass 585. Apparatus wherein the means to transfer fluent stock material is constructed to transfer a specific, predetermined quantity of stock into the shaping cavity.
- 587** This subclass is indented under subclass 585. Apparatus wherein the transfer means is adapted to turn about an axis and is helically ribbed along that axis to transfer fluent stock material therealong upon rotation thereof.
- 588** This subclass is indented under subclass 542. Apparatus including more than one shaping cavity in the same or a plurality of shaping cavity structures.
- 589** This subclass is indented under subclass 542. Apparatus comprising a shaping cavity structure formed of separable segments and an associated mechanism that moves at least one of the segments relative to another into or out of cavity forming relationship.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
450.1, for similar structure not claimed in combination with means to transfer fluent stock material into the shaping cavity as part of a closed system.
- 590** This subclass is indented under subclass 589. Apparatus including structure that moves one of the segments relative to the other at a first velocity or a first force and further includes provision for moving the segments during the same closing operation relative to each other at a second velocity or second force.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
451.2, for similar structure not claimed in combination with means to transfer fluent stock material into the shaping cavity as part of a closed system.
- 591** This subclass is indented under subclass 589. Apparatus including a hydraulic drive means to move the segments into cavity forming position and including a hydraulic drive means to pressurize the fluent stock material and force the material into the shaping cavity, wherein the two hydraulic drive means are subjected to hydraulic pressure from the same source, without an intermediate pressure change means.
- 592** This subclass is indented under subclass 589. Apparatus wherein the segment moving means includes a first joint member pivotally connected to the segment so that there is relative pivotal movement of the members as the segment is moved.
- 593** This subclass is indented under subclass 592. Apparatus wherein the segment moving means includes a second joint member pivotally connected to supporting frame structure, the first and second joints intermediately pivotally connected to each other so that movement of the intermediate connection toward alignment between the other two pivotal connections causes movement of the segment relative to the frame structure.
- 594** This subclass is indented under subclass 589. Apparatus wherein the means to move a cavity structure segment and the means to force fluent stock material to the mold cavity are physically located on the same side of the cavity structure.
- 595** This subclass is indented under subclass 542. Apparatus comprising a shaping cavity structure of separable segments and dynamic means for securing the segments together during a shaping operation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
451.9, for similar structure not claimed in combination with means to transfer fluent stock material into the shaping cavity as part of a closed system.

#### CROSS-REFERENCE ART COLLECTIONS

The following subclasses are collections of published disclosures pertaining to various specified aspects of the shaping art which aspects do not form appropriate bases for subclasses in the foregoing classification (i.e., sub-

classes superior hereto in the schedule), wherein original copies of patents are placed on the basis of proximate function of the apparatus. These subclasses assist a search based on remote function of the apparatus and may be of further assistance to the searcher, either as a starting point in further related fields of search inside or outside the class. Thus, there is here provided a second access for retrieval of a limited number of types of disclosures. Disclosures are placed in these subclasses for their value as references and as leads to appropriate main or secondary fields of search, without regard to their original classification or their claimed subject matter. The disclosures found in the following subclasses are examples, only of the indicated subject matter, and in no instance do they represent the entire extent of the prior art.

**801** Apparatus for molding buttons.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

290+, for a means to perforate a preform which may be a button (i.e., to provide thread openings).

SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclasses 90.1+ for the structure of the button.

79, Button Making, appropriate subclasses for making buttons other than of plastic material.

**802** Apparatus for uniting together portions of a tubular or rod-like member disclosed for wire cables.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

108, for apparatus joining the end of one rod to the end of another.

**803** Apparatus for molding slender, relatively long, articles of the crayon or candle type.

(1) Note. These articles are made usually by dipping a form into a pool of stock material.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

269+, for apparatus comprising a shaping means of the dipping type.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 271.1+ for a process of making candles by surrounding a preform (e.g., wick, etc.) with plastic material.

**804** Apparatus disclosed for making capsules (i.e., a two part cylindrical article, each part having a closed and an open end, the two open ends telescoping one into the other.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

269+, for apparatus comprising a shaping means of the dipping type.

346+, for sets of male-female press molds.

412+, for press apparatus having opposed press members of the male and female type.

SEE OR SEARCH CLASS:

53, Package Making, subclasses 266.1+ for filling and closing preformed receptacles of the capsule type.

82, Turning, subclasses 46+ for means to cut off or trim portions of a capsule preform by turning either the work or the tool.

**805** Apparatus for shaping toilet articles of the brush and comb type.

SEE OR SEARCH CLASS:

140, Wireworking, subclass 100 for apparatus for making a wire comb.

144, Woodworking, subclass 26 for woodworking apparatus for making a wooden comb.

300, Brush, Broom, and Mop Making, appropriate subclasses for apparatus for making a brush by other than shaping a plastic means.

**806** Apparatus for removing flash (i.e., excess or unwanted material) from a shaped article.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

289+, for means severing or cutting a preform which may include removal of flash.

- 807** Means for shaping a nonmetallic material on the end of a shoelace for ease in threading through apertures.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
110+, for means to support, feed or manipulate a preform (e.g., lace, etc.) and means to shape fluent or bulk stock to form a united product.
- SEE OR SEARCH CLASS:  
24, Buckles, Buttons, Clasps, etc., appropriate subclasses, especially subclasses 715.4+ for a shoelace with covered tips.
- 808** Means for making a lens (e.g., spectacle, telescope, etc.) using a mold for the lens.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
175+, for means to make a mold by apparatus of this class, which mold may be for a lens.
- SEE OR SEARCH CLASS:  
359, Optics: Systems (Including Communication) and Elements, subclasses 642+ for lenses, per se.
- 809** Apparatus for shaping gasket elements in caps for sealing bottles.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
110+, for apparatus comprising means to feed, support or manipulate preform stock (bottle caps) and means for shaping fluent or bulk material (gasket) to form a united product.
- SEE OR SEARCH CLASS:  
413, Sheet Metal Container Making, subclasses 19+, 37+, and 67 for a machine for can cap or head preparing and gasket applying; see the search notes thereunder.
- 810** Apparatus for making discs or cylinders having grooves therein for reproducing sounds.
- 811** Apparatus comprising a female mold with a top having an irregular opening and vertical walls defining the irregular opening so that fluent or bulk material pressed through the opening will form an article of irregular shape corresponding to that of the opening.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
331, for a traversing roll operably associated with a downstream perforated plate.
- SEE OR SEARCH CLASS:  
101, Printing, subclasses 114+ for printing devices using tools or members having designed areas through which ink pigments or other coating substance may pass to the surface to be printed thereon.  
118, Coating Apparatus, subclasses 213, 301, and 406 for coating apparatus utilizing a mask or stencil.
- 812** Apparatus comprising means for removing or permitting removal of gases during the molding operation.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
420, for press molding devices with vents.
- 813** Apparatus for molding a receptacle usually of the type having a plugged opening and adapted to contain a fluid therein, commonly known as a hot water bottle.
- SEE OR SEARCH CLASS:  
128, Surgery, subclasses 399+ for a thermal applicator which is limited by claimed structure for therapeutic use.  
383, Flexible Bags, subclass 901 for a cross-reference art collection of bags intended to be used as a hot water bottle.
- 814** Apparatus for making any part or all of a device (slider) which travels along rows of fastener elements to engage (interdigitate) or disengage the elements.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

110+, for apparatus for holding or manipulating a preform (e.g., tape) and means to shape bulk stock or material to form a united product (fastener elements).

500+, for apparatus assembling plural preforms involving preform reshaping (i.e., elements of a slide fastener).

SEE OR SEARCH CLASS:

24, Buckles, Buttons, Clasps, etc., subclasses 205+ for the structure of the slide fastener, per se.

29, Metal Working, subclasses 33.2, 766+ and 408+ for the apparatus and process of manufacture of slide fasteners.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 252 for process of shaping plastic slide fasteners by molding fastener elements along a tape edge.

**815** Apparatus in which the shaping operation is performed in chemical atmosphere which either inhibits or accelerates chemical reaction.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

73+, for shaping apparatus including a ventilating type hood encasing a material handler.

**816** Apparatus for shaping a member to fit over and be complementary to the face of an animal and to prevent breathing except through a predetermined fluid handling system; these devices are commonly called gas masks or respirators.

SEE OR SEARCH CLASS:

128, Surgery, subclasses 200.24+ for respirators or gas masks, per se.

**817** Apparatus for shaping material in which pores or voids are formed during the material handling or shaping operations.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

4, for mechanical means to form or expand pores in the material.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 41+ for the process of shaping plastic material including the step of forming pores in situ.

**818 BELT:**

Apparatus for forming curling or vulcanizing of belts (e.g., drive, transmission, endless, etc.).

SEE OR SEARCH THIS CLASS, SUB-CLASS:

34.2, for plural female mold for making belts.

END