

CLASS 269, WORK HOLDERS**SECTION I - CLASS DEFINITION**

Class 269 is the residual locus for patents to a device which, during a work treating operation, contacts a workpiece for the purpose of (a) supporting the work against the force of gravity; or (b) preventing movement of the work in a particular direction or in all directions while, as disclosed, such work is supported against the force of gravity; or (c) providing a surface juxtaposed to the work for constraining the motion of a tool during its performance of such work treating operation.

Holding articles together so that (by disclosure) a glue, cement or adhesive may set and secure said articles together is considered to be a work holding operation for this class. Thus, a clamp or vise, disclosed for use by cabinet makers, carpenters, woodworkers, etc., to hold plural pieces together while an adhesive (previously applied) sets, is properly classifiable in this class.

A “clamp” means, per se, to grasp or draw portions of a mold or flask either together or onto a base or support is structurally so similar to the work holders of this class that patents to such clamp are classified in this class. This is a specific exception to the functional workholding concept otherwise maintained for this class.

PLACEMENT OF PATENTS

The following statement is supplemental to the explanation set forth on pages I and II of the Manual of Classification.

As among coordinate subclasses, the rule of superiority followed in this class requires placement of the “original” patent copy in the first or highest subclass providing for claimed subject matter. As between a subclass, providing for such claimed subject matter, and subclasses indented thereunder, patent placement is in the first of such indented subclasses providing for disclosed subject matter. Thus, depending upon the “superiority” of a particular subclass, an original copy of a specific patent may be placed therein on the basis of either claim or disclosure.

For example, a patent discloses a holder with a pair of relatively movable jaws and an aligned hole in each of the jaws so that a punch can move through the holes and perforate the paper while the paper is held by the jaws. Only relatively movable jaw means are broadly claimed. On the basis of claimed subject matter, the patent falls into subclass 86, but then on the basis of the disclosed

subject matter, the patent would be placed in the indented subclass 87.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

A. This class is intended to be, ultimately, the general locus for all work holders regardless of the treatment that is disclosed as being performed on the so held work. At present, however, most work treating classes include patents directed to work holders effective during the treatment which characterizes such class. With the exceptions enumerated below, no attempt has been made to incorporate such work holders into this class. For a partial list of work treating classes that provide for their own work holders, see “Holder, Work” in the “Index to the U.S. Patent Classification System.”

B. At present, patents to be found in this class have been screened from Class 29, Metal Working, subclasses 2.1-2.25 and 700-283.5; Class 30, Cutlery; Class 73, Measuring and Testing; Class 82, Turning, subclasses 46-102; Class 83, Cutting; Class 223, Apparel Apparatus; Class 225, Severing by Tearing or Breaking; Class 156, Adhesive Bonding and Miscellaneous Chemical Manufacture.

C. In addition to the above listed loci for work holders that have been screened and the appropriate patents placed in this class, the following loci have been abolished and substantially all the patents reassigned to this class: Class 29, Metal Working, subclass 284; Class 65, Glass Manufacturing; Class 81, Tools, subclasses 17+; Class 409, Gear Cutting, Milling, or Planing; Class 144, Woodworking, subclasses 288, 289+.

D. As other loci are screened, or reclassified, and patents for work holders moved to this class, appropriate notation will be added to B and C above.

HOLDER, PER SE, ELSEWHERE CLASSIFIED

(A) The following classes have provision for specific types of article holding devices; and patents claiming such holding devices as the sole claimed means for supporting the work against gravity and falling within the definitions of such classes are to be found in such classes rather than in this class (269) even though work is disclosed as being treated while so supported: Class 24, Buckles, Buttons, Clasps, etc.; Class 81, Tools; Class 108, Horizontally Supported Planar Surfaces; Class 187, Elevator, Industrial Lift Truck, or Stationary Lift for Vehicle, subclasses 203-221 for a stationary lift

for a roadway vehicle which is to be repaired or inspected; Class 211, Supports: Racks; Class 242, Winding, Tensioning, or Guiding; Class 248, Supports, subclasses 26.1+; Class 249, Static Molds, subclasses 205-219.2 for mold adjuncts that hold mold parts in operative relation; Class 254, Implements or Apparatus for Applying Pushing or Pulling Force; Class 279, Chucks or Sockets; Class 285, Pipe Joints or Couplings; Class 384, Bearings; Class 312, Supports: Cabinet Structure; Class 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 285-295; Class 403, Joints and Connections; Class 433, Dentistry, subclasses 49-67 for work holder specific to use in dentistry, especially subclasses 54-67 for articulators.

If, however, additional means not provided for in any of these classes are claimed as supporting the work against gravity, the patent will be found in this class. Also, if a tool couple element* is claimed in addition to the holding means, the patent will be found in this class.

(B) Holding material for a nontreating purpose:

A device for holding material solely for a nontreating purpose will not be found in this class but will be found in the class providing for such holding means. See Class 248, Supports, which is the locus of art for supports of general utility. If a patent claims a holder which is disclosed as being usable either to support work while it is treated or to support material for a nontreating purpose, the patent will be found in this class with a cross-reference in the appropriate material supporting or holding class based on the nontreating disclosure.

(C) Relationship to work treating classes whose work holding subcombinations are placed in this class.

Exemplary types of treating and nontreating operations:

The following operations are deemed to come within the definition of treating as set forth under the definitions of this class: Stretching material, Testing material, Winding material about a core, Assembly as by moving (i.e., with means for moving) an article from one position to a second position where it will be secured to a second article. (Putting a cap on a receptacle is considered to be an assembling operation and therefore a treating operation).

Exemplary operations considered to be of nontreating type: Inspecting, measuring and gauging, filling a receptacle. Merely holding an article or articles in place so that the article can be secured to another article while so held is considered to be a work holding operation of this

class. See RELATIONSHIP TO ASSEMBLY MEANS below.

WORK HOLDER IN COMBINATION WITH TREATING MEANS

(A) A patent claiming a work holder which has a claimed work treating instrumentality as a part thereof, which is disclosed as treating the work without cooperating with a coating tool, will be found in the class providing for such treatment, and not in this class.

Examples:

A patent claiming a fixed blade for severing work by manually drawing the work thereagainst with a transverse tearing action is found in Class 225, Severing by Tearing or Breaking.

A patent claiming a work holder having a brush mounted therein, for coating work moved against it, goes beyond this class.

(B) Work holder having as a part thereof, specific means which takes part in the treating function:

(1) A patent claiming a work holder including a tool couple element*, and claiming in combination therewith the cooperating element of the tool couple or the support for the cooperating element, will be placed in the appropriate treating class no matter how broadly the cooperating element or its support is claimed. For example, a work holder having a claimed edge or inserted cutting stick that is disclosed as coating with a movable cutter to cut the work will be found in this class only if the movable cutter or its support is not claimed.

(2) Distinction between a treating tool, per se, and a work holder having a tool couple element*.

(a) A patent claiming a work treating tool, per se, will not be found in this class even though the tool is disclosed as supporting the work against gravity, if the portion of the work contacted by the tool is only that portion of the work which is to be treated and portions of the work immediately adjacent thereto.

(b) A patent claiming a work holder having a treating tool, per se, as a part only thereof will be found in this class.

(C) The following exceptions to this rule of distinction are:

Excluded from this class is a patent claiming a roller having a tool couple element* thereon and rotating about its axis for the purpose of having work moved about the periphery of the roller and partially envelop the periphery, so that a portion of the work in contact with the periphery can be treated while the roller is rotating and while the work is moving about the periphery and another portion of the work has relative movement with respect to the roller. Such a patent is considered to be drawn to a tool and its support and will be found in the class of the tool couple element. Compare with RELATIONSHIP TO MATERIAL HANDLING CLASSES, Movable work holder, paragraph 2, below.

Also excluded from this class is a patent claiming a work holder carrying a tool couple element*, which holder and element are disclosed as being relatively movable during the treatment of the work. Such a patent will be found in the class of the tool couple element.

(C) Claimed combination of a work holder and a nominally recited treating means:

The claiming of a work holder and the recitation of a work treating means or its support (not part of or carried by the work holder) is considered to go beyond the scope of this class unless the tool or tool support is nominally claimed. If the tool or tool support is nominally claimed, the patent does not exceed the boundaries of this class unless there is claimed a tool couple element* as described in WORKHOLDER IN COMBINATION WITH TREATING MEANS, below. The following, for example, are considered not to be nominal recitations of the work treating means or its support:

(1) A limitation to a treating means structure or characteristic as, for example, the claiming of a tool as being "sharp" or the claiming of a tool or its support as being "movable."

(2) A limitation to the relative positions of the treating means or its support and the work holder as, for example, the claiming of a tool or its support as being "above" the work holder.

RELATIONSHIP TO MATERIAL HANDLING CLASS

(A) Movable work holder:

The subject matter of this class includes a work holder having means for moving the work holder while it is

holding the work, either before, during or after treatment. Where, however, such apparatus has been recognized as a material transporter in an existing body of art, a patent thereto will be found in such body of art. See the list of classes in the class definition of Class 414, Material or Article Handling. Where the claimed apparatus includes, in addition to the details of the recognized material transporter, a tool or tool couple element*, the patent will not be found in a material transporting class but in either this class or in the appropriate work treating class depending on the criteria set forth above in WORK HOLDER IN COMBINATION WITH TREATING MEANS. For example, a patent claiming an endless belt conveyor whose upper run is disclosed as holding work while it is treated will be found in either Class 271, Sheet Feeding or Delivering, Class 226, Advancing Material of Indeterminate Length or Class 198, Conveyors: Power-Driven; such work holding means being a recognized material transporter. If the patent also claims a guide overlying the upper run and having the disclosed function of guiding a work cutting tool, the patent will be found in this class. If the tool on the guide is claimed, the patent will be found in the class of such tool.

The following exemplifies the rule set forth in the preceding subsection. Excluded from this class is a patent claiming a roller and not claiming a tool couple element* on the roller, said roller rotating about its axis for the purpose of having work moved about the periphery of the roller, and partially enveloping the periphery, so that a portion of the work in contact with the periphery can be treated while the roller is rotating and the work is moving about the periphery and while another portion of the work has relative movement with respect to the roller. Such a patent will be found in the appropriate material transporting class. Compare this paragraph with WORKHOLDER IN COMBINATION WITH TREATING MEANS, above.

A material transporter having the disclosed function of (a) taking work to, or away from, an article to which said work is secured as well as (b) holding said work in position while it is being secured to, or unsecured from, said article is considered to be beyond the scope of this class. See Class 414, subclasses 10-12, Class 29, subclasses 700-283.5 and Class 254 for such a device.

(B) Product removal means:

The subject matter of this class includes a work holder having means for moving a product relative to the work holder. Where however, such combination has been recognized as a material transporter in a recognized body

of art, the patent will be found in such body of art. Where the claimed apparatus includes, in addition to the details of such recognized material transporter, a tool or tool couple element*, the patent will not be found in such recognized material transporting class, but either in this class or in the appropriate work treating class depending on the criteria set forth in WORK HOLDER IN COMBINATION WITH TREATING MEANS, above. For example, a patent claiming delivery rollers for removing sheets from a table, which table is disclosed as holding work during treatment will be found in Class 271, Sheet Feeding or Delivering, even though the table is claimed. If the patent also claims a slot in the table having the disclosed function of guiding a work cutting tool, the patent will be found in this class. If the tool moving in the slot also is claimed, the patent will be found in the class of such tool.

(C) Means to feed work to a work holder:

The basic subject matter of this class does not include the claimed combination of a work holder and a means for moving the work relative to a work holder portion, or for enabling such movement to take place. Nor does the basic subject matter of this class include a device for moving work with respect to a work holder portion regardless of whether the device supports or holds the work during treatment of the work. For example, a gripper which holds and moves work with respect to another work holder portion (claimed or disclosed) is excluded from this class. Such a combination or device will be found in the class appropriate for the work moving means. If the referred to combination also includes a significantly claimed tool or tool couple element*, the patent will be found in the class of the tool. See Class 399, Electrophotography, subclasses 377-380 for holder of original and subclass 393 for copy medium input tray; all support structure is limited to use with an electrophotographic device.

If it is not clear from a patent specification whether a claimed element of the patent is intended to move the work relative to the holder or act as a part of a work holder, the element will be construed as being a part of a work holder and the patent will be found in this class. If such element is disclosed as being capable of either moving the work with respect to the work holder or acting as part of the work holder, the patent will be found in the appropriate material transporting class and may be cross-referenced in this class.

For example, where the claimed subject matter of a patent includes an abutment which moves across a work supporting surface that underlies the work and a drive

means for producing unidirectional intermittent movement of the abutment across the supporting surface, the abutment will be construed as pushing the work across the supporting surface and the patent will be found in the appropriate material transporting class.

(D) Means to guide moving work or product with respect to the work holder:

The subject matter of this class includes a work holder and passive means constraining movement of the work toward or over the work holder, or of the product away from the work holder, to a desired path. Where, however, such apparatus has been recognized as a material handler in a recognized body of art, the patent will be found in such body of art. Where the apparatus includes, in addition to the details of such recognized material handler, a tool or tool couple element*, the patent will not be found in such recognized material handling art, but either in this class or in the appropriate work treating class depending on the criteria set forth in WORK HOLDER IN COMBINATION WITH TREATING MEANS, above. For example, a patent claiming only a trough which, by disclosure, serves to support a pipe for a cutting operation while the pipe is moving along the trough will be found in Class 193, Conveyors, Chutes, Skids, Guides, and Ways. As a second example, an invention relating to a power-driven conveyor having means to facilitate working on the conveyed load at a work station is included in Class 198, Conveyors: Power-Driven, subclasses 339+, or, in the case of a power-driven conveyor having means to change the attitude of the conveyed load relative to the conveying direction, in subclasses 373-417 of the same class. As a third example, a patent claiming a flat work supporting table having air jets mounted therein which blow against the bottom of the work so as to permit the work to be moved more easily over the table will be found in Class 414, Material or Article Handling, subclass 676. If either patent claims, in addition, a slot in the trough or table which is disclosed as coacting with a movable cutter to cut the work, the patent will be found in this class. If, in addition, the cutting tool is claimed, the patent will be found in the class of such tool.

RELATIONSHIP TO ASSEMBLY MEANS (CLASS 29)

The claimed recital of means to hold a piece of work relative to another piece of work for purposes of juxtapositioning and/or securing has been considered to be a work holding operation for this class. (See above, HOLDER, PER SE, ELSEWHERE CLASSIFIED, section C, Exemplary styles of treating and nontreating

operations, 2nd paragraph). However, the inclusion of (a) means to move the individual pieces to effect such juxtapositioning or (b) means to guide the pieces during movement is considered to be an assembling operation for Class 29, subclasses 700-283.5. For example, with respect to (b), a patent with limitations to a work holder including a tapered pin (said taper being claimed) so as to align the holder with another holder during relative movement of said holders, no means for such movement being claimed, is considered to go beyond a work holding function for this class and would be placed in the assembling art of Class 29.

RELATIONSHIP TO PRESS MEANS (CLASS 100)

Structural differences between devices labeled vise, clamp, work holder, or press are often lacking. The differences, if any, lie in the use to which these devices are applied. Where material is engaged and compacted by the engaging means, the term "press" (Class 100) is considered appropriate. Where material is engaged to support and/or immobilize said material during treatment, the term "work holder" (Class 269) is considered appropriate. It should be noted that Class 100 is only the residual press class, other classes (such as 65, 72, etc.) providing for presses relating to specific material and modifications. Similarly, Class 269 is only the residual work holder class, other classes (Class 65, Class 118, Class 408, Class 451, etc.) including work holders effective during the specific treatment characterizing such classes.

The work holders of Class 269 (with one exception - tool couple element*) do not include means to modify or treat the material engaged. For the purpose of keeping similar structure together, it is deemed best that, as between Class 100 and Class 269, the setting of an adhesive, previously applied, to material is considered to be a treatment of said material, which material is therefore considered to be "work." Thus, a device to hold plural pieces while an adhesive (previously applied) sets is considered appropriate for this class (269). However, a work holder for holding plural pieces while an adhesive sets, proper for Class 269, combined with means for heating, cooling or fluid contact, is considered a combination classifiable in Class 100.

A device for continuously processing material, involving means for a shifting area of contact between the device and the material, while a bonding agent between component parts of the material sets, is considered to be a form of treating device in itself and as such is excluded from Class 269.

Class 100 is considered to be superior to Class 269 and as such the appropriate locus for patents relating to work gripping devices not clearly provided for in Class 269 or by the notes thereto.

MISCELLANEOUS NOTES

Convertible devices:

A patent claiming a device with means which by adjustment, addition, removal or reassembly of one or more of its parts may, at the discretion of an operative, be capable of performing a function as a work holder for this class or a function falling within the scope of another class will be placed in said other class. For example, a patent for a device which, as claimed, is adjustable for use as a vise or readjustable for use as a wrench will be placed in Class 81, subclasses 53+, with the wrench art.

A patent claiming a work holder having relatively movable jaws convertible to a work shaping means, said conversion providing means to hold and shape work is placed in Class 29, Metal Working, subclass 560.1 with appropriate cross-reference in this class and/or the proper shaping class for specific individual features.

Relationship to classes of composition of matter:

A work holder defined in terms of its composition, without any significant structure claimed, will be found in the class providing for the composition and not in this class.

Relationship to classes of power transmitting means:

A patent limited in its claims to a means for driving or moving a work holder element, with the element defined merely as the named load of the driving or moving means, will be found in the class providing for such driving or moving means and not in this class. If any significant structure of the holder element is claimed, the patent will be found in this class.

Combination with work supply holder:

This class includes the combination of a work holder and a holder for the supply of work which is to be placed in the work holder. An example of such a work supply holder is a reel from which a web of the work may be unwound to be placed on the work holder. The work supply holder is not considered to be a work holder unless that portion of the work which is on the work supply holder is disclosed as being treated.

Combination with geometrical instrument or geometrical indicia:

This class includes the combination of a work holder and a geometrical instrument or geometrical indicia, as for indicating desired distances along or positions in the basic device of this class.

Processes of work holding:

Class 29, Metal Working, subclass 559, is the residual locus of patents directed to methods of holding work. A patent including a claim to a work holding method would be placed in subclass 559 and cross-referenced back to Class 269, if necessary, for disclosed or claimed work holding structure.

Processes of making a work holder:

Class 76, Metal Tools and Implements, Making, subclasses 101.1-119, is the residual locus for patents to a blank for, or a process of, making a work holder.

The class of adhesive bonding:

Class 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 502 and 503 include workholder with treatment means, e.g., heating, cutting, etc.

SECTION III - GLOSSARY

Terms or phrases used in titles and definitions either repeatedly or in a special and limited sense are set forth below with the meaning each is to have in this class. For economy of space, an asterisk (*) following a word indicates that reference should be had to this glossary for the specific meaning thereof, while an asterisk following an underlined phrase (e.g., holder mounted for movement*) indicates that the entire underlined term as such, has been defined in this glossary.

ACTUATION (ACTUATE, ACTUATING, ETC.)

The application of (a) a bias (resilient or gravity), or (b) a mechanical advantage, or (c) the use of a lost motion mechanism to effect the relative movement of jaws. The use of levers, inclined planes, pulleys, gears, cams, fluid systems, etc., even where such means fail to produce force multiplication, or actually provide a force reduction, is considered enough to constitute actuation means rather than adjustment* means.

ADJUSTMENT (ADJUST, ADJUSTING, ETC.)

The shift of a jaw or jaws into juxtaposition with work without the application of (a) a bias (resilient or gravity), or (b) mechanical advantage effective to press or grip work, or (c) utilizing a "lost motion mechanism". This shift may be (d) no more than a "quick setting" of a jaw of a particular device (e.g., the use of a split nut to initially position a jaw for gripping movement along a lead screw) or (e) a change of the range* limits (e.g., the use of a pawl and rack lock to initially position a jaw for gripping movement by a cam or eccentric). While the shift of (d) and (e) are both considered to be jaw adjustment only (e) represents a true variation of range limits; i.e., the full cam throw will move the jaw one inch (the range whether the pawl and rack setting provides a work accommodating span of three or ten inches).

ADJUSTMENT-LOCK

The immobilization, or securing against movement, of structural elements constituting the means for jaw adjustment*. An adjustment-lock may be effected (a) by a shift in relative position of the structural elements being immobilized (as, for example, in subclasses 166-171.5) or (b) by positioning an additional element to effect the desired binding or securing.

The immobilization, securing, or binding referred to may be only relative rather than absolute, in the sense that further movement or positioning of the structural elements requires the utilization of actuating* means.

The adjustment-lock effected may in fact be limited to a one way latch or binding. For example, in some of the pawl and rack locks of subclasses 212-215, the structural elements, when said pawl and rack are engaged, cannot be further adjusted except in a direction favored by the inclination of both rack teeth and pawl; and similarly, in the simple cant type lock of subclass 166, the structural elements, when relatively askew, resist adjustment in a direction tending to further accentuate the degree of cant but are freely adjustable in the direction tending to reduce the degree of cant.

CAM, ECCENTRIC

A rotatable, pivotal or rockable member having a contour, which contour is not uniformly concentric with the pivotal or rotational axis of the member, and which contour, as it moves with respect to said axis, imparts a to-and-fro movement to a follower element bearing against said contour. The movement of said follower element,

as the point of mutual contact between the member and the element shifts along the contour, is thus prescribed by the configuration of said contour with respect to the axis of rotation. The contour may be a modification of a peripheral or radial surface with respect to the pivotal or rotational axis or a configured groove, ridge or slot lying in the general plane of either surface. Thus, the effective movement of a follower element, caused by pivoting or rocking the cam member, is measurable along lines normal to the member axis or parallel to the member axis. The follower element is usually mounted for sliding or pivoting movement with respect to the cam member. In some instances, the contour, referred to above, is part of the follower element.

In this class, the terms “cam” and “eccentric” are used interchangeably.

See (3) Note under subclass 165 and (1) Note under subclass 229 for wedge adjustment and wedge actuating means.

CLAMP COUPLE ELEMENT

Structure limited to one jaw* plus the means to adjust* and/or actuate* said jaw relative to a disclosed, but not claimed, coacting jaw.

HAND (MANIPULATE)

The term “hand” (or “manipulate”) is used in the sense of “by contact with a living being” and includes hand, foot, head, etc. Specific recital of foot, pedal, etc. is limited to such recital.

HOLDER MOUNTED FOR MOVEMENT

A device in which a work holder is structurally related with respect to a member on which it is supported so that the work holder may be moved to a limited extent or in a definite path(s) with respect to its supporting member. The entire holder, i.e., the structure which contacts and thus actually supports the work, must be capable of movement while work is held. In the case of a work underlying support (as in subclasses 289-314), such underlying support is considered mounted for movement even though the clamps or fastening means needed to keep work from sliding off are not claimed.

HOLDER SUPPORT, MOUNT, OR BASE

A work holder support is the structure for positioning work contacting elements, including the associated adjusting and/or operating means for said work contact-

ing elements, with respect to a reference member (table, floor, wall, rack, bench, etc.). Such support structure may be integral or articulated with a work contacting assembly and is provided with means for maintaining position of said assembly with respect to the reference member. The position maintained may be adjustable with respect to a particular reference member by (a) relative shifting of parts or links constituting the work holder support or by (b) relative shifting of the articulated joint structure between the work contacting assembly and the work holder support. The position may also be varied by (c) temporary fastening means selectively securing the work holder support to different reference members or different portions of the same reference member.

A work holder support means such as (a) or (b) above is generally disclosed as positionable either (1) preparatory to engaging work or (2) while the work is being held. Since in many instances the structure for (1) will serve for (2) and vice versa, no attempt has been made to distinguish classificationwise on this basis. Both (1) and (2) are treated, unless specifically noted otherwise, as (2) and provided for under Holder Mounted for Movement*.

A work holder support means such as (c) above is not considered as a Holder Mounted for Movement* and if claimed, per se, will be found in Class 248, Supports.

MANIPULATE

see “HAND”

PRODUCT

The material that is placed in, or on, or in juxtaposition to, the work holder in the condition in which such material exists after it has been treated.

RANGE

The extent or span of relative jaw movement, without reference to the work to be engaged, as predetermined by the structural relationship between elements of the means to actuate* said jaws. For example, shifting a split nut on a screw to initially position a jaw carried by said nut does not involve a range change since the nut can still travel the full extent of the screw; however, changing the degree of eccentricity of a jaw actuating element does involve a range change since the operation of said actuating element will now result in a variation of the effective throw of said element and its associated jaw.

SIMPLE MOVEMENT

The following, only, are considered to be simple movements of a work holder:

- (a) A movement in which all of the work holder swings about a fixed axis except for the part lying on the axis, i.e., rotational movement.
- (b) A movement in which each point on the work holder moves in a single rectilinear path; i.e., rectilinear movement.

JAW

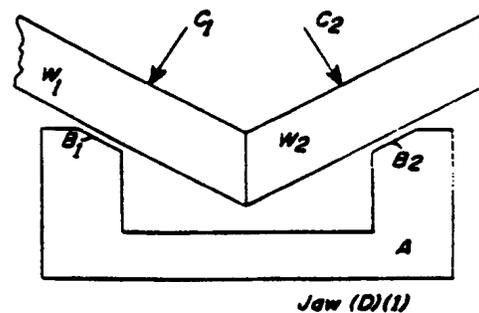
(a) One of the plural portions of a work holder couple which engages or grips a workpiece. Generally, the jaw is taken to include the work contacting surface and that part of the holder which (1) is contiguous to said surface as well as that portion which (2) if moveable, moves bodily in congruent fashion with said surface. (See subclass 271 for the definition of a jaw attachment or insert).

(b) A work holder portion with an underlying work contacting surface, for which see subclass 289, especially (2) Note, is not considered to be a jaw, unless claimed in combination as one of plural coacting work gripping elements. However, a work holder portion with an overlying work contacting surface, which portion ordinarily is incapable of functioning as a work holder in the absence of a coacting underlying support means, will be considered as a jaw even if there is no claimed reference to said coacting underlying portion. (See subclasses 37-45 for plural holders which separately hold at least two workpieces relative to each other; each such holder is considered to be more than a jaw).

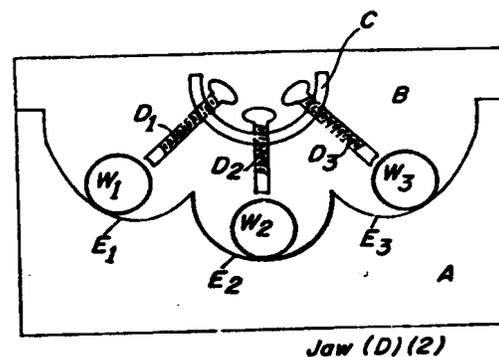
(c) As an exception to (a) which states that a "jaw" must be one of a couple; a work engaging member, which as claimed (1) includes plural, abutting, nonparallel, flat work engaging surfaces; (2) each such flat surface, coacting with a different one of plural work engaging elements as one of a plurality of work engaging elements as one of a plurality of work holding couples, is considered to be a common jaw member cooperating with a plurality of jaws. (See subclass 104 for patents to a holder with plural jaws coacting with a common angle-corner jaw to hold the same workpiece). (See subclass 154 for patents to a holder with plural jaws coacting with a common flat jaw surface to hold work or workpieces).

(d) Unlike (c) above, a work engaging member which as claimed includes either (1) plural, nonabutting, work engaging surfaces or (2) plural, abutting, curved, work engaging surfaces, and which surfaces (1) or (2) each coact with a different one of plural work engaging elements, is not considered to be a "common" jaw member. Hence, such a configured work engaging member in combination with coacting plural elements does not constitute plural jaw pairs either for subclass 104 or subclass 152. (See subclasses 257-284 for specific jaw features, per se.)

The following figure is illustrative of plural, nonabutting, work engaging surfaces B1 and B2 referred to in (d)(1) above.



The following figure is illustrative of plural abutting, curved, work engaging surfaces E1, E2 and E3 referred to in (d)(2) above.



(e) Each of three mutually adjustable* and/or actuatable* work contacting elements effective to hold work (as in subclass 156) is also considered to be a jaw.

In both rotational and rectilinear movement, the movement may be in steps, backwards, or forwards.

TOGGLE

A linkage including at least two links, pitmans, bars or struts, and at least three pivots, the end of one link being connected to the end of the other link by a pivot common to both links, each of said links also having a pivot at the end remote from the common pivot, which common or intermediate pivot is movable from a position not in a straight line with the other two pivots, to a position substantially in line by a force applied to the intermediate pivot in a direction substantially normal to one of the links, thereby moving at least one of the two pivots away from the other. At least one of said links is articulated at both ends and is not integral with either a jaw or handle.

TOOL

An instrumentality for effecting treatment of the work.

TOOL COUPLE ELEMENT

The portion of a work holder whose disclosed function is to (a) coact with a relatively movable work treating tool to treat the work, or (b) act as a guide for a relatively movable work treating tool to directly or indirectly constrain the tool for movement in a particular path, or (c) limit the movement of a work treating tool relative to the work so that it may contact only a portion of the work and is prevented from contacting another portion of the work.

To be recognized as such, the tool couple element, if it is part of the work contacting portion of the work holder, must be of different structure than the rest of the work contacting surface, or must be a particular, definable portion of the work contacting surface such as an edge thereof.

TREATMENT OR TREATING

An operation which modifies the shape or changes a characteristic of material, assembles pieces of material together, disassembles pieces of material, or applies fluid (nonpropellant) to material. See WORK HOLDER IN COMBINATION WITH TREATING MEANS and RELATIONSHIP TO PRESS MEANS, above.

WORK

The material that is placed in, or on, or in juxtaposition to the work holder for treatment in the condition in which such material exists prior to its being treated or during treatment.

WORK-STOP ABUTMENT

(a) An element positioned adjacent a surface which supports the work against the force of gravity, and which element presents an obstacle that restrains the movement of the work across the surface in a particular direction, including the necessary supporting frame work for such element.

(b) The inclusion of an opposing or coacting element engaging the work, so as to grip said work between the "abutment" and said element, is considered to be characteristic of a jaw* relationship and such combination, claimed or disclosed, is not a work-stop abutment.

SUBCLASSES

1 HAND MANEUVERED OR WORK SUPPORTED TOOL GUIDES:

This subclass is indented under the class definition. Device which, when used during the work treating operation, (a) derives substantially all of its support from the work to be treated or any position thereof or (b) is held solely by the operator either directly or through an operator either directly or through an operator-manipulated grappling device, and which has a portion thereon serving as a tool couple element*.

(1) Note. If it is not clear from a patent disclosure whether the claimed device falls within the definition of this subclass or of one of the coordinate subclasses following in this schedule, the patent will be found as an original in this subclass or a subclass indented thereunder.

(2) Note. See HAND*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3, for patents to an operator supported holder that does not include a tool guide.

2 Relatively movable jaws:

This subclass is indented under subclass 1. Device wherein the work is maintained in the tool guide by being gripped between two surfaces, at least one of which is movable with respect to the other.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

86, through 286, for patents to a holder with relatively movable jaws.

3 OPERATOR SUPPORTED:

This subclass is indented under the class definition. Device including a portion whereby the entire device is held against the force of gravity by a living being during work treatment.

(1) Note. The portion disclosed as held by an operator must be clearly claimed as a handle or in structural terms peculiar to such handle function. A "handle" for "adjustment"* or for "actuation"* only is not considered an operator supported feature for this subclass.

(2) Note. See HAND*.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

1, and 2, for patents to an operator supported holder and tool guide.

SEE OR SEARCH CLASS:

81, Tools, subclasses 300 through 427.5 for patents to pliers and see search notes thereunder and subclass 487 for a hand held holder or clamp for manipulation of an article rather than work treatment.

294, Handling: Hand and Hoist-Line Implements, appropriate subclasses for hand-held grapples, manipulators, and carriers for articles.

4 Convertible to bench supported:

This subclass is indented under subclass 3. Device having means which, by a rearrangement, addition, removal or reassembly of one or more of its parts, permits the device to serve as either an operator supported holder or a base supported holder.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

96, for patents to a holder, per se, either a wrench or plier, with means to fasten said holder to a support.

5 With opening through handle for work supply:

This subclass is indented under subclass 3. Device wherein the portion supported by an operator includes an aperture through which work may extend into a supporting or gripping zone.

(1) Note. Usually, the opening permits a fresh portion of work to be extended into a gripping zone after operation on a previously gripped portion.

SEE OR SEARCH CLASS:

30, Cutlery, subclasses 124 through 137 for patents to cutlery implements combined with means to hold material to be cut.

6 Handle manipulation for jaw actuation:

This subclass is indented under subclass 3. Device wherein the portion supported by an operator is moved relative to another portion of the holder, or relative to itself, to actuate a jaw or jaws.

7 SOLIDIFICATION OF WORK CONTACTING MEDIUM:

This subclass is indented under the class definition. Device for holding work by means of a work engaging material, changeable from liquid or fluent state (which liquid state permits movement of the work) to a solid or rigid state (which solid state immobilizes the work).

(1) Note. Included here are patents which hold work by means of freezing a portion in ice.

SEE OR SEARCH CLASS:

62, Refrigeration, appropriate subclasses for patents to a refrigeration process and/or apparatus, per se.

8 MAGNETIC HOLDER:

This subclass is indented under the class definition. Device for holding work by subjecting said work, or a work contacting element, to the forces exerted by a magnetic field.

- (1) Note. The magnetic field may be that of a "permanent" magnet or that induced by an electric current.
- (2) Note. Included here are patents to a holder for nonmagnet material wherein the magnetic forces act on a work gripping element, which element holds the work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

216, for patents to a holder with other than magnetic actuating* means.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 289 through 294 for electromagnetic type work holding means, per se.

9 PLURAL SELECTIVELY USED HOLDERS:

This subclass is indented under the class definition. Device including at least two separate holding means, at least one of which is disclosed as being utilized for work holding purposes at a different time than another work holding means, at the will or option of an operator, rather than by machine sequence.

- (1) Note. The holding means are separate to the extent that each work holding means can maintain or position a workpiece (a) without requiring the presence of other workpieces or other holding means, or (b) each holding means has its own actuating* and/or adjusting* means.
- (2) Note. Excluded from this subclass are patents to a device having a first work holder mounted on a second work holder so that the first work holder must be completely taken off the second work holder before the second work holder can be utilized.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 37, through 45, for patents to a plural holder to hold workpieces relative to each other, and see notes thereunder.
- 152, through 155, for patents to holder with plural jaw pairs and see notes thereunder.
- 315, through 320, for patents to a work-stop abutment mounted on another work-stop abutment so that the former must be completely taken off the latter abutment before the latter may be used to engage the work.

10 Work stop abutment:

This subclass is indented under subclass 9. Device wherein at least two of the selectively used work holders are work-stop abutments*, and the work is disclosed as being supported against the force of gravity on the same support surface while in contact with either of the work-stop abutments.

- (1) Note. Since the work-stop abutment is considered to be a work holder for this class, two or more such abutments constitute plural holders. The selective use of said plural abutments thus effecting placement in this subclass.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

315, through 320, for other patents having a work-stop abutment.

11 WITH HOLDER ILLUMINATING MEANS:

This subclass is indented under the class definition. Device wherein means are provided to cast or direct light on the work holder.

- (1) Note. A patent claiming the illuminating means without claiming the work holder will be found in the class providing for the illuminating means.

SEE OR SEARCH CLASS:

362, Illumination, appropriate subclasses for illuminating means, per se, and subclasses 109 through 120 for illuminating means combined with the structure being illuminated.

12 WITH DRY RUN WORK DRIVING MEANS:

This subclass is indented under the class definition. Device wherein means are provided to cause interrelated movement of the parts of a work assembly, while said assembly is mounted in the holder, to simulate operating conditions of the work.

13 WITH PRODUCT DISCHARGE FACILITATOR:

This subclass is indented under the class definition. Device wherein means are provided which enable at least a portion of the product to be removed from the work holder, or which implement or accomplish such removal.

- (1) Note. See section VI, B under the class definition.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 15, for patents for a device having a catch pan to collect material falling from the work.

14 Product mover:

This subclass is indented under subclass 13. Device wherein the product discharge facilitator includes a means for applying a force to the product so as to impart movement thereto.

15 WITH CATCH PAN:

This subclass is indented under the class definition. Device wherein a receptacle is provided to collect material which leaves or falls from the work or product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 13, and 14, for patents for a work holder having a product discharge facilitator which includes a receptacle for receiving the product.

16 WITH PART OR TOOL HOLDING RECEPTACLE:

This subclass is indented under the class definition. Device wherein the work holder includes a place or space disclosed as being provided to store a workpiece element or a work treating instrumentality to be used in treating the work.

- (1) Note. The workpiece element when so stored is not in the position it assumes in the work holder while being treated; and the work treating instrumentality is not in the position it assumes when it is treating the work.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 15, for patents for a catch pan that intercepts a workpiece element falling from the work.

SEE OR SEARCH CLASS:

- 38, Textiles: Ironing or Smoothing, subclass 111 for ironing tables combined with a work catcher.
112, Sewing, subclass 217.1 for a sewing machine table combined with a work catcher.

17 WITH GROUND TRAVERSING MEANS:

This subclass is indented under the class definition. Device wherein the work holder has a means (such as a wheel) thereon for contacting a fixed surface beneath the work holder (such as a floor or the ground) and whose disclosed purpose is to enable the work holder to be moved on the surface, in any desired direction, from one place to another.

- (1) Note. A patent claiming a vehicle and not claiming a work holder will be found in the class of the vehicle regardless of whether a work holder is disclosed. See Class 180, Motor Vehicles, and Class 280, Land Vehicles.

19 WITH PLUMB INDICATOR:

This subclass is indented under the class definition. Device including a visual gage means for determination of the vertical and/or horizontal position of the workpiece and/or holder being held.

- (1) Note. The gage is usually a spirit level.
(2) Note. Included here is a group of patents claiming means disclosed for use as a plasterer's corner bead setter which include visual gage means. To facilitate an art search, known patents disclosed for the same art purpose, though not

showing a plumb indicator, are also placed here as cross-references.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

365+, for levels or plumbs, per se.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, subclass.

20

WITH FLUID MEANS:

This subclass is indented under the class definition. Device including pneumatic or hydraulic means, or both, for holding, releasing, and/or force-applying purposes.

- (1) Note. The fluid means may also be utilized to (a) "float" a portion of the work or work holder, (b) eject a workpiece, (c) remove unwanted particles falling on or adjacent the work holder during treatment, or, (d) any combination of (a), (b), and/or (c).
- (2) Note. If a patent is silent as to how a cylinder or piston is returned to its normal or starting position, or if a patent discloses nonfluid means for returning a cylinder or piston, and there is no disclosure pertinent to any one of the indented subclasses, such patents will remain in this subclass.
- (3) Note. If a patent discloses that a vacuum means is used only to remove a weighted element from the work (e.g., if suction is used to lift a cylinder above a workpiece, and allowing atmospheric air to re-enter the cylinder lets the cylinder descend onto the work by its own weight), such patent will remain in this subclass.
- (4) Note. A fluid "cushion" chamber that is passive, rather than active, and is controlled only by (a) a valve means exhausting to atmosphere, or (b) a valve means exhausting into an unconfined liquid receptacle, or (c) a conduit which connects said chamber with a confined (second) chamber having a fixed pressure, or (d) any combination of (a), (b), and/or (c) is not deemed to be a device for moving a jaw or holder for any one of the indented subclasses, and, if only

such a means is claimed as part of a work holder, then the patent will remain in this subclass.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

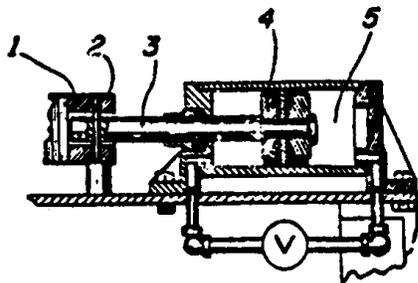
- 7, for patents including the use of a "freezing" means to hold work.
- 13, and 14, for patents for a product discharge facilitator which may include fluid means to perform this function, and see the notes thereunder.
- 55, through 85, for patents including a similar means to a complete holder.
- 157, through 163, for patents for a holder including means to bias a jaw(s) toward a nonholding position.
- 216, through 254, for patents for a similar means to move a jaw(s).

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, subclasses 3.12 through 3.15 and 300+ for patents for a device in which a fluid contacts the work, and see the notes under subclasses 3.12, 300 and 301.
- 16, Miscellaneous Hardware (e.g., Bushing, Carpet Fastener, Caster, Door Closer, Panel Hanger, Attachable or Adjunct Handle, Hinge, Window Sash Balance, etc.), subclasses 49 through 50 and 82-86 for patents for a fluid check and closer.
- 60, Power Plants, subclasses 325 through 494 for a force applying motor of general utility supplied with motive fluid from a pressure fluid source.
- 91, Motors: Expansible Chamber Type, for patents for structure of a fluid motor, per se, and see the notes under the class definition.
- 100, Presses, subclasses 269.01 through 269.21 for patents for a press including fluid means to move one or more pressure surfaces, and see the notes thereunder.
- 137, Fluid Handling, for patents for a fluid handling means, and see the notes under the class definition.
- 188, Brakes, subclasses 266 through 322.5 for a fluid-resistance brake or shock absorber.

- 192, Clutches and Power-Stop Control, for patents to a clutch, especially subclasses which include "fluid" in the title.
- 279, Chucks or Sockets, subclasses 3 and 4.01-4.12 for patents including a vacuum and a fluid operated chuck, respectively, and see the notes thereunder.
- 418, Rotary Expansible Chamber Devices, for rotary expansible chamber devices, per se.
- 21 Vacuum-type holding means:**
This subclass is indented under subclass 20. Device wherein the fluid pressure means operates to produce a difference in the pressures upon at least two sides of a workpiece, or a portion of a complete holder, which difference is effective to hold the work or the holder.
- 22 With movable diaphragm:**
This subclass is indented under subclass 20. Device including a flexible wall element, one side of said element being forced into contact with a workpiece by fluid pressure applied to the other side of said element.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
275, for patents including a yieldable jaw element that may be placed either on the diaphragm or between the diaphragm and the work.
- SEE OR SEARCH CLASS:
100, Presses, subclasses 211 and 212 for patents to a press with a deformable pressure surface.
137, Fluid Handling, subclasses 777+ for patents for a fluid handling device having one or more flexible wall elements, and see the notes under subclasses 784 and 793.
- 23 With safety means:**
This subclass is indented under subclass 20. Device including means operable to (a) cease the continued application of fluid pressure, (b) cease jaw* movement, (c) insert blocking means between opposed jaws, or (d) any combination of (a), (b), and/or (c); such means may be dormant, movable or activated by a condition (such as the absence of a workpiece in the work holder) to prevent injury to a worker, and/or to avoid damage to the material being treated or the work holder itself.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
257, through 284, for patents to holder jaw features which may prevent the work from being damaged by the jaw.
- SEE OR SEARCH CLASS:
100, Presses, subclasses 341 through 352 for patents to a press including safety means.
- 24 Plural positioning means sequentially operated:**
This subclass is indented under subclass 20. Device wherein (a) one holder, or holder portion, is moved in response to, and after, the movement of a second holder, or holder portion, or (b) a main drive unit activates a first holder prior to activating a second holder, or (c) any combination of (a) and (b).
- SEE OR SEARCH THIS CLASS, SUBCLASS:
107, through 109, for patents including an interrelated actuating means for angularly related jaw couples.
- SEE OR SEARCH CLASS:
100, Presses, subclasses through 352 for patents for a press including interrelated actuators.
- 25 Cylinder-piston means directly moves jaw(s):**
This subclass is indented under subclass 20. Device wherein (a) a fluid means is used to relatively move a solid (or hollow) member that has a generally circular periphery having a close fit within a surrounding hollow member that is similarly configured, and (b) one of these two members moves an immediately adjacent jaw*(s).
- (1) Note. Patents will be placed in this subclass where (a) the movable piston or cylinder serves as a jaw itself, (b) the piston or cylinder is rigid with a jaw, or (c) a jaw is connected to the piston or cylinder by a pivot means or by a single universal-type joint.

- (2) Note. There may be an additional jaw(s) that is independently adjusted* or actuated* by nonfluid means, provided such jaw(s) is not interrelated with the fluid operated jaw(s).
- (3) Note. There may be a mechanical and/or electrical means, operated by a human operator, that starts or continues the operation of the fluid means; but, if there is a mechanical means between the fluid means and the jaw(s), see subclass 27 and the notes thereunder.
- (4) Note. Compare the sketches under this subclass 25 and subclass 32 for illustrative examples of the structural variations that distinguish the subject matter placed in these groups of subclasses.
- (5) Note. In the figure below, the jaw 1 is pivoted (at 2) to the piston rod 3 which is moved by the piston 4 operating within the cylinder 5.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 27, through 34, especially subclasses 32+, for patents to a fluid operated holder including additional positioning means, and see the notes thereunder.
- 257, through 284, for patents to a jaw (face) feature, per se.

26 With equalized pressure on plural (nonopposed) jaws:

This subclass is indented under subclass 25. Device including means for interconnecting a supply of fluid under pressure to two or more fluid actuated* cylinder-piston means, so that the pressure exerted from said (usually com-

mon or single) source will be applied to the same extent on each of two or more jaws while they are contacting work.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 33, for patents including an opposed cylinder-piston means having additional positioning means, and see the notes thereunder.
- 107, through 109, for patents for a holder with angularly related jaw couples having interrelated actuating means.
- 152, through 155, for patents to a holder including plural jaw pairs.

27 Cylinder-piston means in series with additional positioning means:

This subclass is indented under subclass 20. Device including a cylinder-piston unit as set forth in (a) of the definition of subclass 25; and further means, either directly connected to or interrelated with said unit, to add to the efficacy of the unit, or to perform some function that said unit standing alone could not perform.

- (1) Note. Patents including a fluid unit (usually the cylinder) that is moved as an entirety, by either fluid or nonfluid means, prior to operating said unit (cylinder) to actuate its associated jaw will be placed in this and indented subclasses.
- (2) Note. See (2) Note under subclass 20.
- (3) Note. Valving means, whether singular or plural, in parallel or in series, manual or nonmanual, are not deemed to be "additional positioning means" in series with fluid means unless the valve(s) is so connected or related that a portion of the valve structure itself moves a jaw or holder in addition to performing its function of directing the fluid and/or modifying the fluid pressure; such patents will be placed in subclasses 25 and 26, if otherwise appropriate.
- (4) Note. See the sketches accompanying the definitions of subclasses 25 and 32.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

25, and 26, for patents including a cylinder-piston unit(s) that directly moves an associated jaw(s) without additional positioning means.

28 With separate air means in series with liquid means:

This subclass is indented under subclass 27. Device including (a) a pneumatically operated pressure means that moves one or more elements of a hydraulically operated pressure means, or (b) a compressible fluid chamber within an incompressible fluid chamber including means to increase or decrease the pressure exerted by said compressible fluid, or (c) the air and liquid means may be reversed in either (a) or (b); or (d) any combination of (a), (b), and/or (c).

(1) Note. See (4) Note and the search notes under subclass 20.

29 Including self-contained manual pump means:

This subclass is indented under subclass 27. Device including a fluid reservoir and means by which a human operator can, by the manipulation of parts, increase and/or decrease the pressure within said reservoir.

30 With common fluid means for holding and releasing:

This subclass is indented under subclass 27. Device wherein a single pneumatic or hydraulic source is used (usually through valve means) to hold and release a jaw* carrier; or such means is used to move (a) a jaw, (b) a jaw carrier, (c) mechanical means associated with a jaw or carrier, or (d) any combination of (a), (b), and/or (c), both toward and away from a workpiece.

(1) Note. This subclass requires the single fluid unit to move at least one element in each of two opposite (180°) directions. If a spring (or similar means) is used to move the element in one of the two directions, see (2) Note under subclass 20 and see subclasses 32-34.

(2) Note. See (4) Note and the search notes under subclass 20.

31 Cylinder-piston unit rotatably and/or pivotally mounted:

This subclass is indented under subclass 30. Device including (a) at least one fluid means that is movable, as a unit, at a fixed distance about a point on a work holder; or (b) at least one fluid means that is swivelly connected, at some point on the unit, to a fixed point on a portion (stationary or movable) of the work holder; or (c) a combination of (a) and (b).

SEE OR SEARCH THIS CLASS, SUB-CLASS:

55, through 85, for patents including a complete holder mounted for movement, and see the notes thereunder.

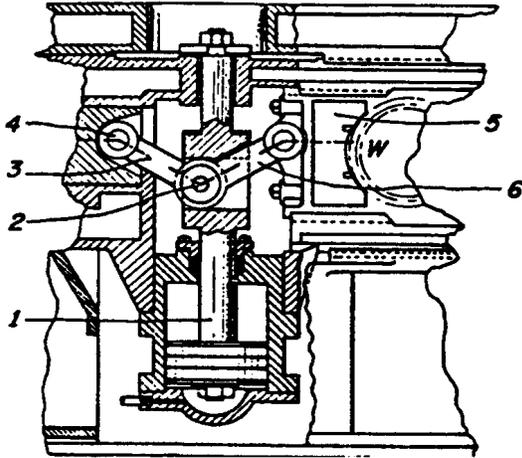
216, through 254, for patents including nonfluid actuating* means which may be pivoted to a work holder.

32 Mechanical means between fluid means and jaw:

This subclass is indented under subclass 27. Device including adjusting* and/or actuating* means positioned between (a) a jaw* and (b) the cylinder or piston of the jaw's pneumatic or hydraulic actuating means.

(1) Note. See (3) Note under subclass 27.

(2) Note. In the figure below, the link 6 is pivoted to a jaw 5, and the pivot for the link 3 is fixed at 4. Reciprocation of the piston rod 1 moves the movable pivot 2 and the jaw 5 to and from the work W.



33 Including opposed cylinder-piston means:
This subclass is indented under subclass 32. Device wherein at least one cylinder-piston unit moves its jaw*, in a straight line, toward a cylinder-piston unit similarly moving a second coating jaw at a 180° angle with respect to said first mentioned jaw.

- (1) Note. One or more of the cylinder-piston means may be movable out of the opposed relationship.
- (2) Note. The plural cylinder-piston means may operate from a common source of fluid supply or from independent sources.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 25, and 26, for patents to a holder including a jaw(s) moved directly by a cylinder or piston without additional positioning means.
- 140, through 150, for patents to a holder with separate positioning means for each of a jaw pair.
- 218, through 220, for patents to a holder with common actuating means for each of a jaw pair.

34 Single fluid unit moves plural spaced jaws:
This subclass is indented under subclass 32. Device including at least one fluid means which, when operated, forces physically separated plural jaw* elements into contact with the work at spaced points.

rated plural jaw* elements into contact with the work at spaced points.

- (1) Note. Patents including an insert between the plural jaw elements defined above and the work are included in this subclass.
- (2) Note. The jaws may be parallel, angularly related, or a combination of both; or a single fluid unit may operate through linkages to move each of at least two jaws into contact with (a) adjacent points on one side of the work, or (b) points on opposite sides of the work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 218, through 220, for patents for a holder including a common means to actuate plural jaws, and see notes thereunder.

35 With guide means:

This subclass is indented under subclass 20. Device including means preventing rotation of either the piston or the cylinder, or both, of a pneumatic or hydraulic pressure means; or a means restricting, to a desired path, the movement of one or more parts of a fluid-operated holder.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 256, for patents to a holder including structure for maintaining opposed jaws in parallel planes.

36 FENCE BOARD HOLDER AND GAUGE:
This subclass is indented under the class definition. Device for supporting one or more rails of a fence relative to another rail on which said device is supported.

- (1) Note. Included here are patents to a device for holding and gauging wire fence strands or metal slats.
- (2) Note. Most patents found in this subclass are classified here as originals on a disclosure basis and cross-referenced below on a structural basis.
- (3) Note. Patents to a device for holding plural elements, disclosed as fence compo-

nents, in desired relative position are not proper for this subclass unless such device is supported by a fence rail. See subclasses 37-45 for plural holders to hold workpieces relative to each other.

37 PLURAL HOLDERS TO HOLD WORKPIECES RELATIVE TO EACH OTHER:

This subclass is indented under the class definition. Device including at least two separate holding means, each of which separately immobilizes at least one workpiece with respect to another workpiece separately held by another such holding means.

- (1) Note. The holding elements are separate to the extent that at least two workpieces can be maintained in position without requiring either the presence of other workpieces or the presence of the other of said two workpieces.
- (2) Note. A patent claiming the use of a single pair of jaws, the work engaging faces of which are configured to enable the simultaneous grasping of separate workpieces, to hold plural workpieces relative to each other will not be placed in these subclasses (37-45). Such jaws do not constitute "separate holding means" as defined above and placement will be in the appropriate subclass lower in the class schedule.
- (3) Note. A patent claiming the use of plural work contacting elements to hold workpieces relative to each other but which elements are actuated* in gangs so as to constitute a single work holding couple or pair (at least one jaw of such couple thus including several spaced and relative positionable portions as in subclasses 164 and 265-370) will not be placed in this subclass (37). Such jaws do not constitute "separate holding means" as defined above and placement will be in the appropriate subclass lower in the schedule.
- (4) Note. A patent claiming the use of plural clamping means structurally capable of meeting the above criteria but disclosed as holding work with respect to a reference table, wall or floor, rather than with

respect to another workpiece, is not placed here and will be found in subclasses 95-102 below.

- (5) Note. A device with two or more separate work holders, which device includes mechanism for moving one holder, and the work held, relative to another holder, and the work held thereby, is not considered to be a work holder for this class (269); such device is an assembly mechanism for Class 29, Metal Working, subclasses 700-283.5. Articulation between holders and/or means whereby an operator may shift said holders, without mechanical advantage or lost motion, does not constitute "mechanism" for assembly. However, the provision of a work contacting guide to align or orient two or more workpieces, while an operator shifts the holders of said pieces, is considered to be sufficient "mechanism" for assembly.
- (6) Note. Included, in this and indented subclasses, are patents to a device wherein the individual or separate holders consist of static structure insofar as the work contacting portion of the holder is concerned, e.g., a socket or groove into which a workpiece is inserted. However, plural grooves or sockets in a single bar or plate do not constitute "plural holders."

SEE OR SEARCH THIS CLASS, SUBCLASS:

- | | |
|------|--|
| 95, | through 102, for patents to a holder with means to fasten to support, and see (4) Note above. |
| 104, | through 125, for patents to a holder with plural jaw pairs, angularly oriented, engaging common work, which common work may be of composite or plural element composition. |
| 152, | through 155, for patents to a holder with plural spaced jaw pairs. |
| 156, | for patents to a holder with three mutually coacting jaws. |
| 164, | for patents to a holder with relatively movable jaws including means to position portions of a jaw lateral to the general direction of work gripping jaw movement. |

- 257, through 284, for patents to details of work engaging surface and element characteristics.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclasses 700 through 283.5 for patents to plural holders to hold and move workpieces relative to each other; see (5) Note above.
- 65, Glass Manufacturing, subclass 152 for glassworking apparatus including fusion bonding means having plural work holders.
- 294, Handling: Hand and Hoist-Line Implements, subclasses 87.1 through 87.28 and 159 for a grapple or article carrier having plural holders for carrying plural articles.
- 38 Fletching jig (i.e., arrow feathering holder):**
This subclass is indented under subclass 37. Device wherein the separate holders maintain one or more of the feathers of an arrow in desired orientation with respect to the shaft of said arrow while said feathers and said shaft are being joined.
- (1) Note. Patent placement in this art grouping requires claimed identity of the holders as being for arrow and feathers.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclass 2.1 for patents to the process of fletching an arrow.
- 473, Games Using Tangible Projectile, subclasses 569 through 615 for an arrow having a special feature such as being material dispensing or of scatter-shot type, etc., particularly subclasses 578+ for an arrow.
- 40 Fixed work-contacting portions for each holder:**
This subclass is indented under subclass 37. Device limited to plural holders which all support and hold work by means of static work contacting portions.
- (1) Note. See (6) Note under subclass 37.
- (2) Note. See (2) Note under subclass 37 with respect to jaws* which individually
- have plural static work contacting portions.
- 41 Workpieces normal to each other (e.g., miter clamps):**
This subclass is indented under subclass 37. Device including two clamp couples with the jaw(s) of one couple oriented for movement, during actuation*, along a path at right angles to the jaw(s) of the other couple so as to hold workpieces perpendicular to each other.
- 42 Means for simultaneous actuation of holders:**
This subclass is indented under subclass 41. Device including means to actuate* the jaws of said couples in unison.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 218, through 220, for patents for a holder including a common means to actuate plural jaws, and see notes thereunder.
- 43 Workpieces parallel to each other (e.g., box-shook clamp):**
This subclass is indented under subclass 37. Device including at least two clamp couples with the jaw(s) of one couple oriented for movement, during actuation*, along a path parallel to the jaw(s) of other couples so as to hold workpieces parallel to each other.
- (1) Note. Included here are patents to a device for holding the two end shooks of a box while a top, bottom and/or side is fastened thereto.
- 44 Three holders:**
This subclass is indented under subclass 43. Device including three clamp couples.
- (1) Note. Included here are patents to a device for holding three shooks, such as in an orange or egg crate, while top, bottom and/or sides are fastened thereto.
- 45 With means to relatively array or arrange holders:**
This subclass is indented under subclass 37. Device including means whereby an operator may, without mechanical advantage or lost motion means, change the spatial relationship of one holder with respect to another.

- (1) Note. See (5) Note under subclass 37.

SEE OR SEARCH CLASS:

433, Dentistry, subclasses 53 through 67
for work holders for similar structure
used in dentistry.

46 SUSPENDED HOLDER:

This subclass is indented under the class definition. Device wherein a work holder is supported by being hung from a member overlying the work holder in at least one position of adjustment of the holder.

- (1) Note. Patents in this subclass include those in which work holder supporting means is provided in addition to the supporting means which suspends the holder.
- (2) Note. The hanging support is nonrigid, of a hook, strand or chain-like nature; not a bolt, screw or clamp-like element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

95, through 102, for patents to a holder with means to fasten said holder to a support.

47 HOLDER INSERTED WITHIN WORK APERTURE:

This subclass is indented under the class definition. Device wherein the work holder has a portion which is adapted to be positioned within a preformed opening in the work and, when so positioned, is peripherally encompassed by the work.

- (1) Note. The opening need not extend completely through the work.
- (2) Note. A holder for a wound up roll of material is not considered to meet the definition of this subclass unless the teaching of the patent is that the work is treated in wound up roll form; also see the class definition.
- (3) Note. For a patent to be placed as an original in this subclass, the holder portion insertable within the work aperture, or a holder part receiving such portion,

must be claimed. For example, a patent to a work holder disclosed as having work bolted thereto by a bolt extending through an opening in the work and extending through an opening in the holder will be placed as an original in this subclass only if the bolt or the bolt receiving opening in the holder is claimed.

- (4) Note. Included in this an indented subclasses are devices to which a workpiece is secured by embracing a part of the holder, e.g., using the clamp of an out-board motor to mount said motor on a holder.

SEE OR SEARCH THIS CLASS, SUBCLASS:

53, for patents for a pin which penetrates work to hold it, making an aperture as it enters the work.

SEE OR SEARCH CLASS:

294, Handling: Hand and Hoist-Line Implements, subclass 158 for an article carrier having a component adapted to be positioned in an aperture in the article.

48 With tool couple element:

This subclass is indented under subclass 47. Device wherein the work holder includes a tool couple element*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

87, 288, and 290, for patents for other work holders having tool couple elements.

48.1 Expandable mandrel:

This subclass is indented under subclass 47. Device whose holder portion includes means to allow its size to be increased by an amount sufficient to permit engagement between the holder and the work at such opening.

SEE OR SEARCH CLASS:

279, Chucks or Sockets, subclasses 2.01 through 2.24 for an expanding chuck or socket.

48.2 Plural pin mandrel:

This subclass is indented under subclass 48.1. Device wherein the portion comprises a plurality of elongated elements capable of radially expanding from each other.

- (1) Note. The portion comprises plural pins which, however, could be composed of a folded single piece of wire or rod structure.

SEE OR SEARCH CLASS:

- 24, Buckles, Buttons, Clasps, etc., subclasses 208+ for mating head and socket fasteners.
29, Metal Working, subclasses 271 through 274 for hand manipulable tools used to align or center pipes or similar structures.

48.3 Having intermediate expanding means:

This subclass is indented under subclass 48.2. Device provided with a separate structure lying between and physically contacting the elements such that axial movement of the structure causes radial movement of the elements.

48.4 And coil spring:

This subclass is indented under subclass 48.3. Device further provided with a helical body tending to return to its original shape after being distorted.

- (1) Note. The coil spring usually acts to axially move and bias the intermediate expanding means.

49 Inserted holder movable relative to work backup:

This subclass is indented under subclass 47. Device wherein there is provided a work holder portion engaging one surface of the work, and the work holder portion which is insertable within the work aperture is so mounted that it may move toward and away from both the first mentioned work holder portion and the work, entering the aperture through a work surface opposite such first named surface.

50 Holder mounted for movement:

This subclass is indented under subclass 47. Device wherein the work holder is mounted for movement*.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 55, through 85, for patents for other work holders mounted for movement.

51 Compound or plural movement:

This subclass is indented under subclass 50. Device wherein (a) the movement of the work holder has as components thereof simple movements* as, for example, a combined rectilinear and rotational movement, or (b) the work holder sequentially partakes of a plurality of simple movements, as, for example, two rectilinear movements in two different paths.

52 Within concentric opening:

This subclass is indented under subclass 47. Device wherein the outer periphery of the portion of the work which engages the holder is substantially circular in cross-section and the center of the aperture in which the holder is inserted is disclosed as coinciding with the center of mass of such circular work portion.

53 PIN-TYPE HOLDER:

This subclass is indented under the class definition. Device wherein the work holder comprises an elongated pointed element that penetrates the work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 47, through 52, for patents for a work holder having a portion entering a preformed opening in the work.

SEE OR SEARCH CLASS:

- 99, Foods and Beverages: Apparatus, subclasses 419 through 421 for a cooking spit or impaling means and subclasses 557-561 and 594-599 for a device that impales a food item to remove a pit or to hold it while the skin is removed.
452, Butchering, subclass 196 for patents to a fish clamp including impaling means.

54 With work-overlying clamp:

This subclass is indented under subclass 53. Device wherein there is provided, additionally, an element other than a pin which is positioned above and in contact with at least part of the

upper surface of the work when the work is being treated.

54.1 With means to drive pin into work:

This subclass is indented under subclass 53. Device provided with means for moving the pin, causing the pin to penetrate the work.

- (1) Note. The mere extension of a pivoted-pin supporting member, forming a simple lever, is not considered to result in a drive means for purposes of placement in this subclass. Likewise, means for merely holding a pin in a raised position and subsequently allowing it to drop under the influence of gravity does not constitute drive means for this subclass.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

20, through 35, for pin-type holders including fluid moving means.

54.2 Including opposed coacting pins:

This subclass is indented under subclass 54.1. Device including a pair of pins mounted for relative movement toward one another for penetrating the work at spaced points.

- (1) Note. The pins need not be physically diametrically opposed, but must have components of force, respectively, which are so opposed.
- (2) Note. Only one pin need be movable to satisfy the requirement for relative movement.

54.3 Three or more pins:

This subclass is indented under subclass 54.2. Device provided with one or more pins in addition to the coacting pair.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

9, for holders including plural, selectively usable pins.

54.4 With work-underlying support:

This subclass is indented under subclass 53. Device including a surface which is positioned beneath at least a part of the work and is situated so as to contact said part to support the work against gravity.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

289, for work underlying supports, per se.

54.5 Pin perpendicularly extended:

This subclass is indented under subclass 54.4. Device provided with at least one elongated, pointed element situated normally to the work underlying surface.

- (1) Note. The pointed element may be part of the surface or may move relative to said surface.
- (2) Note. Any relative movement of the pointed element is for the purpose of removing the element from the work only.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

54.1, for similar devices having means to move the pointed elements into the work.

55 HOLDER MOUNTED FOR MOVEMENT:

This subclass is indented under the class definition. Device including holder supporting structure modified to allow shifting of the holder from one position to another with respect to its base or support or from one station to another.

- (1) Note. Included here are patents to a holder with means providing for adjustment about a horizontal and/or vertical axis, as well as about a universal joint.
- (2) Note. A patent for a holder movable with respect to a reference member (table, bench) is in this subclass, but if the holder(s) is movable with respect to a station(s), the device is considered to be a conveyor type holder and the patent is in subclass 56.
- (3) Note. See Holder Mounter for Movement*

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 17, for patents to a holder with means for moving said holder freely along the ground or floor.
 95, through 102, for patents to a holder that can be selectively secured to a support.
- SEE OR SEARCH CLASS:
 248, Supports, subclass 349.1 and appropriate subclasses for patents to a work holder mount structure, per se, which support structure is of general utility.
 414, Material or Article Handling, subclasses 222.01 through 226.05 for apparatus for charging a load holding or supporting element from a source, and means for transporting the element to a working, treating, or inspecting station.
- 56 Relative to a station:**
 This subclass is indented under subclass 55. Device wherein the work holder is combined with a conveyor means to move said holder.
- (1) Note. A patent disclosing a work holder in combination with a conveyor but claiming the conveyor, per se, will be found in the appropriate conveyor class.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 17, for patents to a holder with means for moving said holder freely along the ground or floor.
- SEE OR SEARCH CLASS:
 100, Presses, subclasses 144 through 192 for patents to a holder for concurrent pressing and conveying.
- 57 Rotary (e.g., dial type):**
 This subclass is indented under subclass 56. Device wherein the conveyor moves the work holder in a circular path.
- 58 Including means to shift holder position:**
 This subclass is indented under subclass 55. Device including mechanism for moving the holder.
- (1) Note. The mechanism is any means providing for mechanical advantage, e.g., screw, gear, cam or fluid means.
- 59 With means to lock shift means:**
 This subclass is indented under subclass 58. Device including means to latch and immobilize the mechanism.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 74, through 85, for patents to a holder with means to immobilize the holder with respect to its support.
- 60 Screw means:**
 This subclass is indented under subclass 58. Device in which the mechanism for moving the holder includes mating concentrically threaded elements, which elements are relatively rotatable to cause relative axial movement of said elements, which movement is imparted to said holder.
- 61 Gear means:**
 This subclass is indented under subclass 58. Device in which the mechanism for moving the holder includes relatively rotatable bodies provided with teeth or frictional interengaging elements whereby one rotatable body will impart motion to, or receive motion from, some other body by rolling contact, which motion directly, or as part of a mechanism train, effects movement of said holder.
- 62 Treadle means:**
 This subclass is indented under subclass 58. Device in which the mechanism for moving the holder includes structure which turns freely on a fixed pivot to impact pressure or motion to mechanism to effect movement of said holder.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
 37, through 45, for patents to plural means for holding workpieces relative to each other.
- 63 With indexing steps:**
 This subclass is indented under subclass 55. Device in which the supporting structure, which allows shifting of the holder, includes mechanism for securing the holder against both

forward and rearward shifting while locating the holder in a structurally predetermined position with respect to support structure.

- (1) Note. A patent to a holder with indicia so an operator can visually determine where to place the work holder with respect to the base is not considered to include indexing means for this subclass.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 74, through 85, for patents to a holder with means to lock the work holder with respect to its base or support.
307, for patents to a work-underlying support with a sight gage.

SEE OR SEARCH CLASS:

- 74, Machine Element or Mechanism, subclasses 813+ for tool or work turret indexing means, per se.

64 Corrugated:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes plural elements (each element has at least two teeth or a wrinkled surface) so configured that the interengagement of a portion of one with a portion of another causes immobilization of the work holder.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 207, through 215, for patents to a holder with a detent type lock for adjustment.

65 Threaded:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes a screw or bolt means.

66 Cam or eccentric means:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes a cam* means.

67 Pin-rack:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes an element

that is moved laterally of its general extent to engage a selected notch in another toothed element.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 211, for patents to a holder with pin-rack adjustment means for a jaw.

68 Pawl-rack:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes a pivotable element to be engaged with a selected notch in another toothed element.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 212, for patents to a holder with pawl-rack adjustment means for a jaw.

69 Peg-hole:

This subclass is indented under subclass 63. Device wherein the mechanism for securing the holder against shifting includes a bar, pin or rod which is insertable axially or longitudinally within a selected aperture or mating opening.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 208, for patents to a holder with peg-hole adjustment means for a jaw.

70 With bias means:

This subclass is indented under subclass 69. Device including means to urge the bar, pin or rod into the aperture or mating opening.

71 With plural means for changing holder positions:

This subclass is indented under subclass 55. Device including at least two supporting structures modified to permit at least two degrees, or types, of shift either (a) about and along a single axis or (b) about spaced axes.

72 Single lock for plural means:

This subclass is indented under subclass 71. Device including a common means to immobilize shifting in at least two degrees of shift.

- (1) Note. Included here are patents to a holder that also has separate means to

lock shift means other than those locked by the common means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

59, for patents to a holder with means to immobilize a mechanism for moving the holder.

73 Means for dual position only:
This subclass is indented under subclass 71. Device in which there are but two degrees or types of shift.

74 Means for position lock:
This subclass is indented under subclass 55. Device including structure to immobilize the holder with respect to its support structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

59, for patents to a holder with means to immobilize a mechanism for moving the holder.

63, for patents to a holder with means to secure the holder against both forward and rearward shifting (e.g., indexing).

75 For universal joint:
This subclass is indented under subclass 74. Device wherein the immobilizing means is for members which can relatively swivel or turn in plural planes, within defined limits, about a point.

SEE OR SEARCH THIS CLASS, SUBCLASS:

71, through 73, for patents to a work holder which permits at least two degrees or types of shift.

76 Set screw type:
This subclass is indented under subclass 74. Device wherein the immobilizing structure comprises a threaded element(s) adjustably mounted on the holder (or the holder support) so that an end of said element can frictionably engage the holder support (or the holder).

(1) Note. While the reaction to the force applied by the set screw may involve considerable surface area contact of a binding nature between the holder and

holder support, the application of binding force is by means of the set screw.

SEE OR SEARCH THIS CLASS, SUBCLASS:

74, for patents to a holder with position lock means utilizing a detent or interlocking elements.

77 Periphery clamp type:
This subclass is indented under subclass 74. Device wherein the structure applies an immobilizing force about the surface of the structure linking the holder and the holder support.

(1) Note. The clamp means must be such so as to embrace and contact more than a 180° section of the structure being immobilized.

78 Split ring type:
This subclass is indented under subclass 77. Device including a curved or angular band-like element with spaced ends and with means to increase or decrease said space so as to apply internal or external clamping force with said band.

79 Effective on a movable brace:
This subclass is indented under subclass 74. Device including a clamp on a link (or links) connecting the holder with the holder support, said link(s) being articulated to the holder and/or support so as to limit relative movement.

80 For yoke type:
This subclass is indented under subclass 74. Device wherein the holder and holder support are jointed by a clevis type joint, which joint includes means to compress or force the U-shaped legs or ears together adjacent a tongue-like element between said legs.

81 Of holder to table (i.e., reference base or wall):
This subclass is indented under subclass 74. Device wherein the support structure is set forth as a bench, floor, bracket or frame clearly part of the environment rather than a mount* or subholder for the work holder.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:
95, for patents to fasten a holder to a support where the holder is not mounted for movement.
- 82 Plane bearing surfaces clamped together:**
This subclass is indented under subclass 74. Device wherein the immobilization structure includes a means for drawing flat abutting surfaces of the holder and holder support into binding frictional engagement.
- (1) Note. This and indented subclasses are limited to patents for a holder wherein the bearing surfaces, providing for movement of the holder relative to the holder support, are both (a) flat and (b) pressable together for relative immobilization of said surfaces. Any claimed (c) variation from the flat or (d) immobilization other than by drawing flat surfaces together is excluded.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
76, for patents to a holder mounted for movement with set screw type position lock.
77, for patents to a holder mounted for movement with periphery clamp type position lock.
- 83 Radial bearing surface type:**
This subclass is indented under subclass 82. Device including an axis normal to the abutting surfaces, around which axis the holder and holder support can be relatively positioned.
- (1) Note. Included here are patents to a holder mounted for movement with a single clamp means for immobilizing radial bearing surfaces, said clamp means acting parallel to and spaced from the axis.
- 84 Central clamp:**
This subclass is indented under subclass 83. Device wherein the means for drawing the radial surfaces together is part of or concentric with the axis structure.
- 85 Plural clamps:**
This subclass is indented under subclass 83. Device including two or more spaced means for drawing the bearing surfaces together.
- (1) Note. Included here are patents for holders with a single operative element for applying plural clamps.
- 86 RELATIVELY MOVABLE JAWS:**
This subclass is indented under the class definition. Device including two or more jaws* movable with respect to each other to engage and hold work.
- (1) Note. A patent for a holding device claiming only one jaw and the means to position (adjust* and/or actuate*) said jaw relative to a disclosed, but not claimed, coacting jaw (i.e., a clamp couple element *) will be placed in this and indented subclasses as though said coacting jaw were claimed.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
2, for patents to a hand maneuvered or work supported tool guide with relatively movable jaws.
257, through 284, for patents to a holding device with relatively movable jaws, claiming only jaw features without either means to adjust* or actuate* said jaws.
- SEE OR SEARCH CLASS:
24, Buckles, Buttons, Clasps, etc., appropriate subclasses, particularly subclasses 243+ for patents to similar devices disclosed as holding material for other than treatment of said material.
81, Tools, subclasses 300 through 427.5 for patents to tool jaws positioned by relatively movable plural handles (e.g., pliers), and see search notes thereunder and subclass 487 for other hand held tools having article gripping jaws.
100, Presses, appropriate subclasses, particularly subclasses 214 through 294 for patents to relatively movable platens which engage and treat the mate-

rial engaged, and see search notes thereunder. Also see section VIII in the class definition of this class.

- 164, Metal Founding, appropriate subclasses for patents to a combination of a mold or flask with means to grasp or draw portions of the mold or flask either together or onto a base or support. The clamp means, per se, even if the mold or flask is named as the article held is classified here (Class 269) as a workholder.

87 With tool couple element:

This subclass is indented under subclass 86. Device including a tool couple element*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 48, for patents to a holder inserted within work aperture including a tool couple element.
 288, for patents to a holder enclosing work and including a tool couple element.
 290, through 295, for patents to a work underlying support with a tool couple element.

87.1 With guide means:

This subclass is indented under subclass 87. Device including means to limit or restrict the movement or course of a tool to a particular path(s).

SEE OR SEARCH CLASS:

- 33, Geometrical Instruments, subclasses 501 through 573 for patents to a gauge.

87.2 Slot type:

This subclass is indented under subclass 87.1. Device including spaced wall portions defining the tool path.

87.3 Hole type:

This subclass is indented under subclass 87.1. Device including an opening or aperture through which a tool is applied to the work.

88 Convertible to other type or form of holder:

This subclass is indented under subclass 86. Device including means, which by arrangement, addition, removal or reassembly of one or more of its elements, causes or permits the

device to serve or function, alternately, as one or the other of at least two of the different types of holding devices separately provided for under subclass 86.

- (1) Note. The fact that a device may be used in several varying ways to hold work will not effect classification in this subclass unless such variation in mode of operation requires a rearrangement, addition, removal or reassembly of component elements.

- (2) Note. The use of selective jaw attachments or inserts is not considered to constitute a variation as to type of holding device as required by the above definition.

- (3) Note. A holder is considered to be a particular "type" when the claimed means provide for (a) distinctive adjustment* or actuating* mechanism as indicated by the subclasses 165-254 and (b) specific number, relative coaction and/or alignment of jaws as indicated by subclasses 104 through 156.

- (4) Note. Devices convertible from a work holder to a treating or force applying mechanism are excluded from this class (269) and are classified on the basis of the appropriate treating or force applying mechanism.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 4, for patents to a holding device convertible from operative to bench supported.
 271, for patents to a holder with jaw attachments and/or inserts.

89 Jaw actuation locks holder position relative to base:

This subclass is indented under subclass 86. Device including means responsive to jaw actuation* for immobilizing the jaw couple relative to the holder support*.

- (1) Note. The structure is incapable of grasping work prior to immobilization and thus is not considered to be a holder mounted for movement*.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

55, through 85, for patents to a holder mounted for movement.

216, through 254, for patents to a holder actuating means.

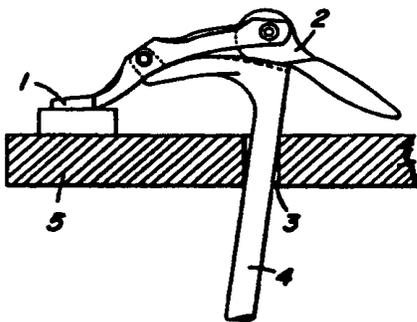
90 With separate means to lock jaw(s) after actuation:

This subclass is indented under subclass 86. Device including structure other than, and in addition to, the actuating mechanism for maintaining the work gripping position of the jaw(s)* subsequent to application of said actuating mechanism.

91 Clamp couple element with fastening means:

This subclass is indented under subclass 86. Device including means to removably secure a clamp couple element* to a supporting structure, which structure serves as a coacting jaw.

- (1) Note. The clamp couple element itself, not in secured position, is incapable of holding work.
- (2) Note. Included here are patents to a "hold down" used on a machine tool work table as well as a "planking clamp" used for applying a sheathing, floor or wall board.
- (3) Note. In the figure below, shank 4 of a clamp couple element is maintained in position with respect to support 5 by being canted in opening 3. Actuation of cam 2 then serves to grip work between jaw 1 and support 5.



92 With plural actuating means:

This subclass is indented under subclass 91. Device including two or more actuating* means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

221, for patents to a holder with plural means to actuate one jaw.

93 Responsive to element actuating means:

This subclass is indented under subclass 91. Device including means wherein jaw actuating mechanism serves to immobilize the element with respect to a coacting jaw.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

89, for patents to a holder with immobilizing means responsive to jaw actuating means.

94 Rocking-element type:

This subclass is indented under subclass 91. Device wherein the clamp couple element is moved arcuately by actuating means to grip work.

- (1) Note. Included here are patents to a device with very slight rocking motion where such rocking is in fact effected by operation of the actuating means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

237 through 239 for patents to a holder with relatively pivoted jaws.

95 With means to fasten holder to support (e.g., portable):

This subclass is indented under subclass 86. Device including structure for fixing or making fast the position of an entire holder with respect to a disclosed reference table, stand, bracket, wall or floor.

- (1) Note. The holder structure must be capable of holding work in the absence of the reference table or stand to which said device is fastened.
- (2) Note. See HOLDER SUPPORT*, especially form (c).

- (3) Note. Included here are patents to a holder claiming features for a temporary or removable mounting which facilitate the use of the device as a portable instrumentality.
- (4) Note. While a patent may claim structure capable of meeting the criteria of subclass 37, i.e., plural clamping means to hold workpieces relative to each other, such patent will be placed here (subclasses 95-102) if the disclosure is for holding work with respect to a reference table, wall or floor.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 4, for patents to an operator supported holder convertible to bench supported type.
- 37, for patents to plural holders to hold workpieces relative to each other, and see (4) Note above.
- 81, for patents to a holder mounted for movement* with means to lock movement with respect to a reference base.
- 91, for patents to a jaw* with means to fasten said jaw, and its adjusting* and/or actuating* means, to a coaxing jaw or jaw-like member.
- 309, through 314, for patents to a holder with working-underlying support mounting means.

SEE OR SEARCH CLASS:

- 248, Supports, appropriate subclasses for patents to a work holder supporting structure, per se.

96 Wrench or plier type of work holder:

This subclass is indented under subclass 95. Device wherein the work holder structure, per se, is disclosed and claimed as either (a) torque means separately classifiable in Class 81, subclasses 54-57.46 or (b) hand pliers separately classifiable in Class 81, subclasses 300-427.5.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 4, for patents to a holder convertible to either operative or bench support.

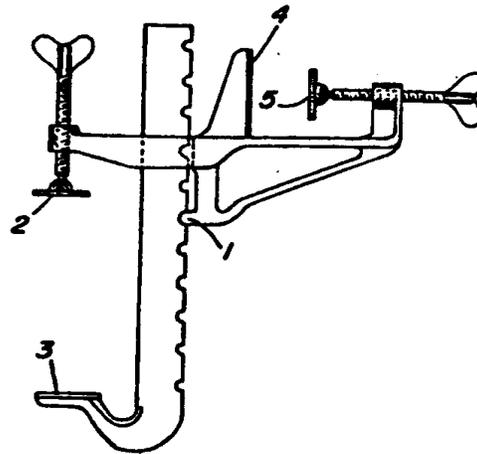
SEE OR SEARCH CLASS:

- 81, Tools, subclasses 54 through 57.46 and 300-427.5 for wrenches and pliers, per se, respectively.

97 Clamp type fastening means:

This subclass is indented under subclass 95. Device wherein the fastening structure includes relatively movable jaws for gripping the support.

- (1) Note. In the figure below, jaws 4 and 5 are disclosed as intended to be secured to the apron of a table or work bench while jaws 2 and 3 hold material to be worked on. Notice the detent 1 for quick adjustment.



SEE OR SEARCH CLASS:

- 81, Tools, subclass 487 for a hand tool having clamping jaws (other than pliers or wrenches).

98 Unitary fastener-jaw and holder-jaw:

This subclass is indented under subclass 97. Device wherein a work contacting jaw is integral with a jaw of the support clamp.

99 Socket type fastening means:

This subclass is indented under subclass 95. Device wherein fastening structure includes an element mounted on the support (or forming part of the support) in mating interengagement with a generally complementary element forming part of the work holder.

100 Aperture in support:

This subclass is indented under subclass 99. Device wherein the support includes an opening into which a mating portion of work holder is inserted for mounting.

- (1) Note. A groove, notch or T-slot into which a work holder portion of a fastener is inserted is not considered to be an aperture for purposes of this subclass. Such feature, if claimed, is provided for in subclass 99.

101 Threaded fastening means:

This subclass is indented under subclass 95. Device wherein the work holder is fastened by screw or bolt means.

- (1) Note. For inclusion here, a patent must claim either threaded fastening means or a structural feature which cooperates with, or enables the use of, such threaded fastener.

102 Nail or spur fastening means:

This subclass is indented under subclass 95. Device wherein the work-holder is fastened by a driven support-penetrating element.

- (1) Note. For inclusion here, a patent must claim either a nail or spur fastener or a structural feature which cooperates with, or enables the use of, such nail or spur.

103 For cable about thimble (e.g., rigger's vise):

This subclass is indented under subclass 86. Device for holding a bight or loop of strand-like material around a generally U-shaped wear and/or reenforcement member so that the ends of the bight may be secured together to maintain said member in said bight.

- (1) Note. This subclass represents an art collection of patents to a cable-splicing device (which patents vary as to structural details though all meet the criteria set forth in class and subclass definition above) limited by claim to the means for holding cable around a thimble.

SEE OR SEARCH CLASS:

57, Textiles: Spinning, Twisting, and Twining, subclasses 22 and 23 for patents for splicing devices, and see search notes thereunder.

104 Plural jaw pairs, angularly oriented, for common work:

This subclass is indented under subclass 86. Device including (a) two or more jaw* couples spatially related so that a line between, and generally normal to, coacting gripping surfaces of one jaw couple is not parallel to a corresponding line of another jaw couple; and (b) each of the couples contacts either portions of the same workpiece or plural abutting workpieces.

- (1) Note. This subclass does not include patents for holders with plural coacting jaws unless said jaws are adjusted* or actuated* in groups of two (i.e., in couples).

- (2) Note. In regard to this and indented subclasses from subclass 105 through subclass 117, no effort has been made to cross-reference down from these subclasses to the indented subclasses running from subclass 118 through subclass 125, as the vast majority of the patents, in the higher group of subclasses, have at least one or more claims drawn to the subject matter of one or more of the subclasses positioned in the lower placed group of subclasses. Therefore, to be complete, any search involving one or more of subclasses from subclasses 118 through 125 should include a search of appropriate subclasses in the group running from subclass 104 through subclass 117 inclusive.

- (3) Note. A patent claiming subject matter included within the above definition, and including a disclosure that provides for only two jaw couples with a single adjustment means (subclasses 165-215) for positioning one couple and a single actuating* means (subclasses 216-254) for positioning the other couple, will remain in this subclass. If either of the above jaw couples is disclosed as having

plural positioning means, see the subclasses indented under subclass 109.

(4) Note. See (1) Note under subclass 111.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, through 45, for patents to a holder with plural means to hold workpieces relative to each other, each of which means can hold work independently of other means and in the absence of other workpieces, and see search notes thereunder.

287, and 288, for patents to a holder which encloses work.

SEE OR SEARCH CLASS:

81, Tools, subclass 311 for patents to pliers with separate jaw pairs.

279, Chucks or Sockets, appropriate subclasses for patents to plural coaxing jaws, and see search notes under the class definition.

105 Three jaw couples in three nonparallel planes:

This subclass is indented under subclass 104. Device including at least three jaw* couples, each one of the three couples being angularly related to each of the other two couples; and, no more than two of the three couples acting in a common plane.

(1) Note. One jaw couple may grip and fix the work to oppose an angularly related jaw that would move the work, rather than grip the work, in the absence of the first mentioned couple.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, through 45, and 152-155, where three couples do not engage the same work, and see notes thereunder.

106 With actuating means for each couple:

This subclass is indented under subclass 105. Device including at least one actuating* means for each of the three couples.

107 Interrelated actuating means:

This subclass is indented under subclass 104. Device wherein the mechanism for relatively moving the jaws of any one set is operatively linked to the moving mechanism of at least one other angularly oriented set.

SEE OR SEARCH THIS CLASS, SUBCLASS:

218, through 220, for patents to a holder with common means to actuate opposed jaws, and see notes thereunder.

108 Constricting loop common to plural jaw pairs:

This subclass is indented under subclass 107. Device utilizing a cable, strand, strap, or articulated link member encircling all the jaws so as to move said jaws relative to each other as the effective length of the encircling member is shortened.

SEE OR SEARCH THIS CLASS, SUBCLASS:

130, for patents to a holder wherein a cable, strand or articulated link member is adjusted to engage work by shortening the effective length of said member.

109 Four relatively movable corner-angled jaws:

This subclass is indented under subclass 107. Device including at least four jaws, each jaw including work-contacting portions that are angularly related; and, when actuated*, the four jaws move in unison, or substantially so, toward or away from the work.

(1) Note. See "JAW"* (b).

(2) Note. See the sketch accompanying the definition of subclass 112 for an illustration of possible lines of movement for one of said jaws.

110 One actuated jaw carries a second actuated jaw:

This subclass is indented under subclass 104. Device wherein at least one actuated* jaw* includes structure which supports and allows relative movement of a second actuated jaw.

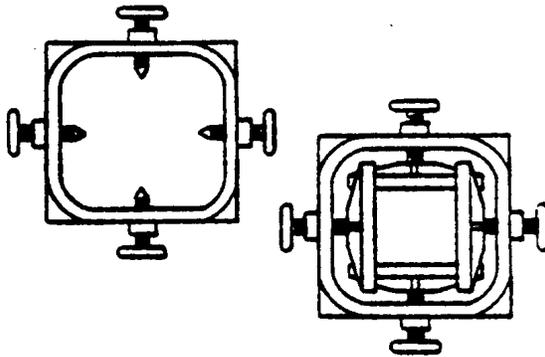
SEE OR SEARCH THIS CLASS, SUBCLASS:

- 95, and notes thereunder.
 134, through 138, for patents to a holder including a “hold down” component of force on a jaw.
 152, through 155, for patents to a holder with plural jaw pairs.

111 **Quadrilateral frame type:**

This subclass is indented under subclass 104. Device including four side portions arranged to enclose an area, said side portions may or may not be interconnected, the opposed pairs of side portions including the jaw couples.

- (1) Note. This subclass requires (a) that the positioning means for at least one of the jaw couples includes either (i) two or more disclosed adjustment* means (e.g., subclasses 141 and 165-215), or (ii) two or more disclosed actuating* means (e.g., subclasses 142-145 and 216-254), or (iii) a combination of at least one adjusting means and at least one actuating means (e.g., subclasses 146 and 188-202); and (b) that the positioning means for the other jaw couple includes (i) adjustment means or (ii) actuating means. Therefore, this subclass does not include a device wherein a single adjusting means or a single actuating means is used to position one jaw of one couple, plus a single adjusting means or a single actuating means used to position one jaw of the other couple (“single,” as here used, excludes one jaw couple positioned by a combination of adjustment and actuation means, as in subclasses 146 and 188-202, as well as excluding plural adjustors or plural actuators, for one jaw couple, as in subclasses 141 and 221-223); and, patents disclosing only such “single” means, for each of the two jaw couples, will remain in subclass 104. See (4) Note under subclass 104.
- (2) Note. The four sides of the frame may be in the same plane or they may be in closely adjacent parallel planes.
- (3) Note. Each one of the four sides may (a) constitute a jaw, (b) support a movable jaw, (c) support jaw moving means, or (d) comprise any combination of (a), (b) and/or (c).
- (4) Note. A “corner,” as used in the definitions of the indented subclasses, may be formed by two abutting, articulated, intersecting, or overlapping lateral parts, or it may be merely the point where imaginary extension of two lateral parts would intersect.
- (5) Note. The force applied to portions of the frame may be exerted from a point on or outside the periphery of the frame toward an inner portion of the frame, or from some point within the frame toward the periphery of the frame.
- (6) Note. See “JAW”*. If one corner-angled jaw having nonparallel faces has such faces articulated, or otherwise movable inter se, and each such face has an opposed coaxing jaw that is movable relative thereto, then such jaw couples are appropriate for this and indented subclasses such as subclasses 112, 124, and 125. However, if there are two generally opposed, corner-angled jaws and each one has a respective pair of nonparallel faces that are fixed inter se, then such an opposed pair of fixed-angle corner-angled jaws are considered to be a single opposed pair of configured jaws, and such structures should be searched elsewhere, e.g., subclasses 126-129, 140-150, 218-220, 265-270, etc.
- (7) Note. See the accompanying sketches which show that the lateral parts of the frame may vary from (a) merely the pointed ends of screw means to (b) overlapping sides.



- (8) Note. In addition to variations noted in the Notes numbered (3), (4) and (7), immediately above, the individual sides, jaws, or screws may be pivotally mounted, slidable, or otherwise movable with respect to each other or an underlying supporting structure.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 37, through 45, for patents to plural holders, and see the notes thereunder.
- 47, through 52, for patents to a holder insertable within a work aperture.
- 55, through 85, for patents to a movable holder which may include a quadrilateral frame type holder to grip the work while the holder is moved.
- 311, through 314, for patents to a work underlying support including means to hold plural supporting blocks.

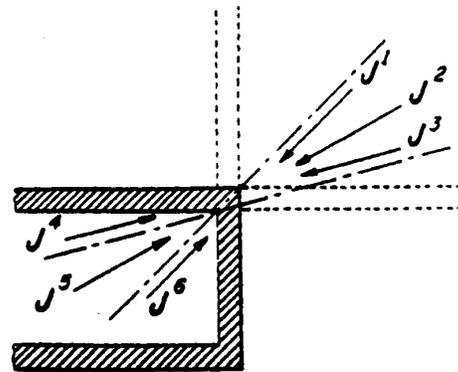
112 Diagonally moved jaw:

This subclass is indented under subclass 111. Device including at least one actuating* means that is positioned adjacent one corner, and (a) said means is not perpendicularly related to either of the two sides that meet at said corner, and (b) a line, formed by tracing a point on the actuated jaw as it moves toward the work, falls within the angle formed either (1) by the corner or (2) by imaginary lines forming extensions of the two sides intersecting at said corner.

- (1) Note. Most of the patents placed in this subclass disclose actuating means that move the jaw on a path that is generally aligned with or closely parallel to either

(a) a diagonal of the frame or (b) the bisector of a corner.

- (2) Note. Patents placed in this subclass include frames wherein the frame, at one corner, is positioned to be coincident with one quadrant, and adjacent said corner, the actuated jaw(s) moves either (a) within the confines of the frame quadrant, (b) within the confines of the opposed quadrant, or (c) both (a) and (b) type movement.
- (3) Note. See (6) Note under subclass 111.
- (4) Note. In the figure below, the portion shown in section represents the work, and the lines J1 through J6 represent the movement of a point on an actuated jaw(s) toward a gripping position.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 115, through 117, for patents to a holder including an actuating means located adjacent at least one frame corner, and see the notes thereunder.

113 Plural actuating means for one side:

This subclass is indented under subclass 111. Device including at least two actuating means operating at spaced points located intermediately of the ends of one lateral part of the frame.

- (1) Note. The plural actuators may be inter-related to operate simultaneously, or they may be advanced and/or retracted individually.

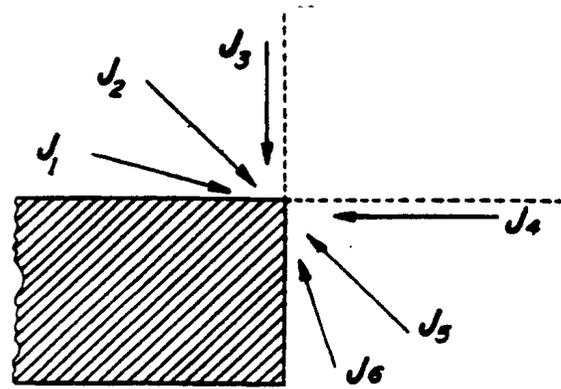
(2) Note. At least one of the actuators is positioned at, or near, the center of the side.

(3) Note. See (3) Note under subclass 111.

SEE OR SEARCH THIS CLASS, SUBCLASS:

112, and 115-117, for actuators located at the corners of the frame, and see the notes thereunder.

139, for means to align coacting jaw faces, and see the notes thereunder.



114 Plural actuators on each of two sides:

This subclass is indented under subclass 113. Device wherein at least two sets of actuating means are operating at spaced points upon each of at least two sides.

SEE OR SEARCH THIS CLASS, SUBCLASS:

118, and 119, for patents including at least two single actuators that are perpendicularly related.

115 Actuator located at corner:

This subclass is indented under subclass 111. Device wherein an actuating means is located near, or at, the juncture of two lateral frame parts and said means is so oriented that a line, formed by tracing a point on the actuated jaw as it moves toward the work, is (a) perpendicular to one of the two parts forming a corner, or (b) the line falls outside the frame and outside the angle, opposite said corner, formed by imaginary extensions of said two sides.

(1) Note. Patents placed in this subclass include a frame wherein the frame, at one corner, is positioned to be coincident with one quadrant, and, at said corner, the relatively movable jaws* are positioned within the confines of the two adjacent quadrants.

(2) Note. See (3) Note under subclass 111.

(3) Note. In the figure below, the portion in section represents the work, and the lines J1 through J6 represent the movement of a point on an actuated jaw(s) toward a gripping position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

112, for relatively movable jaws positioned in quadrant opposed to the frame quadrant, and see the notes thereunder.

116 Actuators at diagonal corners:

This subclass is indented under subclass 115. Device including actuating means positioned at, or near, at least two opposite, remotely positioned, corners.

117 Actuator at each corner:

This subclass is indented under subclass 116. Device including at least one actuating means for each of the four corners.

118 Actuated jaw couples perpendicularly related:

This subclass is indented under subclass 111. Device wherein each couple of at least two jaw couples has actuating means operating adjacent side, and lines normal to the gripping surfaces of each of said two couples are at right angles to each other.

(1) Note. See (4) Note under the definition of subclass 104.

SEE OR SEARCH THIS CLASS, SUBCLASS:

107, through 109, for patents to a holder where such actuating means are inter-related.

119 Actuator for each side:

This subclass is indented under subclass 118. Device including at least one actuating means operating upon each of the four sides of the frame.

- (1) Note. See (4) Note under subclass 104.
- (2) Note. See illustration under (7) Note of subclass 111.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 142, through 145, for patents to a holder with separate means to actuate each of a jaw pair.
- 218, through 220, for patents to a holder with common actuating means for each of coacting jaws.

120 One couple adjusted and one couple actuated:

This subclass is indented under subclass 111. Device wherein (a) at least one of the angularly related jaw couples is operated to grip the work solely by adjustment* means, and (b) a second jaw couple is operated by means including actuating means.

- (1) Note. See (3) Note under subclass 104.
- (2) Note. See (1) Note under subclass 111.

121 Adjustment means intermediate ends of side:

This subclass is indented under subclass 111. Device including plural adjustment means that operate either (a) at plural spaced points intermediate the ends of one lateral frame part, or (b) at a point remotely positioned with respect to the ends of each of at least two lateral frame parts.

- (1) Note. See (3) Note under subclass 104.
- (2) Note. See (1) Note under subclass 111.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 124, and 125, for patents to a holder including adjustment means at plural corners, and see the search notes thereunder.

122 Adjustment means including attached wedge means:

This subclass is indented under subclass 111. Device provided with adjusting means and including sloped or inclined block means which are secured to the frame, or portions thereof, by some means to prevent (except by destruction) the complete separation, or loss, of said block means.

- (1) Note. See (4) Note under subclass 104.
- (2) Note. See "CAM"* for concept of wedge.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 124, for patents to a holder with wedge adjustment means.

123 Wedge means attached by chain:

This subclass is indented under subclass 122. Device including chains, or similarly linked elements, for attaching the sloped or inclined block means to a portion of the frame.

- (1) Note. See (4) Note under subclass 104.

124 Adjustment means at diagonal corners:

This subclass is indented under subclass 111. Device including adjustment means located at each of the two junctures formed by (a) one pair of lateral frame parts, and (b) the opposite pair of lateral frame parts that are remote with respect to the first mentioned juncture.

- (1) Note. See (4) Note under subclass 104.
- (2) Note. See (4) Note under subclass 111.
- (3) Note. See the sketches accompanying the definitions of subclasses 112 and 115 for illustrations of the manner in which the jaws may move toward the corner of either the workpiece or the frame sides.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 122, for patents to a holder with attached wedge adjustment means.

125 Adjustment means at four corners:

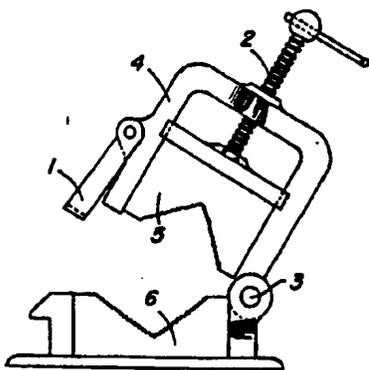
This subclass is indented under subclass 124. Device including adjustment means at each of the four corners.

- (1) Note. See (4) Note under subclass 104.

126 Including pivoted yoke frame jaw carrier:

This subclass is indented under subclass 86. Device wherein at least one jaw is supported by a generally U-shaped member, one leg of which member is hinged at its extremity to another jaw supporting structure, which second structure bridges the ends of the U-shaped member and is latched to the extremity of the other leg so as to substantially embrace work between the legs of said member and said second structure.

- (1) Note. Either, or both, generally U-shaped member and the other jaw supporting structure may carry jaw actuating or jaw adjusting means.
- (2) Note. The other jaw may, for example, be no more than a hinged cross head extending from one leg end to the other.
- (3) Note. In the illustration below, yoke 4, pivoted at 3 and latched at 1, carries an actuating screw 2 to grip work between jaws 5 and 6.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 130, for patents for holders wherein a yoke-like member, one portion of which comprises a jaw, is constricted

to move said jaw relative to another jaw.

SEE OR SEARCH CLASS:

- 81, Tools, subclasses 98 and 99 for patents for pivoted outer jaw wrenches.

127 With specific latch means:

This subclass is indented under subclass 126. Device including structural details of the securing means utilized to fasten the other leg of the U-shaped member to the bridging structure.

- (1) Note. Patent placement in this and indented subclasses requires claimed recitation of the latch structure. Mere nominal recital (e.g., "latch" or "fastener") requires original placement of the patent on the basis of other claimed characteristics.

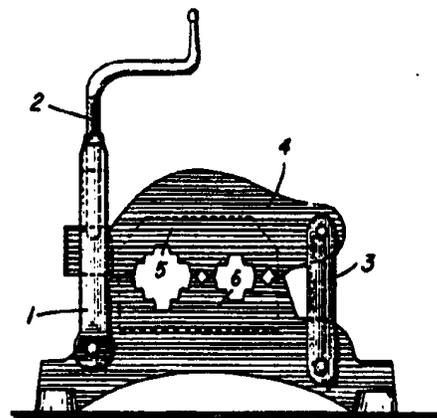
SEE OR SEARCH CLASS:

- 292, Closure Fasteners, appropriate subclasses (and see the notes thereunder) for patents to specific details of latch means, per se.

128 Latch means includes jaw actuating element(s):

This subclass is indented under subclass 127. Device wherein the securing means is combined with jaw actuating* means.

- (1) Note. In the illustration below, the actuating screw 2 is combined with the latch means 1 to effect gripping of work by jaws 5 and 6.



SEE OR SEARCH THIS CLASS, SUBCLASS:

188, through 202, for patents to a holder with actuating means, which means also effect an adjustment lock*.

129 With jaw actuating means intermediate yoke legs:

This subclass is indented under subclass 126. Device wherein the one jaw* supported by the U-shaped member is moved relative to another jaw by means carried on the midportion or bight of said member.

(1) Note. See Figure under subclass 126.

130 Including constrictable loop (strand or articulated) jaw:

This subclass is indented under subclass 86. Device wherein (a) one jaw* consists of a portion(s) of a supple length of elongated or attenuated material, the effective length being varied to move said length relative to another jaw, or (b) a supple length of elongated or attenuated material embracing work is effectively shortened in length to grip and immobilize said work.

(1) Note. Examples of elongated materials are rope, cable, chain, articulated links, straps, webs and belts.

(2) Note. Specific configuration, or modification of surface characteristics, of the attenuated material for the purpose of improved work contact is considered to be a jaw feature and is provided for, per se, in subclasses 257-284.

(3) Note. The recital of a plurality of work-engaging articulated links, meeting the above definition, will not constitute the constrictable loop as other than a single jaw for this subclass, even though they are disclosed as engaging the work simultaneously.

SEE OR SEARCH THIS CLASS, SUBCLASS:

126, through 129, for patents to a holder including a pivoted yoke frame carrying a supple or flexible jaw supporting

member, which member is of fixed length during relative jaw movement.

SEE OR SEARCH CLASS:

81, Tools, subclasses 64 through 65.4 for patents for a flexible jaw wrench.

131 Flaccid loop:

This subclass is indented under subclass 130. Device wherein the constrictable loop is of limber and flexible material.

(1) Note. Included here, for example, are patents to a holder wherein the loop is of wire, rope, metal band, cable, etc.

SEE OR SEARCH CLASS:

294, Handling: Hand and Hoist-Line Implements, subclass 149 for a hand-held article carrier which employs a flaccid loop to retain the article.

132 With means to actuate a coating jaw:

This subclass is indented under subclass 130. Device including mechanism to move a jaw other than the constrictable loop.

(1) Note. Generally, the loop is adjusted*, by constriction, to desired proximate size and the coating jaw is then actuated* to grip work between the loop bight and said jaw.

133 Weight of a vertically disposed panel actuates jaws:

This subclass is indented under subclass 86. Device including at least two coating jaws* and their supports with a work underlying portion(s) that (a) is attached to or integral with either a jaw(s) or a jaw supporting structure(s), and (b) is so interconnected with one or more jaws that the force of gravity on the workpiece, upon contact with the underlying portion(s), actuates* the coating jaws.

(1) Note. The most common panel or workpiece present, in the patent disclosures placed in this subclass, is a door or window supported during planing, weatherstripping, etc.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 13, and 14, for patents to a holder including a separate means (i.e., other than merely manually lifting the panel against the force or gravity) to facilitate the removal of work.
- 157, through 163, for patents to a holder including claimed means to urge jaws away from the work.
- 217, for patents to a holder including means to resist further movement of the work once it is gripped.
- 218, through 220, for patents to a holder including a single means to actuate coacting jaws.
- 237, through 239, for patents to a holder with pivoted jaws.
- 310, for patents to a holder including supporting structure that is resiliently urged upwardly.

134 With means for "hold-down" component of force:

This subclass is indented under subclass 86. Device including means to effect an additional clamping or holding action on work with respect to an underlying work supporting member(s), which additional clamping action is derived from jaw actuating* means or jaw movement, generally parallel to the supporting surface of said member.

- (1) Note. Inherent in all rockable or pivotal jaw holding devices, depending on the relative angular position of the parts, is a similar force-component urging work transversely of the pivot or axis. However, unless the device includes (a) specific work underlying support means and (b) the jaw actuating means (or jaw movement) is generally parallel to said surface, patents to such device will not be placed here (subclass 134) but elsewhere in the schedule on the basis of other appropriate features.

135 With rockable work contacting member:

This subclass is indented under subclass 134. Device including a pivotal or arcuately movable body engaging the material to be held.

- (1) Note. Generally, the line of force applied to the element is such as to cause the body to shift both toward the work and toward a work underlying support surface.

136 Moved by linearly acting jaw:

This subclass is indented under subclass 134. Device wherein the work contacting body is in the nature of an insert or attachment to a jaw*, which jaw itself is constrained to movement generally parallel to the supporting surface.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 271, through 284, for patents to a holder attachment and/or insert.

137 Inclined actuator and/or jaw travel:

This subclass is indented under subclass 134. Device wherein the jaw and/or actuating means are specifically set forth as moving in a path slightly sloped with respect to the plane of the work underlying support surface.

- (1) Note. The phrase "slightly sloped" is intended to cover included angles up to, but not exceeding, 45°.

138 With wedge or cam means:

This subclass is indented under subclass 134. Device including an inclined or sloped element, or cam* means, to effect the additional clamping or holding action.

139 With means to align coacting jaw faces:

This subclass is indented under subclass 86. Device including additional means for moving a jaw* so as to vary the disposition (i.e., orientation) of the work engaging surface of said jaw with respect to the work engaging surface of an opposed jaw.

- (1) Note. The movement effected by the additional means is other than such movement as will engage and grip work. A patent to a holder with additional means to pivot one jaw with respect to another, which pivotal movement is effective to engage and grip work, is therefore not to be placed in this subclass even though the relative orientation of

coacting jaw faces is changed. Generally, the pivot of the jaw is external of the jaw body when the pivotal movement is part of the jaw actuation, and the pivot is internal of the jaw body when the pivotal movement is merely for jaw alignment.

- (2) Note. Patent placement here requires that the holder include positive means to change the jaw orientation. Mere pivot, swivel, slide or articulation means for a jaw or jaw portions is not considered such a positive means. See illustration under subclass 258.
- (3) Note. Generally, the change in orientation involves either (a) variation in angularity of the work engaging surface with respect to line of relative gripping movement, or (b) shift of the work engaging surface normal or lateral to the line of relative gripping movement, or (c) both variation in angularity and lateral shift.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 164, for patents to a holder with means to adjust portions of the same jaw with respect to each other laterally of the line of relative gripping movement.
- 237, through 239, for patents to a holder with relatively pivoted jaws.
- 258, through 264, for patents to a holder characterized by adjustable jaw features.

SEE OR SEARCH CLASS:

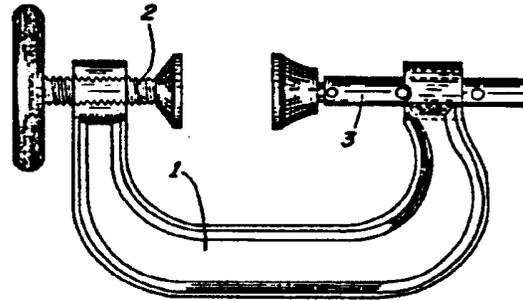
- 81, Tools, subclass 421 for patents to pliers with articulated jaws.

140 With separate positioning means for each of jaw pair:

This subclass is indented under subclass 86. Device including a means for adjusting* and/or actuating* one jaw* plus a different means for adjusting and/or actuating a coacting jaw.

- (1) Note. A device which includes a common driving element, anywhere in a train of mechanisms used to position both jaws, is not considered to have separate means in the sense of the above definition. Such a means is considered to constitute a single positioning means.

- (2) Note. The adjustment and/or actuation of the coacting jaws must be with respect to some common supporting structure, as well as with respect to each other, for inclusion in this and indented subclasses.
- (3) Note. This subclass does not include devices having three work gripping elements mutually movable to hold work, for which see subclass 156.
- (4) Note. In the figure below, the pins on bar 3 provide for adjustment of one jaw and the screw 2 provides for actuation of the other jaw.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 165, through 215, for patents to a holder with the specific adjustment means.
- 216, through 254, for patents to a holder with specific actuating means.
- 218, for patents to a holder with common means to simultaneously actuate plural jaws.

141 Adjustable positioning only:

This subclass is indented under subclass 140. Device wherein the different means for positioning are adjustment means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 165, through 215, for patents to a holder including adjustment means.

142 Separate means to actuate each of a jaw pair:

This subclass is indented under subclass 140. Device including a different actuating means for each jaw of a coating jaw couple.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

119, for patents to a quadrilateral frame type holder with at least one actuating means upon each of the four sides of the frame.

143 Portable C-clamp type:

This subclass is indented under subclass 142. Device wherein the coating jaws are mounted on, or adjacent to, the ends of an arched, curved or channel shaped member, which member constitutes the common supporting structure relative to which both coating jaws are actuated and which member is not secured to a base or mount.

(1) Note. Included here are patents to a portable C-clamp type holder with diverse actuator means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

147, through 149, for patents to straight beam type holder including separate positioning means for each of coating jaws.

249, for patents to a C-clamp type holder including a screw-nut type actuator.

145 Same actuator type for each jaw:

This subclass is indented under subclass 142. Device wherein the different actuating means are of the same type.

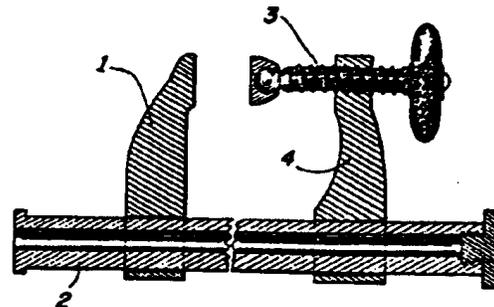
(1) Note. See (1) Note under subclass 143. Actuating means provided for in the same subclass (on the basis of said actuating means) will be considered as being of the same type, e.g., all forms of toggle actuators are the "same" type.

146 Means to both actuate and adjust the same jaw:

This subclass is indented under subclass 140. Device wherein one of a pair of coating jaws is provided with means to adjust and actuate said jaw.

(1) Note. Such means may be a single unitary mechanism or two separate structural entities.

(2) Note. In the figure below, screw 3 provides for actuation of a jaw with respect to element 4, while the element and the jaw can both be adjusted (by cant means) with respect to jaw 1 along bar 2.

**147 Portable straight beam type:**

This subclass is indented under subclass 140. Device wherein the coating jaws are mounted on a rectilinear shank (rod, rail or bar), which shank constitutes the common supporting structure relative to which coating jaws are positioned and which shank is not secured to a base or mount.

(1) Note. Patents to a holder including a beam with a lateral projecting fixed thereto, through which projecting an actuating means moves a jaw parallel to the extent of the beam, are considered akin to a straight beam type for this and indented subclasses.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

143, for patents to a C-clamp type holder including separate means to actuate each of a jaw pair.

148 Plural parallel beams:

This subclass is indented under subclass 147. Device including at least two shank members in spaced, nonconverging relationship.

SEE OR SEARCH THIS CLASS, SUBCLASS:

270, for patents to a holder with paralleling structure for jaws.

149 Extensible beam:

This subclass is indented under subclass 147. Device including shank structure whereby said shank may be varied in length.

(1) Note. The variation in length may, for example, be accomplished by telescoping of shank portions, insertion or substitution of shank portions, etc.

(2) Note. Included in this subclass are patents for a holder with the variant referred to in (1) Note of subclass 147.

150 Pivoted jaw actuator means:

This subclass is indented under subclass 140. Device including an arcuately movable jaw and means to rock said jaw about a fulcrum to grip work.

SEE OR SEARCH THIS CLASS, SUBCLASS:

237, through 239, for patents to a holder including a pivoted jaw.

151 With means to orient actuating force on jaws:

This subclass is indented under subclass 86. Device including means to selectively vary, or determine, the area of application of actuating* effort to one or both of relatively movable jaws.

152 Plural jaw pairs:

This subclass is indented under subclass 86. Device including two or more jaw* couples.

(1) Note. Patent placement here requires that the claimed holder jaws coact in pairs; that is, each jaw is movable relative to another particular jaw, whether or not each pair engages the same workpiece.

(2) Note. Two or more work contacting elements, each of which is separately movable (i.e., adjusted* and/or actuated*), which coact with a single member to grip a workpiece(s), are considered to be plural jaws and are specifically set out in subclass 154 below.

(3) Note. This subclass is residual, in the workholder art, for patents claiming plural jaw pairs, which jaw pairs are not encompassed by the definitions of superior subclasses in the class schedule.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, through 45, for patents to plural means for holding workpieces relative to each other, and search notes thereunder.

SEE OR SEARCH CLASS:

81, Tools, subclasses 300 through 427.5 for patents to tool jaws positioned by relatively movable plural handles, e.g., pliers.

153 With common actuating means:

This subclass is indented under subclass 152. Device including a single mechanism for the jaw actuation* of two or more of the jaw couples.

SEE OR SEARCH THIS CLASS, SUBCLASS:

218, for patents to a holder including a common means to actuate plural jaws, and see notes thereunder.

154 One jaw common to plural coacting jaws:

This subclass is indented under subclass 152. Device including two or more separately movable jaws coacting with a single common, flat member to hold work.

(1) Note. Included here are patents to a holder for single or plural workpieces.

(2) Note. See JAW*, paragraphs (c) and (d).

SEE OR SEARCH THIS CLASS, SUB-CLASS:

37, through 45, for patents to a holder with plural jaws which hold plural workpieces relative to each other, and see search notes thereunder for loci of patents to devices with plural jaws.

155 Acting in intersecting planes:

This subclass is indented under subclass 152. Device wherein the jaws of one couple move relatively in a plane spaced from and nonparallel to the relatively movable jaws of another couple.

156 Three coacting work grippers:

This subclass is indented under subclass 86. Device including three work gripping elements, each movable in substantially the same plane and mutually adjustable* and/or actuable*, to hold the same workpiece or workpieces.

- (1) Note. While the elements do not move in couples, they do coact and are therefore considered jaws*.
- (2) Note. See subclass 289, (2) Note and JAW* (b) with reference to a disclosed, but unclaimed, work-underlying-support element constituting one of the three work gripping elements. A patent to a holder with a jaw couple which can hold work without a disclosed, but not claimed, work-underlying-support is therefore not placed in this subclass.
- (3) Note. See JAW* (c) and (d) for the locus of patents with respect to plural jaw elements all coacting with a multi-configured work engaging member.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

37, through 45, for patents to plural holders for holding workpieces relative to each other, and see search notes thereunder.

SEE OR SEARCH CLASS:

81, Tools, subclasses 303 through 312 for patents to pliers with three or more jaws.

157 With means to bias jaw(s) toward nonholding position:

This subclass is indented under subclass 86. Device including resilient or weight means urging one or more jaws* into nongripping relationship with the work.

- (1) Note. Included here are means which rely upon springs, gravity or resiliency of structural elements. These means must be claimed for placement of a patent in this subclass, rather than in other coordinate subclasses below on the basis of other jaw positioning features.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

254, for patents for a holder with bias means to urge jaws toward work gripping position.

158 Pedal lever actuator:

This subclass is indented under subclass 157. Device wherein the means to effect relative jaw movement includes a member to be moved by the foot of an operative.

- (1) Note. A foot switch to initiate motor means for a holding device is not considered to be a pedal mechanism for this subclass, and a patent to such means will be placed elsewhere on the basis of other features in the work holding combination.
- (2) Note. See HAND*.

159 Including position latch or lock:

This subclass is indented under subclass 158. Device including means other than, and in addition to, the means to actuate* the jaw(s) for maintaining said jaw(s) in a desired spaced relationship.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

165, through 215, for patents for a holding device with means to latch or lock the jaws in desired initial adjusted* position.

160 Spring coil around actuating screw:

This subclass is indented under subclass 157. Device wherein the resilient means consists of an elastic helical element embracing a threaded cylindrical member forming part of a screw-nut actuating means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

240, through 253, for patents to a holder using a screw-nut actuating means.

161 Leaf spring between pivoted jaws:

This subclass is indented under subclass 157. Device wherein the resilient means consists of an elastic strip or sheet positioned intermediate coacting rockable jaws.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

237, through 239, for patents to a holder including pivoted jaws.

162 Spring coil around or abutting cam or cam follower:

This subclass is indented under subclass 157. Device wherein the resilient means consists of an elastic helical element embracing or bearing against a cam* or cam follower forming part of a cam actuating means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

229, for patents to a holder using a cam actuating means.

163 With articulated attachment or insert for jaws:

This subclass is indented under subclass 157. Device including at least two coacting work grippers secured to each other independently of any actuating* means.

- (1) Note. The work grippers are placed between coacting jaws* so that the actuation of said jaws will cause said work grippers to grip work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

277, and 278, for patents to holder attachments or inserts which are joined without bias means.

164 With means for lateral adjustment of jaw portions:

This subclass is indented under subclass 86. Device wherein a work gripping element includes two or more sections with means to shift said sections, individually or jointly, normal to the general line of relative gripping action.

- (1) Note. Included here are devices which adjust jaw portions to better grip different work shapes or sizes and also devices which adjust jaw portions to enable ready access for working on different parts of the work.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

139, for patents to a holder with lateral jaw adjustment of coacting unitary jaws.

165 Means for direct manual adjustment of jaw(s):

This subclass is indented under subclass 86. Device including adjustment* means to initially position a jaw or jaws.

- (1) Note. The adjustment means is often referred to as a "quick adjust," "quick acting means" or "rapid set means" for the purpose of fixing an approximate jaw position with respect to the work to be held, after which a gripping force is applied to further move the jaw against the work. Such further movement, where the gripping force is applied by means not encompassed by the definition of adjustments, need by merely infinitesimal to be considered actuating* movement.

- (2) Note. The adjustment positioning of (1) Note, above, is generally a simple sliding, pivoting or changing of a jaw(s) effected by an operative grasping said jaw, or a portion thereof or a member attached thereto, and imparting all spacial repositioning to said jaw by congruent movements of his hand.

- (3) Note. Included in this subclass are patents to a holder with an insert adjustment-lock* means, which means

comprises one or more blocks positionable between structural elements constituting the means for jaw adjustment so as to relatively immobilize said elements. A wedge or cam-like insert, without means to apply force or bias to further seat the wedge (or rock the cam-like element), used to effect adjustment-lock is one form of such block.

- (4) Note. A patent claiming means which provides for both adjustment and actuation, and not encompassed by the definitions of subclasses higher in the class schedule, will be placed here (subclasses 165-215) on the basis of the adjustment feature and cross-referenced to the appropriate actuation subclasses (216-254).
- (5) Note. See HAND*.

SEE OR SEARCH CLASS:

- 81, Tools, subclasses 385 through 414
for patents to a plier adjustment means.

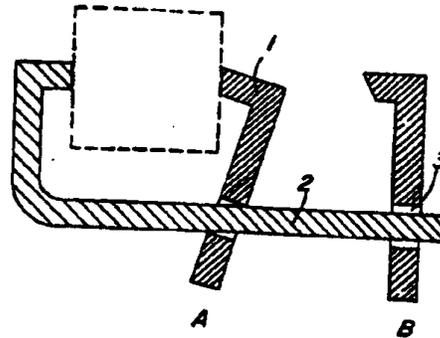
166 With cant type adjustment lock:

This subclass is indented under subclass 165. Device including means to effect an adjustment-lock*, which means comprises at least two relatively movable elements with antipodal pairs of mutually abutting surfaces, said surfaces being caused to bind or frictionally engage by relative tilting or skewing of either (a) one of said elements with respect to the other or (b) a third element with respect to both of said relatively movable elements.

- (1) Note. Generally, members having a restricted path of movement with respect to each other because of the mating configuration of their interengaged parts are cant locked in relative position by moving one member askew to said path of movement.
- (2) Note. The use of one or more pivoted elements to effect an adjustment-lock by frictionally engaging a member is not considered to be a "cant lock" mechanism. Such mechanism is a clamp means for subclass 203. The "cant" means of this and indented subclasses do not have

pivots or axes and are free for relative tilting or skewing.

- (3) Note. In the illustration below, the opening 3 in jaw member 1 permits free movement along bar 2 when the jaw member is positioned as shown at B. When canted as shown at A, the jaw member is immobilized.



SEE OR SEARCH THIS CLASS, SUBCLASS:

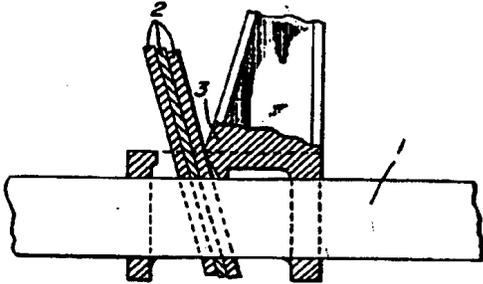
- 203, through 206, for patents to a holder including jaw adjustment mechanism with frictional immobilization means applied by other than a relative tilting or skewing of elements.

167 Including separate cant member:

This subclass is indented under subclass 166. Device wherein two relatively adjustable subassemblies or elements are locked together by skewing a third discrete binding element.

- (1) Note. This third binding element is either (a) fastened to one of the subassemblies and thus immobilizes said subassembly as the element binds on the other or (b) interposed between portions of said subassemblies to act as an abutment stop when the binding element is manipulated to friction engage.
- (2) Note. The discrete binding element may comprise a plurality of separate cant members.
- (3) Note. In the illustration shown below, elements 2 are canted with respect to bar 1 to lock the position of jaw 3.

(This illustration is from patent No. 2,815,778 dated December 10, 1957).



168 Means for skewing plural members to actuate jaw(s):

This subclass is indented under subclass 167. Device including means to tilt two or more such binding elements, which elements also function as part of the jaw actuating* means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

188, through 202, for patents to a holder with common means to both lock and actuate a jaw(s).

169 Plus additional means to release cant lock:

This subclass is indented under subclass 167. Device including mechanism, other than bias means or the means utilized to apply the cant lock, to move the separate binding element out of askew position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

205, for patents to a holder with additional means to release a clamp type adjustment-lock.

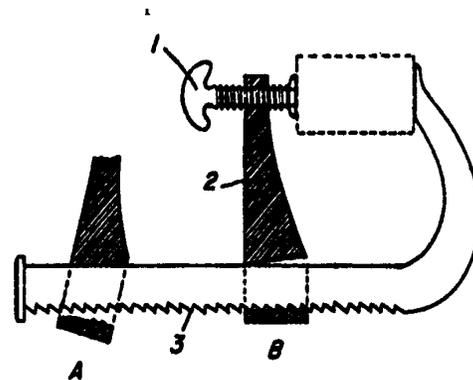
170 With means to bias member into locked position:

This subclass is indented under subclass 169. Device wherein the separate cant member is resiliently or gravitationally urged into askew position.

171 Including interlocking abutting surfaces:

This subclass is indented under subclass 166. Device wherein at least one such pair of binding surfaces is configured to provide positive interengagement.

- (1) Note. Patent placement here requires both surface modification and canting to maintain said surfaces together.
- (2) Note. The term "configured" includes "teeth," "roughened," "racks," "serrations," etc., as integral surface characteristics, thus "positive interengagement" also includes any surface modification which enhances frictional binding.
- (3) Note. In the illustration shown below, A indicates the adjustable position of the jaw member 2 while B indicates the lock position.



SEE OR SEARCH THIS CLASS, SUBCLASS:

203, through 206, for patents for a holder with noncanting friction lock means using serrated surfaces.

212, for patents for a holder with noncanting lock means using a pivoted or sliding pawl element, which element is not integral or fixedly secured to one of the surfaces.

171.5 With tooth-like surface engaging a planar surface:

This subclass is indented under subclass 166. Device including a roughened, serrated, knurled, or similarly configured portion on at

least one portion of one of a pair of the antipodal abutting surfaces.

- (1) Note. In regard to the required tilting or skewing of the two relatively movable elements of subclass 166, a patent disclosing the interengagement of a single sharply defined edge or point on one element with the plane surface of the second element will remain in subclass 166; thus, for original placement in this subclass, in regard to any single pair of relatively canted elements:

(a) there must be an additional configuration (other than an edge or point) on at least one element; or,

(b) there must be either (i) at least one inserted element that has a roughened surface, or (ii) two or more inserted elements that may have either single edges or roughened surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

171, for patents including plural abutting surfaces that interlock.

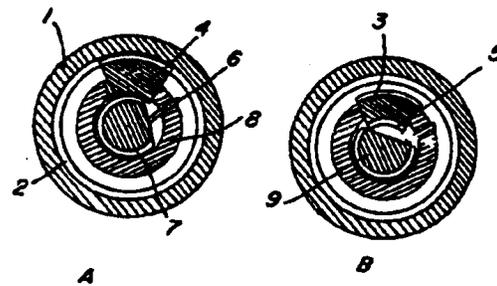
172 With relative axial shift of screw-nut actuating means:

This subclass is indented under subclass 165. Device having screw-nut type actuating* means, one of whose mating threaded components is movable, parallel to the thread helix axis, with respect to the other (without recourse to) and without effecting, the translation and rotation required by interengagement of said mating.

- (1) Note. This, and indented subclasses, are characterized by the inclusion of patents to a holder with a common type of actuating means, screw-nut type set forth and defined in subclasses 240-253, which provide a fertile field for modifications relative to "quick adjust" or "rapid set" jaw positioning. This subclass and subclasses hereunder are differentiated on the basis of such modifications pertinent to adjustment features.
- (2) Note. Subsequent to the relative disengaged shift of the mating components,

the further movement of said components in mating position causes the jaws to grippingly hold work.

- (3) Note. In the illustration shown below, B indicates the adjustable position of the screw-nut actuating means wherein the screw element 9 has been turned to permit the insert element 4 to be disengaged from the nut element 1, thus permitting relative axial movement without rotation. A indicates the actuation position of the parts, as the intermeshing of elements causes relative axial movement when screw 9 is rotated. (The illustration is from patent No. 2,620,695 dated December 9, 1952.)



SEE OR SEARCH THIS CLASS, SUBCLASS:

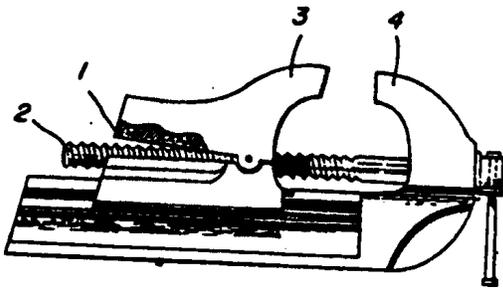
- 189, through 195, for patents to a holder with screw-nut type actuating means which also locks the jaw adjustment.
- 240, through 253, for patents to a holder with screw-nut type actuating means, per se.

173 Split nut type:

This subclass is indented under subclass 172. Device wherein the screw-nut type actuating means includes a threaded cylindrical member (solid or hollow) engaging with two or more annular segments, bearing mating thread portions, with means to move a segment(s) into and out of thread interengagement with the cylindrical member.

- (1) Note. The segments are generally moved radially away from the threaded cylinder to permit relative axial shift of segments and cylinder.

- (2) Note. While the segments may not encompass more than 180° of the threaded cylindrical member, at least two of the segments are so arranged as to lie in antipodal hemispheres.
- (3) Note. In the illustration shown below, jaw 3 is tilted so as to separate the nut-like thread 1 from the screw 2.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 181, through 183, for patents to a holder utilizing only one segment, or plural segments all lying in a common hemisphere.

174 With separate means for lateral motion of segments:

This subclass is indented under subclass 173. Device including operative manipulated mechanism, other than the relatively rotatable segments and cylindrical member themselves, for effecting relative radial movement of plural segments.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 173, for patents to holders with separate means to move only one of the split segments.

175 Including weight biased lever:

This subclass is indented under subclass 174. Device including a gravity urged member other than the jaw itself to maintain the segments in a desired position.

176 Common to spaced parallel screw means:

This subclass is indented under subclass 174. Device wherein the operative manipulated mechanism effects relative radial movement of segments coacting with both of a pair of threaded cylindrical actuating members, said members lie in the plane of relative jaw movement generally normal to and at different distances from the work engaging surfaces of the jaws.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 219, for patents to a holder with spaced parallel screw means, either of which means serves as a common actuator for each of the coacting jaws.

177 Control travels with screw:

This subclass is indented under subclass 174. Device wherein the operative manipulated mechanism is mounted on the threaded cylindrical member support means and moves with said member.

178 With screw mounted means for lateral segment motion:

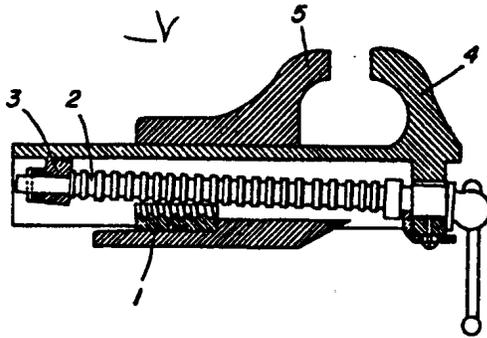
This subclass is indented under subclass 173. Device including means carried by, and responsive to relative rotational movement of, the threaded cylindrical member for effecting relative radial movement of the segments.

179 With longitudinally rockable actuating screw:

This subclass is indented under subclass 172. Device wherein the screwnut type actuating means includes a threaded cylindrical member (hollow or solid), which member is tiltable about an axis transverse to the extent of said member to engage or disengage a mating threaded member.

- (1) Note. Included here are patents for a device wherein the tilting is effected by cam* means carried by the tiltable member.

- (2) Note. In the illustration shown below, initial rotation of screw 2 turns cam 3 so as to tilt the screw and free said screw thread from the nut-like element 1.

**180 Direct hand tilt:**

This subclass is indented under subclass 179. Device wherein the tiltable cylinder is moved by manipulation of an operative without intervention of mechanical advantage, lost motion, or biasing means.

- (1) Note. See HAND*.

181 Half nut type:

This subclass is indented under subclass 172. Device wherein the screw-nut type actuating means includes a threaded cylindrical member (hollow or solid) engaging a segment bearing a mating thread portion, with means to move the segment into and out of thread interengagement with the cylindrical member.

- (1) Note. The segment is generally moved radially away from the threaded cylinder to permit relative axial shift of segment and cylinder.
- (2) Note. An annular member bearing a segment (less than 180°) of thread, relatively rotated to align nonthreaded portions, is not considered as an interrupted thread for subclasses 184-187.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 173, for patents to a holder utilizing plural annular segments.

182 With separate means for lateral nut-screw motion:

This subclass is indented under subclass 181. Device including operative manipulated mechanism, for effecting relative radial movement

of the segment, which mechanism does not require the relative rotation between segment and threaded cylindrical member.

183 With pedal means:

This subclass is indented under subclass 182. Device including a foot operated lever for effecting relative radial movement of the segment.

184 Interrupted thread type:

This subclass is indented under subclass 172. Device including mutilated portions of one or both of the mating components, which portions, where properly aligned, permit relative axial motion without interengagement of the thread (or helix-like) elements of said mating components.

- (1) Note. Generally, a partial rotation of a mating component serves to align mutilated portion, permitting an axial shift of said component (and associated jaw); and a further rotation serves to apply the actuating work gripping force.
- (2) Note. See subclass 181, (2) Note for relationship to "haft-nut."

185 Antipodal screw thread sectors:

This subclass is indented under subclass 184. Device including two separate thread portions facing away, oppositely, from each other on a cylindrical element.

- (1) Note. Usually the mating nut member is undercut in two similar portions to permit relative axial motion without thread interengagement.

186 Rack-like nut thread sector:

This subclass is indented under subclass 184. Device including a single narrow thread portion coacting with a mutilated screw element, which portion is greater in axial extent than the screw element.

187 With continuous screw thread:

This subclass is indented under subclass 184. Device including an unmodified externally threaded element.

188 With common means to both lock and actuate jaw(s):

This subclass is indented under subclass 165. Device including actuating* means, which means, itself or through its drive train, operating in a manner necessary to effect actuation also effects an adjustment-lock* of relatively movable jaws.

- (1) Note. Usually, initial operation of the actuating means locks the adjustment and further operation moves the jaws relative to each other.

SEE OR SEARCH THIS CLASS, SUBCLASS:

128, for patents to a holder including a pivoted yoke frame jaw carrier with specific latch means combined with jaw actuating means.

166, through 171.5, for patents to a holder with a cant type adjustment-lock, which lock is accentuated by further operation of actuating means.

189 Screw-nut type:

This subclass is indented under subclass 188. Device wherein the actuating means includes mating concentric threaded elements, which elements are relatively rotatable to cause relative axial movement of said elements which movement is imparted to associated jaws.

SEE OR SEARCH THIS CLASS, SUBCLASS:

172, through 187, for patents to a holder adjustable by relative axial shift of threaded actuating elements and which actuating means may also effect an adjustment-lock.

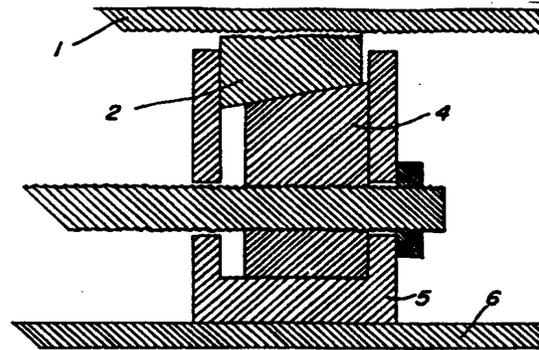
240, through 253, for patents to a holder with screw-nut type actuating means, per se.

190 With wedge means in the lock mechanism:

This subclass is indented under subclass 189. Device including a tapered or sloped block in the train of adjustment-lock mechanism, which block is shiftable to effect binding of relatively movable jaws.

- (1) Note. In the illustration shown below, the initial rotation of the screw element

shifts wedge block 4, causing wedge block 2 to bind against the frame 1, thus immobilizing member 5 (and part integral therewith) with respect to 1 and 6. Continued rotation of the screw effects said movement thereof.



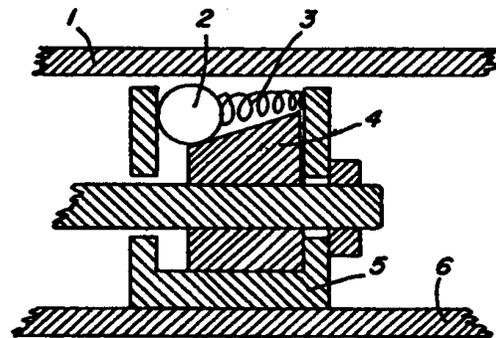
SEE OR SEARCH THIS CLASS, SUBCLASS:

229, for patents to a holder with wedge type actuating means.

191 Roll or ball gripping element:

This subclass is indented under subclass 190. Device wherein the block moves cylindrical or spherical means to effect frictional engagement for locking the adjustment.

- (1) Note. In the illustration below (as in the illustration above), screw rotation moves block 4, here block 4 moves a roller or ball 2 to immobilize member 5.



- 192 With pawl-rack immobilization means:**
This subclass is indented under subclass 190. Device including an element having one or more toothed portions movable into engagement with selected notches in another toothed element to maintain desired jaw adjustment.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
212, through 215, for patents to a holder with pawl-rack detent adjustment-lock means.
- 193 Pivotal or rockable pawl:**
This subclass is indented under subclass 192. Device wherein the movable element is constrained to limited movement in an arcuate path for the purpose of engaging the coacting toothed element.
- 194 Pawl-rack adjustment lock:**
This subclass is indented under subclass 189. Device wherein the means to maintain an adjustment position includes the interengagement of a toothed bar with a pivoted or sliding element, which element has one or more teeth mating with those of the bar.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
212, for patents to a holder with adjustment means utilizing a pawl-rack lock, which lock means is not applied by means common to it and to the jaw actuating means.
- 195 To immobilize nut:**
This subclass is indented under subclass 194. Device wherein an internally threaded element of the actuating means is fixed or secured to, then serves as the reaction element for transmitting work gripping force when a mating externally threaded element is rotated.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
246, through 253, for patents to a holder with screw-nut type actuating means utilizing a relative fixed nut element.
- 196 Cam or eccentric type:**
This subclass is indented under subclass 188. Device wherein the actuating means includes cam* or eccentric* means.
- (1) Note. See (3) Note under subclass 229.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
204, for patents to a holder with cam or eccentric means which only effect adjustment-lock.
229, for patents to a holder with cam or eccentric actuating means.
- 197 Plural cams in series:**
This subclass is indented under subclass 196. Device wherein the cam means coacts in succession with another cam, eccentric, or wedge means to effect both actuation and adjustment-lock.
- 198 Cam in series with diverse actuator:**
This subclass is indented under subclass 196. Device wherein the cam means coacts in succession with some actuating mechanism other than a cam, eccentric, or wedge means.
- (1) Note. For example, the diverse means may be a toggle mechanism.
- 199 Plural cam surfaces:**
This subclass is indented under subclass 196. Device wherein the cam means included at least two separate spaced contours which act to transmit motion as the cam is moved.
- (1) Note. Generally, one contour effects adjustment-lock and another contour effects actuation as the cam is moved.
- 200 Including radial face and/or axial follower feature(s):**
This subclass is indented under subclass 196. Device wherein a surface of the cam normal to the pivotal or rotational axis is modified to impart to-and-fro movement, parallel to said axis, to a follower element as the cam is pivoted, either the structure of (a) an axial follower or (b) a normal cam surface being specifically claimed.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

232, for patents to a cam actuator with radial face and/or axial follower features.

201 Toggle type:

This subclass is indented under subclass 188. Device wherein the actuating means is a toggle* means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

228, for patents to a holder with toggle actuating means.

202 Rack-pinion sector:

This subclass is indented under subclass 188. Device wherein the actuating means includes a pivotal or rotatable gear-like portion rocked into engagement with a toothed bar to lock the jaw adjustment and further pivoted or rotated to effect relative jaw motion.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

227, for patents to a holder with rack and pinion actuating means.

203 With clamp (or friction) type adjustment-lock:

This subclass is indented under subclass 165. Device wherein a mutually immobilizing engagement between adjustable elements of the holder is effected or maintained by mechanism which increases pressure of one element (or part of one) against the other (or part of the other) to cause binding.

- (1) Note. Included in this and indented subclasses are lock means with roughened or serrated surfaces to enhance the frictional characteristics of abutting parts. However, the claimed modification, in structural terms, of one surface to coat with an element of another surface is considered to constitute a detent type lock. For example: the recital of "interengageable teeth," "cogs," "racks," "pawls," "dogs," "pins," "ratchet grooves," "lugs," "keys," "studs," "notches," or "fingers" is considered descriptive of detent means, while

"roughened" or "serrated" surfaces are deemed frictional surface characteristics for this and indented subclasses.

- (2) Note. If the only disclosed means for increasing the pressure to cause binding is a spring means, and/or a simple lever, and/or gravity acting on a "detent" means, then such means is not considered to be a clamp or friction type means, and original placement will be made in subclasses 207-215.

- (3) Note. If a patent claims both a "detent" type and a clamp or friction type adjustment (e.g., a set screw is used to force a toothed element into engagement with a mating toothed element), original placement will be in this subclass. Thus, if a set screw (or similar) means plus a surface configuration is claimed, whether the surface is considered to be "roughened" or "detent" type is immaterial. However, if no set screw (or similar) means is used to apply or force one configured surface into interengagement with a coating configured surface, then (1) Note applies.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

166, through 171.5, for patents to a holder with frictional locking means effected by relative tilting or skewing of elements.

207, through 215, especially the indented subclasses 210 and 215.

204 Pivoted eccentric for applying lock:

This subclass is indented under subclass 203. Device including a cam* to effect interengagement of such locking elements.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

229, for patents to a holder with cam actuating means, and see search notes thereunder.

205 Plus additional means to release lock:

This subclass is indented under subclass 203. Device including mechanism to remove or reduce an immobilizing pressure between such elements to permit relative adjustment.

- (1) Note. The mechanism is a means other than a bias or the means used to apply the lock.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
169, and 170, for patents to a holder with jaw adjustment means including cant-lock release means.
- 206 Deformable elastic plug gripping element:**
This subclass is indented under subclass 203. Device wherein such mechanism comprises a confined, resilient, and generally noncompressible member with means to distort said member to cause binding of the adjustable holder elements.
- 207 With detent type adjustment-lock:**
This subclass is indented under subclass 165. Device including adjustment-lock* means, which means comprise plural elements (each element carried by, integral with or part of a coacting jaw* member) said elements so configured that the interengagement of a portion of one with a portion of another causes immobilization of the means for relative jaw adjustment.
- (1) Note. The detent may only limit relative adjustment in a particular direction(s) rather than completely fix one member with respect to another.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
63, through 70, for patents to a holder mounted for movement with indexing stops.
203, through 206, for frictional engagement to effect adjustment-lock and see (1) Note thereunder for the distinction between "roughened" surfaces and "detents."
284, for patents to a holder detent fastener means for a jaw insert.
- 208 Peg-hole:**
This subclass is indented under subclass 207. Device wherein the detent is a bar, pin or rod which is insertable axially (i.e., longitudinally) within a selected aperture or mating opening to maintain a desired adjustment.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
69, and 70, for patents to a pawl-rack adjustment of a holder.
- 209 For pivoted jaw:**
This subclass is indented under subclass 208. Device wherein the immobilized member is one of a pair of relatively movable fulcrumed jaws.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
237, through 239, for patents to a holder with pivoted jaw actuating means.
- 210 Movable rack:**
This subclass is indented under subclass 207. Device including a notched or toothed bar that is disclosed as being adjusted* by manually pivoting, sliding or rocking of said bar into and out of interengagement with a coacting element (pin, pawl or second rack-type element).
- (1) Note. See HAND*.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
203, through 206, for patents to a holder including clamp or friction type adjusting means, and see search notes thereunder.
- 211 Pin-rack:**
This subclass is indented under subclass 207. Device wherein one element is moved laterally of its general extent to engage a selected notch in another toothed element to maintain a desired adjustment of jaws.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
67, for patents to a pin-rack adjustment of a holder.
- 212 Pawl-rack:**
This subclass is indented under subclass 207. Device wherein one element having one or more toothed portions is pivotable or slidable into engagement with the selected notches in another toothed element to maintain a desired jaw adjustment.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 68, for patents to a pawl-rack adjustment of a holder.
- 171, for patents to a holder with adjustment-lock means including both interengagement of configured surfaces and canting to maintain desired jaw adjustment, the configured surfaces portions being integral or fixedly secured to said surfaces.
- 194, and 195, for patents to a holder with a pawl-rack adjustment-lock, which lock is applied by the means for relative jaw actuation.

213 Detent positionable by rocking of screw actuator:

This subclass is indented under subclass 212. Device wherein a toothed element is movable into and out of engagement with a coacting element by a pivotal shift of the externally threaded cylinder forming part of the actuating* mechanism.

214 With lever type actuator acting through pawl:

This subclass is indented under subclass 212. Device including a lever (first, second or third class) or lever linkage actuating* means, which means transmits relative motion to the jaws via the pivoted or slidable toothed element.

215 Spring urged pawl:

This subclass is indented under subclass 212. Device including a resilient means to bias the pivotal or slidable toothed element into engagement with the coacting toothed element.

216 Means to actuate jaw(s) (i.e., apply holding force):

This subclass is indented under subclass 86. Device including an actuating* means to move at least one jaw with respect to another.

- (1) Note. Generally, a patent providing for relative movement of jaws not clearly encompassed by the concept of adjustment* is considered to set forth the use of actuating means and such patent will be placed here (subclasses 216-254).

- (2) Note. A patent claiming an actuating train, which train includes, in series, two or more of the specific actuating means set forth below, will be placed as an original in the first or superior subclass providing for any of said claimed actuating means and a cross-reference copy placed in subclasses providing for other claimed actuating means; e.g., a patent claiming the use of a toggle mechanism to drive a cam actuating means will be placed, as an original, in subclass 228 with a cross reference in subclasses 229-236.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 8, for patents to a holder with magnetic means to exert force and work gripping.
- 165, through 215, for patents to a holder which includes means for adjustment combined with actuating means as well as adjustment means, per se.

SEE OR SEARCH CLASS:

- 81, Tools, subclasses 342 through 384 for patents to plier actuating means.
- 100, Presses, subclasses 280 through 294 for patents for a reciprocating press with mechanical force multiplier means.

217 Work camming or wedging action type:

This subclass is indented under subclass 216. Device including jaws and jaw supporting structure so configured and linked that, once the jaws are in firm contact with the work, said jaws will react to movement of the work by tending to tighten engagement with said work, without the application of other forces on said jaws or jaw supporting structures.

- (1) Note. Generally, the movement of the work is rotary and the jaws tend to hold the work against further rotation, but the patents placed herein are not limited to such rotational action.
- (2) Note. The work need not be claimed for patent placement here.

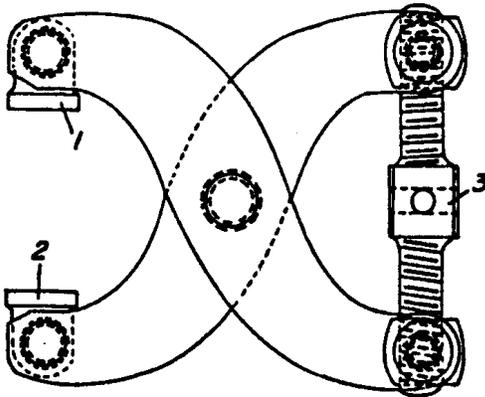
SEE OR SEARCH THIS CLASS, SUB-CLASS:

166, through 171.5, for patents to holder with similar self-camming action used to lock parts of a jaw mechanism in desired adjustment relationship.

218 With common means for each of coaxing jaws:

This subclass is indented under subclass 216. Device including a single means effective to move each of two or more coaxing jaws, which jaws engage the same work, with respect to a common member as well as with respect to each other.

- (1) Note. The common member may be a base or a support for an actuating means or a linkage between jaws.
- (2) Note. Included in this and indented subclasses are patents to a holder supported only by the contact of the coaxing jaws with the work itself.
- (3) Note. In the illustration below, jaws 1 and 2 are each moved by screw 3 with respect to each other and screw 3.



SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 34, for patents to a single fluid unit to move plural jaws.
- 42, for patents to plural holders with means for simultaneous actuation of the holders.

107, through 109, for patents to plural jaw pairs with interrelated actuating means.

119, for patents to a quadrilateral frame type holder with at least one actuating means upon each side of the frame.

142, for patents to a holder with separate actuating means for each of a jaw pair.

153, for patents to plural jaw pairs with common actuating means.

242, for patents for a screw means with right and left thread to move a jaw pair.

219 Spaced parallel screw means:

This subclass is indented under subclass 218. Device wherein the single means is either of two threaded cylindrical members, which members lie in the plane of relative jaw movement, generally normal to and at different distances from the work engaging surfaces of the jaws.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

237, for patents to a holder with pivoted jaws.

240+, for patents to a holder with screw-nut type actuating means.

220 With specific means for angular positioning of jaws:

This subclass is indented under subclass 219. Device including structural details for the joint or connection between the screw means and the jaws.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

139, for patents to a holder with similar joint structure so that coaxing jaw faces may be aligned.

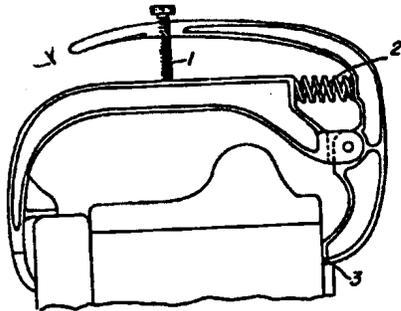
221 Plural means for one jaw:

This subclass is indented under subclass 216. Device including two or more mechanisms to move the same jaw.

- (1) Note. Patents placed in this subclass require that the claimed holder include at least two force multiplying or bias inducing means acting on the same jaw. The inclusion of means to vary effective speed of jaw movement or jaw force is

not such a mechanism. For example, a holder utilizing a differential screw actuator is not considered to have plural means for this subclass.

- (2) Note. In the illustration shown below, jaw 3 can be moved by the force of both spring 2 and screw 1.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 92, for patents to a clamp couple element with plural actuating means.
- 241, for patents to a holder with a differential screw actuating means.

222 Plural intergeared screw-nut actuating means:

This subclass is indented under subclass 221. Device including two or more screw nut actuating means operatively coupled by means of relatively rotatable bodies provided with teeth or frictional interengaging elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 225, through 227, for patents to a holder with gear type (other than screw-nut) actuating means.
- 240, through 253, for patents to a holder with screw-nut actuating means.

223 Including means to move nut:

This subclass is indented under subclass 221. Device including a screw-nut type actuating means and additional actuating mechanism, which mechanism effects a shift of the internally threaded member of said screw-nut means.

- (1) Note. The nut usually carries the screw along with it as said nut is shifted.

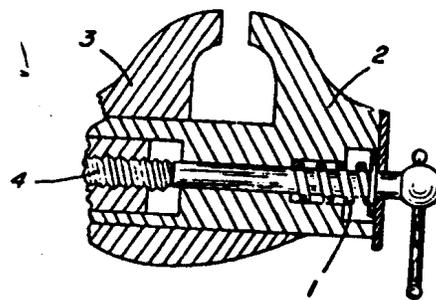
SEE OR SEARCH THIS CLASS, SUBCLASS:

- 240, through 253, for patents for a holder with screw-nut type actuating means, and see notes thereunder for related subclasses and definition of screw-nut type mechanism.

224 With yieldable means in actuation train:

This subclass is indented under subclass 216. Device including means which resile upon the jaw's first gripping the work.

- (1) Note. The extent to which the device yields or resiles upon gripping contact with work is usually limited to, and a function of, the nature of the particular work disclosed.
- (2) Note. Included here are patents to a holder with a jaw, said jaw specifically claimed as resilient or yielding.
- (3) Note. In the illustration below, spring 1 serves as a yielding element upon initial contact of jaws 2 and 3 with work. As shown the spring is relatively unstressed, the screw 4 moves to the left against said spring a short distance with respect to jaw 2.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 157, for patents for a holder with a movable jaw biased to nonholding position.

254, for patents for a holder with a movable jaw with bias means to actuate the jaw.

SEE OR SEARCH CLASS:

81, Tools, subclasses 417 and 427 for patents to a resiliently urged plier.

225 Gear type:

This subclass is indented under subclass 216. Device including relatively rotatable bodies (other than screw-nut members) provided with teeth or frictional interengaging elements, whereby one rotatable body will impart motion to, or receive motion from, some other body by rolling contact, which motion directly, or as part of a mechanism train, effects relative jaw motion.

- (1) Note. Screw-nut gearing is characterized by the fact that the relative rotation and relative axial movement, between screw and nut, is about and along a common axis. While screw-nut means are a species of gearing, patents for a holder including a screw-nut means in the jaw actuating train are placed in subclasses 240-253 below; e.g., a patent for a holder including the combination of a gear driven screw-nut actuating means is placed in subclasses 240-253.

SEE OR SEARCH THIS CLASS, SUBCLASS:

222, for patents to a holder with plural intergearing screw-nut type actuating means.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 640 through 468 for patents for gearing means, per se, and see search notes thereunder.

226 Worm:

This subclass is indented under subclass 225. Device wherein the relatively rotatable bodies are (a) a toothed wheel engaged by the mating spiral or helix on (b) a cylinder tangent to a said wheel.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 425 through 427 for patents for worm gearing means, per se.

227 Rack and pinion:

This subclass is indented under subclass 225. Device wherein the relatively rotatable bodies are (a) a toothed bar engaged by mating teeth on the outer periphery of (b) a wheel-like member.

SEE OR SEARCH THIS CLASS, SUBCLASS:

202, for patents for a holder with a rack-pinion sector means used to both lock adjustment and actuate jaw movement.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 420 for patents to rack and pinion gear means, per se.

228 Toggle type:

This subclass is indented under subclass 216. Device wherein a toggle* linkage is utilized to effect the relative movement of jaws*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

201, for patents to a holder with toggle means to both lock the adjustment and actuate jaw movement.

SEE OR SEARCH CLASS:

81, Tools, subclasses 363 and 367-380 for patents to toggle actuated pliers.

229 Cam, eccentric or wedge type:

This subclass is indented under subclass 216. Device wherein the actuating means includes (a) cam* means or (b) a tampered or sloped block (acting as an inclined plane) for effecting relative jaw movement.

- (1) Note. The wedge means must include mechanism to seat or shift said means to be considered as an actuating means.

- (2) Note. See subclass 165, (3) Note for line with respect to insert block adjustment.

- (3) Note. A helical element coacting with a mating threaded element or threaded segment, so that the only relative movement between said elements is about and/or along a common axis, is considered to be a screw-nut type of mechanism rather than a cam or gear means. In the case of a threaded segment, the relative axial movement of the segment with respect to the helical element is along a line parallel to the helical axis. The provision of means for relative radial movement between the elements is considered to characterize the mechanism as a cam type means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 165, for patents to a holder with a wedge insert for jaw adjustment.
 196, through 200, for patents to a holder with cam means to both lock the adjustment of and actuate jaw movement.
 204, for patents to a holder with cam means to lock adjustment.

230 With position latch:

This subclass is indented under subclass 229. Device including means to retain the cam or wedge in a selected one of several spatial relationship so as to maintain or fix holding relationship of jaws.

231 Cam surface is jaw face:

This subclass is indented under subclass 229. Device wherein the contoured motion effecting portion of the cam bears directly on the work being held.

232 Including radial face and/or axial follower feature:

This subclass is indented under subclass 229. Device wherein a surface of the cam normal to the pivotal or rotational axis is modified to impart to-and-fro movement, parallel to said axis, to a follower element as the cam is pivoted, either the structure of (a) an axial follower or (b) a normal cam surface being specifically claimed.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 200, for patents to a holder with radial face cam means to both lock the adjustment of, and actuate, jaws.

233 Including cam slot or groove:

This subclass is indented under subclass 229. Device wherein the contoured motion effecting portion of the cam is a configured, elongated aperture or channel.

234 Slidable wedge:

This subclass is indented under subclass 229. Device wherein a tapered or sloped block is translated for jaw actuation.

235 Eccentric cylinder or disc:

This subclass is indented under subclass 229. Device wherein the cam consists of a specifically recited circular element mounted for pivotal or rotary movement about an axis spaced from the circle center.

236 Cam on end pivoted hand lever:

This subclass is indented under subclass 229. Device wherein the cam is integral with a bar mounted for arcuate movement about the axis of said cam by manual positioning of said bar.

237 For pivoted jaw(s):

This subclass is indented under subclass 216. Device wherein the jaw(s) is moved arcuately by actuating means which rocks the jaw or jaw support about a fulcrum member to grip work.

- (1) Note. Included here are patents to a holder with arcuate jaw movement effected by actuating means applied as in a second class lever system; i.e., the work engaging surface is intermediate the fulcrum point and the point of force application.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 91, through 94, for patents to a clamp couple element with fastening means, which element may rock to hold work.
 150, for patents to a holder including separate positioning means for each of a

- jaw pair, at least one of which jaws is pivotally mounted and actuated.
- 157, for pivoted jaws with means to bias jaw(s) toward nonholding position.
- 238 First class lever action type:**
This subclass is indented under subclass 237. Device wherein the fulcrum is intermediate the work engaging surface and the point or area of force application.
- 239 Third class lever action type:**
This subclass is indented under subclass 237. Device wherein the point or area of force application is intermediate the fulcrum and the work engaging surface.
- 240 Screw-nut type:**
This subclass is indented under subclass 216. Device wherein the actuating* means includes mating concentrically threaded elements, which elements are relatively rotatable about a common axis to cause relative axial movement of said elements, which relative movement is imparted to associated jaws*.
- (1) Note. Included here are patents for a holder with elements of less than 360° mating concentric extent. For example, the nut portion may only be a thread segment or the screw may be interrupted.
- (2) Note. A worm-gear, though similar to screw-nut, does not provide for relative rotation of mating elements about a common axis. A patent to a holder with a worm-gear actuator is therefor excluded from this subclass.
- (3) Note. See (3) Note under subclass 229.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
172, through 187, for patents for a holder with screw-nut actuating means including means to adjust jaws by relative axial shift of the threaded elements.
189, for patents for a holder with screw-nut actuating means which also lock the jaw adjustment.
223, for patents for a holder with plural actuating means for one jaw, one of which is of the screw-nut type.
- 225, through 227, for patents for a holder with gear type (other than screw-nut) actuating means.
- SEE OR SEARCH CLASS:
74, Machine Element or Mechanism, subclasses 424.71 through 424.96 for screw nut type gearing, per se.
- 241 Differentially threaded:**
This subclass is indented under subclass 240. Device wherein at least one portion of a threaded actuating means is provided with a lead or a pitch smaller or greater than another portion.
- (1) Note. Rotation of such actuation means thus imparts axial movement of varying degrees to coacting mating elements.
- 242 Right and left threaded:**
This subclass is indented under subclass 240. Device wherein threaded portions of one of said elements form two opposed helices so that rotation of said element causes relative movement in opposite directions between coacting threaded elements.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
218, through 220, for patents for a holder including a common means to actuate plural jaws, and see the notes thereunder.
- 243 Rotating nut means:**
This subclass is indented under subclass 240. Device wherein the internally threaded element is rotated.
- 244 Screw held at ends for rotation only:**
This subclass is indented under subclass 240. Device including means to support a threaded cylindrical element at both ends so that said element can be rotated without axial movement.
- (1) Note. The rotation of the threaded cylindrical element causes a mating nut and its associated jaw to move axially of said element.

245 With means for relative rotation of elements:

This subclass is indented under subclass 240. Device including means to turn one element, with respect to its mating element, about the threaded axis.

246 Screw travels with jaw:

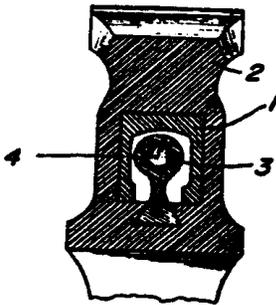
This subclass is indented under subclass 240. Device wherein an externally threaded element is rotated for axial movement along with a jaw* carried or associated with said element.

- (1) Note. Generally, the screw end has a jaw mounted thereon or engages a jaw supporting carriage.

247 Screw within traveling box-beam guide:

This subclass is indented under subclass 246. Device including a shell or channel member, generally coextensive with and surrounding the screw, which member moving with the screw serves as a slide or rail to determine the path of relative jaw movement.

- (1) Note. In most instances the member is so configured as to limit jaw movement to translation.
- (2) Note. In the illustration below, slide 1 moving with the screw 4 serves as a guide for movement of the jaw coacting with jaw 2.



SEE OR SEARCH THIS CLASS, SUBCLASS:

- 250, through 253, for patents to screw actuated holders with means for jaw translation.

248 With separable or replaceable nut means:

This subclass is indented under subclass 246. Device including an internally threaded element, coacting with the rotated element and serving as a reaction member to effect axial movement of the rotated element, which internally threaded element is not integral with the holding device frame and thus capable of being interchanged with other elements if necessary or desired.

- (1) Note. This substitution feature is usually for the purpose of wear correction or to facilitate assembly.
- (2) Note. See the illustration is subclass 247 above wherein the nut-like element 3 is dovetailed in the vise frame so as to be replaceable if necessary.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 247, for patents to a holder with traveling screw actuator within a box-beam guide, which type of holder usually has a replaceable nut. Generally, no cross-references of this feature have been made to this (248) subclass.

249 C-clamp type:

This subclass is indented under subclass 246. Device wherein the screw coacts with a nut, or nut-like portion, on one leg of an arched, curved or channel shaped member so that the jaw associated with said screw is movable relative to a second jaw constituting, or attached to the other leg of said member, and which member is not secured to a base or mount.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 143, for patents to a C-clamp type holder including separate actuating means for each of coacting jaws.

SEE OR SEARCH CLASS:

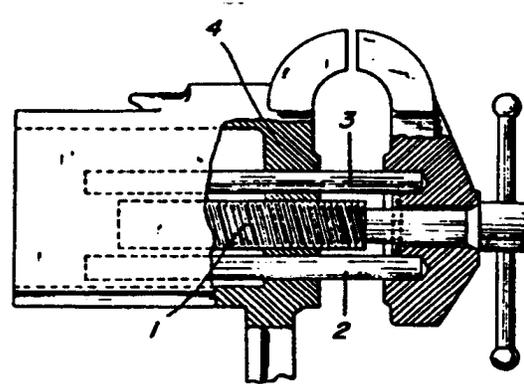
- 100, Presses, subclass 231 for patents to a C-frame type reciprocating press construction.

250 Means to keep faces parallel and/or translate jaw:

This subclass is indented under subclass 246. Device including means associated and movable with the jaw to (a) keep the work engaging surface(s) of said jaw from shifting or varying angularly with respect to a coating work engaging surface and/or (b) prevent rotation of said jaw as the screw rotates.

SEE OR SEARCH THIS CLASS, SUBCLASS:

139, for patents to a holder with means to change the relative angular position of coating jaw faces.



251 Flange and/or slot:

This subclass is indented under subclass 250. Device wherein the means for preventing jaw rotation is a configured frame guide coating with a mating configuration carried by the jaw.

252 Traveling means parallel to screw:

This subclass is indented under subclass 250. Device wherein the movable means, to keep coating work engaging surfaces from shifting angularly, moves in the same direction as the screw element along a separate but congruent path.

253 Plural traveling elements coplanar with screw:

This subclass is indented under subclass 252. Device including two or more traveling elements parallel to the screw and also lying in a common straight plane.

(1) Note. In the illustration below, bars 2 and 3 are the traveling elements used to maintain parallelism.

254 Bias type (e.g., weight, spring, resilience):

This subclass is indented under subclass 216. Device including means tending to urge the jaws* into gripping relationship with the work.

(1) Note. Included here are patents to a holder with means which rely upon springs, gravity or resiliency of structural elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

157, through 163, for patents to a holder with bias means to urge jaws away from work holding position.

SEE OR SEARCH CLASS:

294, Handling: Hand and Hoist-Line Implements, subclasses 148 and 166 for a hand-held article carrier which employs a spring to retain the article on the carrier.

256 With paralleling mechanism for jaws:

This subclass is indented under subclass 86. Device including means to limit the movement of one jaw with respect to an opposed jaw so that work-engaging or work-gripping faces of the respective jaws are maintained continuously normal to the line of relative jaw movement.

(1) Note. While most of these devices are for flat faced jaws, this subclass is not so limited. Configured jaws with means to maintain the relative spatial orientation, as set forth above, are classified here.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

212, for patents to screw means to actuate jaws with parallel mechanism.

SEE OR SEARCH CLASS:

81, Tools, subclasses 352 through 354 for patents to means for parallel movement of plier jaw faces.

257 Jaw features:

This subclass is indented under subclass 86. Device including a specifically claimed work engaging gripper (a) structure, (b) composition, and/or (c) conformation.

(1) Note. This and indented subclasses are rather parallel to subclasses 418-426.5 of Class 81, Tools; thus a full search must encompass both bodies of art.

SEE OR SEARCH CLASS:

81, Tools, subclasses 418 through 426.5 for patents to plier jaw structure, subclass 186 for wrench jaw structure, and see (1) Note above.

100, Presses, subclasses 295 through 297 for patents to platens or pressure surface structure.

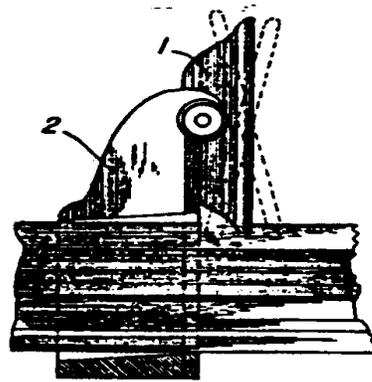
279, Chucks or Sockets, subclass 123 for patents to radially reciprocating jaw structure, per se.

258 Angularly alignable:

This subclass is indented under subclass 257. Device including means to permit movement of a jaw* or portion thereof to orientate a contacting surface with respect to the work.

(1) Note. The means to permit movement of a jaw is other than one including a mechanical advantage. Thus, "means to permit movement" includes a pivot, swivel or slide.

(2) Note. In the illustration below, the jaw element 1 is freely pivoted so as to be "self-aligning" with the work contacted.



SEE OR SEARCH THIS CLASS, SUB-CLASS:

139, for patents to a holder wherein the means for aligning a jaw (with respect to another jaw or work) includes a mechanical advantage, e.g., screw, cam, lever, etc.

259 Attachments and/or inserts:

This subclass is indented under subclass 258. Device including (a) a separate work-engaging element fastened or secured to at least one jaw or (b) a separate work-engaging element positioned between opposed jaws so as to be actuated to grip work by the movement of said jaws.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

271, through 284, for patents to an attachment and/or insert which is not alignable.

260 With hook type fastener means:

This subclass is indented under subclass 259. Device wherein the fastening means includes a crook or crook-like element engaging an eye or aperture.

(1) Note. The curved or nib element can be part of either the jaw or attachment.

261 With socket type fastener means:

This subclass is indented under subclass 259. Device wherein the fastening means includes an element forming part of the jaw (or mounted on the jaw) in mating interengagement with a

generally complementary element forming part of the attachment or insert.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

283, for patents to a socket fastener means for a jaw attachment and/or insert that is not angularly alignable.

262 With threaded type fastener means:
This subclass is indented under subclass 259. Device wherein the fastening means includes a screw or bolt means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

282, for patents to a threaded fastener means for a jaw attachment or insert that is not angularly alignable.

263 With yieldable type fastener means:
This subclass is indented under subclass 259. Device wherein the attachment is secured to a jaw by a spring or elastic means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

281, for patents to other yieldable fastener means.

264 Loosely positioned between coating jaws:
This subclass is indented under subclass 259. Device wherein the attachment or insert is placed intermediate opposed jaws so that jaw actuation* causes said attachment or insert to grip work.

(1) Note. Included here are patents for an insert, which insert includes structure for the insert to rest on the jaws.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

277, for patents to an insert (not angularly alignable) loosely positioned between jaws.

265 Plural spaced work contacting portions:
This subclass is indented under subclass 257. Device wherein a work-engaging member includes at least two work-engaging portions, and said engaging portions do not form a continuous surface.

(1) Note. Included in this subclass are patents which merely call for "roughened" or "knurled" or "anti-friction" gripping surfaces.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

268, through 270, for patents to a holder with specific nonplanar work contacting surface configuration.

266 Settable elements conformable to work contour:
This subclass is indented under subclass 265. Device wherein the work-engaging portions are movable to match the general shape of the work.

(1) Note. The work-engaging portions approximately mate with the surface of the workpiece.

267 With pressure equalizing means:
This subclass is indented under subclass 265. Device including means for uniformly distributing the actuating force so that the individual work-engaging portions each exert the same gripping action.

268 Angular and/or curved jaw face:
This subclass is indented under subclass 265. Device in which the surface of at least one work-engaging portion is nonplanar, i.e., a stepped and/or arcuately formed surface.

(1) Note. A "roughened" or "nonfriction" surface is not considered to define an angular or curved face for this subclass.

269 Opposed jaw faces diversely shaped:
This subclass is indented under subclass 268. Device in which the surface of one work-engaging portion is different from that of a coating work-engaging portion.

270 Complementary to work configuration:
This subclass is indented under subclass 268. Device in which the surface of one work-engaging portion substantially mates with the surface of a workpiece.

- 271 Attachment(s) and/or insert(s):**
This subclass is indented under subclass 257. Device including (a) a separate work-engaging element fastened or secured to at least one jaw or (b) a separate work-engaging element positioned between opposed jaws so as to be actuated to grip work by the movement of said jaws.
- (1) Note. The removal of the separate work-engaging element will leave a jaw* for engaging a workpiece.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
136, for patents to a holder insert for applying a “hold-down” component.
259, through 264, for patents to a holder attachment and/or insert that is angularly alignable.
- 272 Interdigitated:**
This subclass is indented under subclass 271. Device wherein the work-engaging elements include opposed finger or fork elements which are offset from each other so as to interlace as the opposed elements approach each other.
- 273 Named material:**
This subclass is indented under subclass 271. Device including a specified composition for the separate work-engaging element or the work-engaging surface of such element.
- (1) Note. The recital of “yielding” material is not a naming for this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
275, for patents to a holder with yieldable attachments and/or inserts.
- 274 Nonmetallic:**
This subclass is indented under subclass 273. Device wherein the named work-engaging surface consists of other than a metal or metal alloy.
- 275 Yieldable element:**
This subclass is indented under subclass 271. Device wherein the work-engaging element is resilient or includes a resilient work-contacting surface.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
22, for patents to a flexible wall element where fluid pressure is used to force said element into contact with a workpiece.
- 276 With magnetic fastening means:**
This subclass is indented under subclass 271. Device including means for setting up a magnetomotive force to hold the attachment in place.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
8, for patents to a magnetic holder.
- SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 285 through 295 for patents to a magnetic holder, per se.
- 277 Coacting elements loosely positioned between jaws:**
This subclass is indented under subclass 271. Device wherein at least two coacting work-contacting elements are secured to each other independently of the structure of related supporting jaws.
- (1) Note. Included here are patents for inserts which include structure so that the inserts rest on the jaw.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
163, for patents to articulated jaw attachments or inserts with means to bias jaws toward nonholding position.
264, for patents to an angularly alignable insert loosely positioned between jaws.
- 278 Elements jointed by a pivot or link:**
This subclass is indented under subclass 277. Device wherein the coacting elements are pivoted to each other or to a common lever.
- 279 Selective:**
This subclass is indented under subclass 271. Device including attachment or insert fastening means (or mounting means) providing for the

- choice of one of plural available work-contacting portions.
- (1) Note. Included here, for example, are patents to a device with a swivel mounted attachment so that as desired one of several faces may be presented to engage work.
- 280 By substitution:**
This subclass is indented under subclass 279. Device including means for interchange of work-contacting portions by removal and replacement of the attachment and/or insert bearing said portion.
- 281 With yieldable type fastener means:**
This subclass is indented under subclass 280. Device wherein the attachment is secured to a jaw by a spring or elastic means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
263, for patents to a holder with jaws having yieldable fastener means.
- 282 With threaded type fastener means:**
This subclass is indented under subclass 280. Device wherein the attachment is secured to a jaw by a screw or bolt means.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
262, for patents to a holder with jaws having threaded fastener means.
- 283 With socket type fastener means:**
This subclass is indented under subclass 280. Device wherein the insert fastening means includes an element forming part of the jaw (or mounted on the jaw) in mating interengagement with a generally complementary element forming part of the insert.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
261, for patents to a holder with jaws having socket fastener means.
- 284 With detent type fastener means:**
This subclass is indented under subclass 280. Device wherein the attachment or insert fastening means includes an element forming part of the jaw* in mating interengagement with an
- element forming part of said attachment or insert to secure the elements together.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
207, through 215, for patents to a holder with detent type lock for adjustment.
- 285 Specific means for wear, strain, protection, assembly:**
This subclass is indented under subclass 86. Device including structural details relative to (a) shielding of parts against dirt or corrosion, (b) improving the bearing characteristics of rubbing parts, (c) providing modifications to facilitate juxtapositioning of parts in operative position, and (d) re-enforcement of parts subject to failure under operative conditions.
- 286 Specific material(s) used for holder:**
This subclass is indented under subclass 86. Device characterized by the specific composition of parts and/or of the whole holder.
- 287 HOLDER ENCLOSURES WORK:**
This subclass is indented under the class definition. Device wherein at least a portion of the work holder substantially surrounds at least a portion of the work so that a section exists whereat the inner periphery of the work holder surrounds, is substantially contiguous with, and substantially conforms to, the outer periphery of the work.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
152, through 155, for patents to a holder with plural jaws, and see notes thereunder.
- 288 With tool couple element:**
This subclass is indented under subclass 287. Device wherein the work holder includes a tool couple element*.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
48, 87, 157, and 290, for patents for other holders having tool couple elements.
- 289 WORK-UNDERLYING SUPPORT:**
This subclass is indented under the class definition. Device wherein the work holder comprises a surface which, when the work is being

treated, is positioned beneath at least a part of the work and is in contact with said part of the work to support the work against the force of gravity, in at least one position of adjustment of the work holder.

- (1) Note. A mere pin is not considered to be a work underlying support. A pin-type holder is found in subclasses 53-54.5 of this class.
- (2) Note. The mere disclosure of an underlying and work supporting surface, without terminology in the claim clearly defining said surface as either positioned or modified so as to hold work against the force of gravity, will not effect patent placement (as an original) into this and indented subclasses. Thus recital in a claim of a term such as “base,” “support,” “surface,” “plane,” “frame,” “stand,” “block,” “cradle,” “arm,” “spider,” “bar,” etc., and which term encompasses a disclosed work underlying support, will not of itself form the basis of original patent placement.

The “hairline” distinction above is of particular importance with respect to work clamping or gripping devices which disclose a work underlying surface support or a surface obviously capable of such support or even a surface peculiarly limited to such support. Such disclosure is true of substantially all vises, clamps, chucks, and gripping devices including a plethora of claimed references thereto. The purposes of a restrictive search field are believed best served by not classifying primarily on this feature (work underlying support) unless specifically so limited in the claim.

Judicious cross-referencing of disclosed work underlying support features into this and indented subclasses should assure a reasonably complete field of search for said features at this locus.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

257, through 284, for patents to work holder characterized by the details of jaw and/or attachments.

SEE OR SEARCH CLASS:

248, Supports, appropriate subclasses for patents including article-underlying features, which article is not disclosed as being worked on while so supported. See search notes thereunder.
405, Hydraulic and Earth Engineering, subclass 7 for a marine vessel support for a dry dock.

290 With tool couple element:

This subclass is indented under subclass 289. Device wherein the work holder includes, in association with the work-underlying support, a tool couple element*.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

48, 87, and 288, for patents for other work holders having a tool couple element.

291 With work-stop abutment:

This subclass is indented under subclass 290. Device wherein the work holder includes a work-stop abutment*.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

10, 297, 303, and 315, for patents for other work holders leaving a work-stop abutment.

292 Element projectable through support:

This subclass is indented under subclass 290. Device wherein the tool couple element is mounted so that it may be moved from a position beneath the work bearing surface of the support, where it is ineffective to take part in treatment of the work, to a position coextensive with or above and surface where it is effective to participate in said treatment.

- (1) Note. Where the relative movement of the support and element is disclosed as taking place during the treatment of the work, the patent will be found in the

class of the treating device and in this class.

293 In support surface:

This subclass is indented under subclass 290. Device wherein the tool couple element is mounted rigidly in, or on, or is part of that portion of the support that underlies and bears against the work.

294 Cylindrical element:

This subclass is indented under subclass 293. Device wherein the element has a longitudinal axis and a generally uniform circular cross-section transverse to this axis, a portion of the outer periphery of the element serving as part of the work bearing surface of the support.

295 Guiding slot for horizontally moving tool:

This subclass is indented under subclass 293. Device wherein the work bearing surface of the support has an opening therein having spaced wall portions disclosed as being of the order of magnitude of the thickness of a tool or tool support, said wall portions serving to guide the tool in a substantially horizontal path across the support during treatment of the work by the tool.

296 Gapped support:

This subclass is indented under subclass 289. Device wherein the work bearing surface of the support has an interruption or a reentrant portion and the structure of the work bearing surface of the support is so constructed and disposed that, when the work is held during treatment, spaced portions of the work under-surface are in contact with the support, said spaced portions having between them a portion of the work under-surface that is not in contact with the support.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

304, for a work-stop abutment having connected thereto a work support portion closing a gap in the support.

297 With movable work-stop abutment:

This subclass is indented under subclass 296. Device wherein a work-stop abutment* is provided and is mounted so that it may be moved in a direction generally parallel to at least a portion of the work-underlying support sur-

face, to thereby enable the abutment to be selectively positioned with respect to the support.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

10, 291, 303, and 315-320, for patents for other work holders having a work-stop abutment.

304, for a work-stop abutment having connected thereto a work support portion closing a gap in the support.

298 Abutment movable in gap:

This subclass is indented under subclass 297. Device wherein at least a portion of the work-stop abutment, or its mounting means which moves with it, extends into or lies within a gap in the support.

299 Plural separately mounted slidable abutments:

This subclass is indented under subclass 298. Device including at least two such abutments, not rigidly connected to each other, each abutment being mounted to move in and along a guideway formed by or in a gap in the support.

300 With abutment position indicator:

This subclass is indented under subclass 298. Device wherein the abutment has a distance indicating member associated therewith which enables the operator to determine the distance of the abutment from a datum position in any position of adjustment of the abutment.

301 With abutment lock:

This subclass is indented under subclass 298. Device wherein holding means are provided for the purpose of preventing movement of the abutment in the gap after the abutment has been moved to the desired position in the gap, said holding means being additional to the means provided for moving the abutment in the gap.

302 Enclosed gap:

This subclass is indented under subclass 296. Device wherein a portion of the work undersurface not in contact with the support is completely surrounded by portions of the work undersurface that are in contact with the support.

302.1 Mixing or kneading board:

This subclass is indented under subclass 289. Apparatus including means providing an underlying support upon which a plastic or particulate material is mixed or kneaded by hand (e.g., pastry board, etc.).

SEE OR SEARCH CLASS:

- 100, Presses, subclasses 295 through 297 for a platen or pressure surface of a press.
- 108, Horizontally Supported Planar Surfaces, appropriate subclasses for means providing a table surface with spacing support means.
- 433, Dentistry, subclass 49 for mixing slabs disclosed for use in the dental art.

303 With work-stop abutment:

This subclass is indented under subclass 289. Device wherein the work holder includes a work-stop abutment*.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 10, 291, 297, and 315-320, for patents for other work holders having a work-stop abutment.

304 Attached to movable support portion:

This subclass is indented under subclass 303. Device wherein a movable abutment is connected to an element that serves as a portion of the work underlying support, said element being connected to the abutment in such a manner that at least a portion of the element moves with respect to the rest of the support when the position of the abutment, with respect to the rest of the support, is varied.

305 Multiple direction restrainer:

This subclass is indented under subclass 303. Device wherein the abutment has the function of restraining the movement of the work across the support surface in at least two directions.

- (1) Note. The abutment may comprise a plurality of discrete unconnected elements.

306 Suspended abutment:

This subclass is indented under subclass 303. Device wherein the abutment is mounted so as to hang down from a member positioned above the work-underlying support surface.

307 With sight gage:

This subclass is indented under subclass 289. Device wherein a member is provided which enables the operator to determine when the work is placed in a desired position on the support, by visually aligning the member and a particular portion of the work.

308 With work supply supporting means:

This subclass is indented under subclass 289. Device wherein means are provided to hold a relatively large mass of the work, from which mass a relatively small portion of the work is brought to the support.

- (1) Note. The mass, for instance, may be a coil of work material.

309 Support mounting means:

This subclass is indented under subclass 289. Device wherein means are provided for (a) holding the support in a desired position against the force of gravity or (b) holding a support made of a plurality of parts, each of which underlies and contacts the work, in a desired assembled relation.

- (1) Note. The support holding means may be a part of the support specially provided to enable the support to be connected to the member on which it is mounted.

SEE OR SEARCH CLASS:

- 248, Supports, appropriate subclasses for patents to a work holder supporting structure, per se.

310 Support resiliently urged upwardly:

This subclass is indented under subclass 309. Device wherein the support is connected to its mount by yieldable means which normally apply an upward force to the support, which force may be overcome by a downward force.

311 Means to hold plural support blocks:

This subclass is indented under subclass 309. Device wherein the support comprises a plurality of discrete members, each of which has an upper surface upon which the work lies, and the support mounting means includes means to hold the members in a desired assembled relationship.

SEE OR SEARCH THIS CLASS, SUBCLASS:

296, through 302, for a support comprising a plurality of blocks with a gap in the work-underlying surface between one or more pairs of the blocks.

312 By through rod:

This subclass is indented under subclass 311. Device wherein the holding means comprises a member extending from one side of the assembled blocks to the opposite side of the assembled blocks through openings in the blocks.

313 Blocks enclosed by holder:

This subclass is indented under subclass 312. Device wherein the holding means comprises, in addition to the through rod, a member or members which completely surround the blocks.

314 Blocks enclosed by holder:

This subclass is indented under subclass 311. Device wherein the holding means comprises a member or members which completely surround the blocks.

315 WORK-STOP ABUTMENT:

This subclass is indented under the class definition. Device where there is provided a work-stop abutment*.

- (1) Note. A patent will not be placed as an original in this subclass if the combination of a work-underlying support and work-stop abutment is claimed. See the note under "SEARCH THIS CLASS, SUBCLASS" below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

10, 291, 297, and 303, for other work holder patents having a claimed work-stop abutment.

316 Vertically compressible abutment:

This subclass is indented under subclass 315. Device wherein the top of the abutment is resiliently urged upwardly away from the bottom of the abutment and may be moved toward the bottom upon the application of a force directed against the top.

317 Resiliently urged abutment:

This subclass is indented under subclass 315. Device wherein spring means are provided in the abutment mounting which urge the work contacting surface of the abutment in a particular direction, said spring means permitting the surface to move against the spring force when a force is applied against the surface.

318 Abutment mounted between spaced parallel arms:

This subclass is indented under subclass 315. Device wherein the abutment includes a pair of members which are parallel to each other and not in contact with each other, said pair of members serving to support the work abutting surface at spaced points.

319 Plural spaced abutment surfaces:

This subclass is indented under subclass 315. Device wherein the work is contacted by at least two surfaces serving as abutments, and the work contacting surfaces of the abutments do not form one substantially continuous surface.

320 With motor drive abutment moving means:

This subclass is indented under subclass 315. Device wherein motive power means are provided to cause movement of the abutment relative to its mounting.

329 MISCELLANEOUS:

This subclass is indented under the class definition. Device not provided for in the subclasses above.

CROSS-REFERENCE ART COLLECTIONS

900 SUPPORTING STRUCTURE HAVING WORK HOLDER RECEIVING APERTURES OR PROJECTIONS:

Work holder supporting structure having apertures or projections located on one or more of its surfaces for receiving complementary for-

- mations on members of the work holder, to enable one or more of the members to be shifted to a different set of apertures or projections when a new orientation or configuration of the member is desired.
- 901 COLLAPSIBLE OR FOLDABLE WORK HOLDER SUPPORTING STRUCTURE:**
Work holder supporting structure which is designed to collapse or fold from its normal use configuration to a smaller, more compact storage configuration when the supporting structure is not intended to be used (e.g., portable workbenches).
- 902 WORK HOLDER MEMBER WITH V-SHAPED NOTCH OR GROOVE:**
Work holder provided with at least one member which has a work-contacting and work-supporting surface having a V-shaped notch or groove for at least partially encircling the work and confining it to a particular portion of the surface.
- 903 WORK HOLDER FOR ELECTRICAL CIRCUIT ASSEMBLAGES OR WIRING SYSTEMS:**
Work holder for positioning electrical elements relative to each other in a particular arrangement during the assembling or repair of an electrical circuit or wiring system.
- 904 WORK HOLDER FOR POSITIONING ELEMENTS OF BUILDING IN INSTALLED LOCATION:**
Work holder intended to position one element of a building relative to another element of the building for their attachment to each other in their final assembled location and orientation in the building.
- 905 WORK HOLDER FOR DOORS AND DOOR FRAMES:**
Work holder intended to hold a door or a door frame prior to its installation in a doorway during various work treatment operations on the frame or the door.
- 906 WORK HOLDER FOR SKIS:**
Work holder intended to hold a ski in a particular position or orientation during a waxing, repair, or maintenance operation thereon.
- 907 WORK HOLDER FOR FISHING FLIES:**
Work holder intended to hold a fishing hook while it is dressed with hair, feathers, silk, tinsel, or other material into a finished product which vaguely resembles an insect.
- 908 WORK HOLDER FOR CATHODE-RAY TUBES:**
Work holder intended to hold a cathode-ray display tube during an assembling or repair operation.
- 909 WORK HOLDER FOR SPECIFIC WORK:**
Work holder constructed with features (e.g., contour of work-contacting surface) peculiar to the holding of a specific type work.
- 910 WORK HOLDER FOR PREFABRICATED ROOF TRUSS OR WALL FRAME:**
Work holder for positioning elements of a roof truss or a wall frame in juxtaposed relationship to each other during their assembly into a unit which is intended for later use in a building.
- END