

CLASS 445, ELECTRIC LAMP OR SPACE DISCHARGE COMPONENT OR DEVICE MANUFACTURING

SECTION I - CLASS DEFINITION

This is the residual and generic class of process and apparatus for the manufacturing, fabrication, repair, salvage, assembly, disassembly or other treatment of an electric lamp, liquid crystal display device or an electric space discharge device which process or apparatus is not elsewhere classified.

- (1) Note. An electric lamp is defined for the purpose of classification as a device for converting electric energy into visible light or ultraviolet light.
- (2) Note. An electric space discharge device is defined for the purpose of classification as including any device which is intended to have an electric current flow between two spaced parts or electrodes, at least part of the path followed by the discharge constituting a gas, vapor, or vacuum. Examples of an electric space discharge device include spark gap, spark plug, radio tube, X-ray tube, cathode-ray tube, laser tube, arc tube, gas or vapor discharge lamp, flash lamp and lightning arrester of the electric space discharge type.

SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS

The line between this class and all other classes which provide for either apparatus or process for the manufacture or treatment of electric lamp, liquid crystal display device or electric space discharge device is that all combined process and all apparatus which are intended to perform a plurality of different processes are classified in this class when one of the operations performed is an operation specifically provided for in this class. For the lines between particular classes not included in the general line above, see the notes to this section, below, and References to Other Classes, below.

For electric lamp and electric space discharge device, including the structure of a self-baking or Soederberg electrode which is formed from a plastic mass during the operation of the device, see References to Other Classes, below.

The line between this class (445) and Class 29 is as follows: (a) where a claim is presented which recites manufacturing another structure, e.g., a lamp base, PCB; either specific or nominal and specific Class 445 device manufacture, placement of the original will be in Class 445; (b) where there is specific recited manufacture of another structure and, as a step in that manufacture, a nominally recited Class 445 device is nominally united to the base, placement is in Class 29 (merely screwing a light bulb into a base is considered nominal); and (c) the manufacture of other structures intended to be used with a Class 445 device is in Class 29 or other manufacturing classes.

The subject matter of the class (445) was found in Class 316 and abolished subclasses 25.1+ of Class 29. No other portions of Class 29 have been screened for Class 445 subject matter.

SECTION III - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

- 7, Compound Tools, for miscellaneous compound tools.
- 15, Brushing, Scrubbing, and General Cleaning, appropriate subclasses, for brushing, scrubbing, and generally cleaning apparatus for use with electric lamps and discharge devices, note especially subclass 56 and indented subclasses, for miscellaneous apparatus for cleaning receptacles.
- 29, Metal Working, for process and manufacturing miscellaneous electrical devices, especially subclass 2, for battery-grid making, subclass 25.35 for piezoelectric device making, subclasses 25.41+ for electric condenser making, subclasses 592.1+ for processes of manufacturing various electrical devices, subclasses 33+ for plural diverse manufacturing apparatus including metal shaping and/or assembling, subclasses 729+ for means for assembling electric devices, and subclasses 762+ for means for disassembling electrical devices.
- 34, Drying and Gas or Vapor Contact With Solids, for miscellaneous apparatus for the separation of liquids from solids by drying or the contacting of solids with gases and/or vapors. For heating apparatus see the Class 34 definitions for additional searches.
- 53, Package Making, for methods and apparatus including closing and evacuating gas from or

- introducing gas, vapor or liquid into a portable receptacle. An electric lamp and an electric space discharge device are deemed to be encompassed by the term "portable receptacle" when there are no claimed limitations restricting the method or apparatus to the manufacture and/or repair of Class 445 devices - e.g., (1) limitation to electrode heating or assembly of components other than an envelope closure would require classification in this class (445) while mere heating of an envelope during evacuating or filling would not require exclusion from Class 53; (2) methods and the apparatus for such methods, which include performing a chemical reaction to eliminate gas or vapor by reacting the gas or vapor with some chemical to form a nonvolatile compound; or which include performing a chemical reaction to generate gas or vapor - whether the reaction is performed outside of or within the envelope - when the method or apparatus is directed to use in manufacturing a lamp or discharge device are excluded from Class 53 and classified in the class (445). See especially subclasses 403+ for process of gas filling and/or evacuating combined with closing and subclasses 79+ for equivalent apparatus.
- 65, Glass Manufacturing, subclass 34 for a glassworking process including sealing off of a gas evacuating opening; subclasses 138+ for electronic envelope header, terminal or stem making by glassworking means; subclasses 152+ for fusion bonding by glassworking means, note especially subclass 153 for means attaching a flare concentrically to an envelope; subclass 154 for bonding a metal part to a glass part of lamp envelope; subclass 155 for glass to glass fusion bonding in an electronic device making apparatus; and subclass 270 for glass envelope tipping off apparatus utilizing glassworking, see the "Search Notes" thereunder.
- 72, Metal Deforming, for disclosure of pertinent deforming operations; and see particularly subclass 66 and 135+ for disclosure of wirecoiling; 253.1+ for disclosure of extruding; and 274+ for disclosure of drawing through an orifice.
- 81, Tools, for miscellaneous handtools of general application, screw drivers, and wrenches and vises, of this class note especially subclass 9.4 for wire strippers for stripping insulation off wire.
- 82, Turning, for miscellaneous apparatus for producing articles by means of cutters brought into engagement with a work piece, either the cutter of the work piece being given a rotary motion so as to produce an article or predetermined section, usually circular.
- 96, Gas Separation: Apparatus, subclasses 95+ and 98+ for electrodes for electrical precipitators.
- 101, Printing, for miscellaneous printing apparatus. Note especially subclasses 3.1+ for machines for producing characters or designs upon surfaces (such as the base of a discharge device or lamp) by dies which deform or remove part of the material and subclasses 35+ for machines for printing upon special articles, such as the envelope or base of a lamp or discharge device.
- 118, Coating Apparatus, for miscellaneous coating apparatus, and especially subclass 47 for apparatus for carbonizing lamp filament coatings, and subclasses 715+ for apparatus for coating by means of a gas or vapor.
- 123, Internal-Combustion Engines, subclasses 153+ for make and break sparkers for internal combustion engines, and subclass 169 for spark plugs for internal combustion engines.
- 140, Wireworking, for miscellaneous apparatus for wireworking including the working of wire by bending or twisting it to form specific articles or fabrics, the applying of wire to articles, and cutting, feeding, straightening, and tensioning wire. Note especially subclass 1 for wire working in combination with means not specific to wireworking such as apparatus for wireworking in combination with means for metal casting, swaging, welding, metal rolling, painting etc. See subclass 71 for miscellaneous apparatus for making articles from wire stock. See subclasses 71.5+ for forming and shaping electrodes and electrodes supports which are made of wire. Subclass 71.5 includes some patents for trimming and/or shaping the lead wire projecting from the stem of a lamp or discharge device. Subclass 71.6 includes machines for holding the stem and applying the wire electrodes to the support wires in the stem where only wireworking operations are involved. Subclasses 111+ provides for wire joining apparatus. Subclasses 147+ provides for wire straightening apparatus. Subclass 149 includes some apparatus for shaping a filament by twisting.

- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 345.1 through 345.55 for differential etching apparatus, and subclass 424, for apparatus for assembling and bonding an electric lamp envelope to its base. Class 156, subclasses 47-56 is also the generic home for processes for making and/or joining or splicing running or indefinite length electrical conductors not elsewhere provided for. Apparatus designed to perform a metal working and a covering operation is in this Class 445.
- 164, Metal Founding, for metal casting apparatus.
- 204, Chemistry: Electrical and Wave Energy, subclasses 194+ for electrolytic apparatus, in general, especially subclasses 280+ for electrodes used in this type of electrolytic apparatus; and subclasses 298.01+ for sputter coating, forming, or etching apparatus. Note, however, that self-baking or Soederberg electrodes, not limited to use in electrolytic apparatus, are classified elsewhere.
- 216, Etching a Substrate: Processes, subclass 11 forming or treating article whose final configuration has a projection for the use of etching in the manufacturing of an electrode.
- 219, Electric Heating, for electric heating and welding apparatus, note especially subclasses 145.1+ for arc welding electrodes.
- 220, Receptacles, subclasses 2.1+, for envelopes, per se, for electric lamps, discharge devices, and similar devices.
- 226, Advancing Material of Indeterminate Length, for methods of and apparatus for feeding material without utilizing the leading or trailing ends to effect movement of the material.
- 228, Metal Fusion Bonding, for joining of work portions by soldering, welding or brazing, note especially subclasses 179.1+ for methods of bonding electrical devices having plural joints, and subclass 903 for a cross-reference art collection for bonding metal to nonmetal.
- 242, Winding, Tensioning, or Guiding, for miscellaneous winding and reeling apparatus, including subclasses 430+ for methods and apparatus for making by winding articles such as electromagnets and coils, etc., or in applying wire or cordage material by winding to armatures, rings, pails, pipes, or other articles.
- 269, Work Holders, for work holders, per se, for use in electric lamp or space discharge device manufacture.
- 310, Electrical Generator or Motor Structure, subclasses 248+ for brushes for electrical motors and generators.
- 313, Electric Lamp and Discharge Devices, subclass 327 for the structure of a self-baking or Soederberg electrode which is formed from a plastic mass during the operation of the device.
- 313, Electric Lamp and Discharge Devices, for electric lamps and electric space discharge devices, including electric incandescent lamps, electric space discharge lamps, electronic tubes, gas or vapor filled discharge tubes, cathode-ray tubes, X-ray tubes, photoemissive discharge tubes and spark plugs. Note especially subclass 11.5 for spark plug type discharge device having temperature modifier, subclasses 402+ for shadow mask, support or shield for CRT, subclass 482 for support for electrode or envelope of CRT, subclasses 118+ for spark plug devices, subclasses 238+ for support and/or spacing structure for electrode and/or shield, and subclasses 326+ for electrodes, filaments and shields for such devices.
- 314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses, for electric space discharge devices of the consumable electrode type (arc lamps etc.).
- 315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses, for special types of electric lamp and electric space discharge device systems.
- 338, Electrical Resistors, for electrical resistors, per se.
- 361, Electricity: Electrical Systems and Devices, subclasses 247+ for electrical igniting systems, and subclasses 600+ for housing and mounting assemblies with plural diverse electrical components.
- 362, Illumination, appropriate subclasses, for means and processes for casting visible radiant energy in at least one direction to render objects in that direction visible.
- 373, Industrial Electric Heating Furnaces, appropriate subclasses, for miscellaneous electrical furnace structures, especially subclasses 2+ and 60+ for arc furnaces, and subclasses 88+ for arc furnace electrodes. Note, however, that self-baking or Soederberg electrodes, not limited to use in arc furnaces, are classified
- 408, Cutting by Use of Rotating Axially Moving Tool, for drilling and boring tools and operations.
- 417, Pumps, for pumps, per se.

- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, appropriate subclasses for electrodes for electrolytic, electrostatic and electric discharge apparatus.
- 427, Coating Processes, subclass 74 for methods of coating to form a photoconductive product which responds to visible, infrared, or ultraviolet illumination by (a) emitting electrons, (b) generating an electromotive force, or (c) varying electrical conductivity.
- 428, Stock Material or Miscellaneous Articles, appropriate subclasses, for a stock material product or blank in the form of a single or plural layer (laminated or coated) web or sheet.
- 429, Chemistry: Electrical Current Producing Apparatus, Product, and Process, subclass 94 for plural concentric or single coiled electrode under the class definition, and subclasses 122+ for elements, subcombinations, and compositions for use in current producing cell and note especially subclass 208 for electrode support for holding an electrode in a battery and subclasses 209+ for various electrode structure and chemical compositions.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for producing CRT or element thereof under the class definition.
- 431, Combustion, subclass 358 for a photoflash bulb of the combustion type.
- 438, Semiconductor Device Manufacturing: Process, subclass 20 for methods of making semiconductor-based electron emitters.
- 439, Electrical Connectors, for electrical connectors, per se. Note especially subclasses 143+ for electrical connectors with anti-inductive shielding means, and subclass 217 for electrical contact or connector secured to insulation.
- 451, Abrading, for grinding or abrading apparatus.

SUBCLASSES

- 1 PROCESS:**
This subclass is indented under the class definition. Method .
- (1) Note. This and the indented subclass include the manufacture of lamps and space discharge devices from any material where no specific class provided for the claim subject matter.

SEE OR SEARCH CLASS:

- 8, Bleaching and Dyeing; Fluid Treatment and Chemical Modification of Textiles and Fibers, subclasses 115.51+ for processes for the chemical modification of textiles and fibers, especially subclasses 116.1+ for such processes for treating vegetable fibers (cotton, bamboo, etc.,) and subclass 128.1 for such processes for treating animal fibers, subclass 140 for methods of carbonizing textiles and fibers by means of fluid treatment and chemical modification.
- 29, Metal Working, appropriate subclasses, for process of manufacturing miscellaneous electrical devices, note especially subclass 2 for battery-grid making, 25.01+ for semiconductor or barrier layer device making, 25.35 for piezoelectric device making, 25.41+ for electric condenser making, and 592.1+ for processes of manufacturing various electric devices. See also subclasses 426.1+ and 428+ for miscellaneous processes of disassembly, and assembly respectively, and subclasses 17.2+ for processes for forming thin sheet metal and metal foil process which includes coating a form and then removing the form to leave an article of thin sheet metal or metal foil.
- 34, Drying and Gas or Vapor Contact With Solids, the subclasses indented under the title "Processes", for miscellaneous methods of treating articles and materials by, (1) separating liquids from the article or the material by drying, (2) the contacting of the article or the material with either or both gases or vapors, note especially subclass 427 for such processes combined with a diverse type process and subclasses 437+ for processes peculiar to hollow articles.
- 53, Package Making, subclasses 403+, for processes of gas filling and/or evacuating packages or receptacles including lamps or electric space discharge devices and closing same.

- 65, Glass Manufacturing, subclasses 17.1+ for miscellaneous process of, (1) making and/or treating a glass product or stock, or (2) re-working and/or treating a glass preform or stock, or (3) such working or treating combined with severing, perforating or abrading of the glass; see especially subclass 34 for glass-working combined with sealing off of a gas evacuating opening and subclasses 26+ for a process of fusion bonding of glass to glass or metal.
- 72, Metal Deforming, subclasses 253.1+, for extruding metal (e.g., electrodes), and 362+ (particularly 364 and 377) for processes thereof which do not involve specified apparatus, 199+ for disclosure of rolling metal, and 274+ for disclosure of drawing wire through an orifice.
- 106, Composition: Coating or Plastic, for miscellaneous coating, impregnating or plastic compositions, excepting those which are limited to use for making filaments, electrodes and shields for electric lamps and electric space discharge devices which are in Class 252 below. Class 106 provides for processes of making compositions within its class definition even though the step of molding, extruding, spinning or sheeting is claimed broadly, also the statement that heat and/or specific pressure are recited will not be enough of itself to take a patent claiming a process of preparing a composition out of Class 106. Class 106, therefore, includes the process of producing articles from plastic materials within the limits set forth above.
- 134, Cleaning and Liquid Contact With Solids, for processes of cleaning or treating various solids (including electrodes and blanks) with liquids, and including the acid treatment of metals in subclass 3, 27, 28, and 41.
- 140, Wireworking, appropriate subclasses, for processes of making articles from wire by wireworking operations. subclasses 71.5+ provides for making or shaping parts of electric space discharge devices, such as grids, filaments or other electrodes by wireworking operations, and methods of attaching such electrodes to their support wires where the method involves only wireworking operations.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, subclass 4 and 8 for methods and subclasses 65+ for apparatus pertaining to the evacuation of and/or filling receivers with gas or vapor including lamps or electric space discharge devices.
- 148, Metal Treatment, appropriate subclasses for process of treating metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition. Note that Class 148, subclasses 240+, provides for the reactive coating of metal wherein an external agent combines with a component of the metal substrate to produce a coating on the metal substrate that contains the component of the metal substrate.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacturing, subclasses 47+ for making electrical conductors of indefinite length under the class definition, and subclasses 60+ for processes of surface bonding and/or assembly under the class definition.
- 174, Electricity: Conductors and Insulators, appropriate subclasses, for electrical conductor and insulators structures, per se, note especially subclasses 17.05+ for hermetically sealed envelope type housings for vacuum or fluids and 50.5+ for hermetically sealed envelope type housings which may include electrical connector or conductor structure or insulator structure.
- 204, Chemistry: Electrical and Wave Energy, subclasses 155+ for chemical preparation of a compound or element by using electrical or wave energy in a magnetic field, subclasses 164+ for chemical preparation of a compound

- or element by using an electrostatic field or electrical discharge and subclasses 192.1+ for coating, forming, or etching by sputtering. Class 204 provides for combined coating operations where only one such coating method is a Class 204 method. Class 204 also provides for some other processes which include a plurality of operations, even if only one of the operations is a Class 204 operation.
- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 67+ for electroforming in which the material deposited to form the article is not intended to remain on the base or form upon which deposition is made, subclasses 80+ for electrolytic coating, subclasses 149+ for coating specified shapes, and other appropriate subclasses for electrolytic etching or treating of articles (e.g., electrodes, etc.). Class 205 provides for combined coating operations where only one such coating method is a Class 205 method. Class 205 also provides for some other processes which include a plurality of operations, even if only one of the operations is a Class 205 operation.
- 219, Electric Heating, subclasses 104+ for methods of inductively heating metal or nonmetal, and subclass 162 for methods of electrically heating metal.
- 252, Compositions, subclasses 500+ for electrically conductive and emissive compositions and devices defined only in terms of their composition. These subclasses in Class 252 provide for the same manufacturing operations as the subclasses in Class 106, relative Class 106 and for other classes which provide for methods of preparing the compositions and devices see the above statement concerning Class 106.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses, for processes of working, molding or shaping miscellaneous plastic materials, per se, or combined with other operations, within the class definition. See the Class 264 definitions for the line between this class (445) and Class 264. Some subclasses in Class 264 which are specific to production of electrical components or devices are 104+, 272.11 and 614+.
- 359, Optics: Systems (Including Communication) and Elements, subclass 900 for a cross-reference art collection of optical methods.
- 362, Illumination, subclasses 257+ for means and processes for casting visible radiant energy in at least one direction to render objects in that direction visible.
- 396, Photography, subclasses 546+ for means and processes for exposing multicolor CRT targets.
- 408, Cutting by Use of Rotating Axially Moving Tool, subclass 1 for processes of boring or drilling under the class definition.
- 419, Powder Metallurgy Processes, appropriate subclasses, for methods of forming various components by powder metallurgy.
- 420, Alloys or Metallic Compositions, appropriate subclasses for metal powder products which are alloys.
- 427, Coating Processes, appropriate subclasses, note especially subclasses 457+ for coating with direct application of electrical, magnetic or wave energy, and 58+ for processes of manufacturing coated electrical products and particularly 106+ and 111+ for coating bulbs and filaments.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition for producing CRT or element thereof.
- 493, Manufacturing Container or Tube From Paper; or Other Manufacturing From a Sheet or Web, appropriate subclasses, for processes of manufacturing electrical components from paper or other sheet or web material.
- 2 **Repairing, converting or salvaging:**
This subclass is indented under subclass 1. Method including (A) restoring or reconditioning an inoperative electric lamp or electric space discharge device to its functional, stable,

or working condition; or (B) altering or modifying an electric lamp or electric space discharge device to produce a lamp or device of substantially different capacity, size, function, or type of operation; or (C) recovering or reclaiming a portion of an electric lamp or electric space discharge device that would otherwise be discarded.

- (1) Note. The methods in this subclass are limited by some claimed subject matter to use in repairing or salvaging a discharge device or lamp and are not merely methods of general utility which are disclosed as being useful in such repair or salvage.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 3+, for methods including testing or adjusting.
 5, for methods including use of electric arc or current for removing an undesired particle, i.e., spot knocking.
 6, for methods including start up, flashing or aging.
 61, for the corresponding apparatus - see the search notes thereunder.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 401.1 for miscellaneous methods of converting, subclasses 402.01+ for miscellaneous methods of repairing, and subclasses 403.1+ for miscellaneous methods including scrap recovery or utilization.
 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 94+ for methods of reclaiming, renewing or repairing articles for reuse by surface bonding techniques.
 164, Metal Founding, subclass 92.1 for methods of repairing or restoring articles for use utilizing liquid metal.
 204, Chemistry: Electrical and Wave Energy, subclasses 192.1+ for coating, forming, or etching by sputtering.
 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, appropriate subclasses for electrolytic processes, including coating and erosion.

- 219, Electric Heating, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, subclasses 764+ for capacitive dielectric heating, and subclasses 50+ for electrical heating of metal. Said heating may be in combination with working, as for example, welding.
 228, Metal Fusion Bonding, subclass 119 for methods of repairing, restoring or renewing product for reuse by metal fusion bonding operations.
 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 36.1+ for methods of repairing or restoring articles for reuse under the class definition, and subclasses 37.1+ for recycling of reclaimed or purified process material under the class definition.
 427, Coating Processes, subclasses 58+ for processes of coating which produce an electrical product, and subclasses 140+ for restoring or repairing by means of coating processes.

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With testing or adjusting:

This subclass is indented under subclass 1. Method including (A) determining or examining the operating or functional characteristics or simulations thereof of an electric lamp or electric space discharge device or a portion thereof or (B) modifying or changing the response of the lamp or device parts or components thereof to given operating parameters until a desired condition is obtained.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 6, for methods including start up, flashing or aging.
 63+, for apparatus having means for testing or adjusting electric lamp or electric space discharge devices - see the search notes thereunder.

SEE OR SEARCH CLASS:

- 29, Metal Working, appropriate subclasses, for miscellaneous methods of manufacturing or assembly various electrical devices, note especially subclass 593 for methods including measuring or testing of an electrical device or component part thereof dur-

- ing manufacturing of the electrical device.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 64, for surface bonding methods including measuring, testing or inspecting.
- 216, Etching a Substrate: Processes, subclasses 59+ and 84+ for processes of etching combined with measuring, testing, or inspecting.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 40.1+ for methods under the class definition including measuring, testing or inspecting.
- 315, Electric Lamp and Discharge Devices: Systems, subclass 364, for systems and methods for testing CRT's. A method of manufacturing which is otherwise classified in Class 445 which includes a testing operation is classified in Class 445.
- 324, Electricity: Measuring and Testing, appropriate subclasses, note especially subclass 121 and 250 for test devices using a CRT's.
- 427, Coating Process, subclasses 8+ for coating methods including measuring, testing or indicating.
- 4 Electrode position sensing or adjusting by optical operation:**
This subclass is indented under subclass 3. Method which include determining or regulating the proper location of electric terminals by means of light, ultraviolet or infrared electromagnets radiation.
- (1) Note. Most of the methods in this subclass are directed to the method of positioning the filament of a lamp with respect to the base so as to make a pre-focused lamp.
- (2) Note. This class provides for all methods for positioning the electrodes in which the position of the electrodes is determined by the use of optical means even though another class may provide for the particular method used to assemble the electrodes. For example, processes for joining two preforms by a molding step are in Class 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, by a laminating step in Class 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, but such processes when optical means are used to position the filament with respect to the base, are in this class.
- 5 Including use of electric arc or current for removing an undesired particle, i.e., spot knocking:**
This subclass is indented under subclass 1. Method wherein an electromagnetic discharge or electron flow is employed to eliminate unwanted minutiae.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
64, for the corresponding apparatus - see the search notes thereunder.
- SEE OR SEARCH CLASS:
29, Metal Working, appropriate subclasses, for miscellaneous methods of assembly, note especially subclasses 592.1+ for method of making miscellaneous electrical devices.
356, Optics: Measuring and Testing, subclass 123 for methods relating to adjustment of the focal position of a light filament with respect to generally a reflector or a lens.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:
2, for methods of repairing, converting or salvaging.
- SEE OR SEARCH CLASS:
204, Chemistry: Electrical and Wave Energy, subclasses 155+ for chemical preparation of a compound or element by using electrical or wave energy in a magnetic field.
205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 640+ for electrolytic erosion to change the shape or surface configuration of a workpiece (e.g., etching, polishing, etc.).
219, Electric Heating, subclasses 69.1+ for cutting or disintegrating utilizing an electric arc.

6 With start, flashing, or aging:

This subclass is indented under subclass 1. Method wherein an electric lamp or electric space discharge device is (A) treated by initially subjecting to similar forces and environment substantially duplicating those encountered under real operating conditions or (B) treated for sensitizing or stabilizing purposes which treatment is not provided for in any other class.

- (1) Note. For other classes which provide for processes of aging and/or sensitizing an electrode for an electric space discharge device, search Class 148, Metal Treatment, appropriate subclasses, for processes for treating metal electrodes. Class 445 provides only for such metal treatment to age or sensitize electrodes as is not provided for in Class 148. Note especially subclasses 559+ and 625+ which provide for heat treatment metal electrodes containing an electron emissive material, either to bring the electron emissive material to the surface of the electrode or to convert the material into a different form (i.e., reducing ThO₂ content of the electrode to thorium).

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 3, for methods including testing or adjusting.
 22, for combined operations within the class definition.
 62, for apparatus having means for simulating real operating conditions and environment.
 64, for combined apparatus within the class definition.

7 Spark plug of spark gap making:

This subclass is indented under subclass 1. Method for manufacturing or fabricating a device generally for use in cylinder of an internal combustion engine, which device has a pair of electrodes between which an electric discharge is passed usually to ignite an explosive mixture of fuel.

- (1) Note. This subclass also includes the manufacture, fabrication, or production of devices which are of similar structure

but intended for use in diverse applications. It does not include the manufacture of devices where the spark is made by moving the electrodes into contact and then separating them to draw the spark. Also excluded is the manufacture of single electrode structures which are designed to be used with some other device so as to form a jump spark therewith.

SEE OR SEARCH CLASS:

- 123, Internal-Combustion Engines, subclasses 153+ for making and break type sparkers in a combustion with an internal combustion engine or engine accessory, and subclass 169, for spark plugs in combination with an internal combustion engine or engine accessory.
 313, Electric Lamp and Discharge Devices, subclasses 118+ for spark plugs or spark gaps, per se.

8 Implosion protecting:

This subclass is indented under subclass 1. Method to provide the electric lamp or electric space discharge device with special features or means to safeguard against or to prevent inward collapse or bursting of an evacuated hermetically sealed vessel.

SEE OR SEARCH CLASS:

- 313, Electric Lamp and Discharge Devices, appropriate subclasses, note especially subclasses 477+ for CRT envelopes, per se, and subclass 634 for envelopes containing gas or vapor having particular envelope structure.
 314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses.

9 Generating gas or vapor within an envelope, or coating by vapor, gas, mist or smoke within the envelope:

This subclass is indented under subclass 1. Method which includes (1) producing or creating a gaseous material or aerosol within the enclosure of the electric lamp or electric space discharge device by treating a normally non-gaseous material within the enclosure, or (2) producing or creating a deposition layer on some part of the electric space discharge by the

absorption or condensation of a gaseous material or aerosol, or by the reaction of a base or deposition ingredient with a gaseous material or aerosol.

- (1) Note. Original placement within this subclass requires that the gaseous material or aerosol must be within the enclosure of the lamp or discharge device and deposition operation must include some operation peculiar to the manufacture of electric lamps or electric space discharge devices so that the process is not of general utility.
- (2) Note. Methods which include introducing a material which is in the gaseous or vapor state prior to its introduction in the envelope and which do not involve forming a coating from the gas or vapor material are excluded from these subclasses.
- (3) Note. The coating applied to the part of the lamp or discharge device need not serve any useful function as a coating, but may be merely a procedure adapted to eliminate the vapor from the interior of the envelope of the lamp or discharge device, or the vaporizing and subsequent deposition may be for procuring the material in a vaporized state so that it will be an active getter.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 22, for other methods of coating a part of a lamp or discharge device combined with a Class 445 operation other than coating.
- 38+, for methods of assembly or disassembly including gas, vapor or liquid introduction.
- 53+, for methods including getter or fluent material introduction.
- 73, for corresponding apparatus.

SEE OR SEARCH CLASS:

- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, appropriate subclasses, for methods directed to the production of

metals where a gas or vapor is generated containing the metal, the gas or vapor being treated so as to yield the metal.

- 148, Metal Treatment, subclasses 240+ for processes of reactively coating a metal substrate wherein an external agent combines with a component of the metal substrate to produce a coating on the metal substrate that contains a component of the metal substrate.
- 204, Chemistry: Electrical and Wave Energy, subclasses 192.1+ for coating, forming, or etching by sputtering. See the (3) Note in the Class 445 definition for an explanation of the general class line between Class 445 and other classes.
- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, appropriate subclasses for electrolytic processes. See the (3) Note in the Class 445 definition for an explanation of the general class line between Class 445 and other classes.
- 252, Compositions, subclasses 181.1+ for getter materials and gas or vapor generating materials for electric lamps and electric space discharge devices and the classes specified in the notes to the definitions of those subclasses.
- 313, Electric Lamp and Discharge Devices, appropriate subclasses, for lamp and discharge device structure whether prior to the use of the getter or vapor generating material (e.g., incompletely manufactured) or subsequent to the use of the material. subclasses 549+ provides for lamps and discharge devices provided with a getter or gas or vapor generating material.
- 417, Pumps, subclasses 48+ for electrical or getter type devices.
- 427, Coating Processes, subclasses 58+ for processes of coating, per se, to form an electrical product and note especially subclasses 77+ for processes wherein the coating is electron emissive or suppressive and applied by vapor deposition; and subclass 237, for coating the interior of a hollow article by vapor, gas, mist or smoke.

10 Controlled vaporizing or coating:

This subclass is indented under subclass 9. Method which includes (1) regulating the amount of gaseous material or aerosol produced or created or (2) regulating the amount of material in the deposition layer or coating.

- (1) Note. This Subclass does not include methods where a predetermined amount of material is introduced into the envelope and this material is then used to generate as much gas or vapor as it is capable of generating in order to obtain a predetermined amount of gas or vapor within the envelope.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 14, for such methods where the coating is deposited in a particular place or on a particular base material or part.
53+, for other methods of introducing a limited amount of gas or vapor into the envelope of a lamp or discharge device.

11 Depositing plural coatings:

This subclass is indented under subclass 9. Method which includes producing or creating a plurality of deposition layers or coating on some part of the lamp or discharge device by a plurality of absorption, condensation or reaction operations.

- (1) Note. Merely producing a coating upon two or more parts of the lamp or discharge device such as upon two different electrodes, where only a single coating operation is involved is not within the definition of this subclass.
- (2) Note. The coatings produced in this subclass may be superposed or upon separate parts of the lamp or discharge device.
- (3) Note. The coating may be of the same material applied separately or of different materials.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 12, for plural coating processes where one coating is produced by a vapor, gas, mist, or smoke, and one is produced by some other operation.

SEE OR SEARCH CLASS:

- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 183+, 188+, 191+, and 198+, for electrolytic coating methods combined with other types of coating operations.
- 313, Electric Lamp and Discharge Device, subclasses 553+ for electric lamps and electric space discharge devices which are provided with a plurality of different getters and/or gas or vapor generating means.
- 427, Coating Processes, subclasses 58+ for coating, per se, wherein the coated product has electrical utility, and subclasses 402+ for methods of applying superposed diverse coating or coating a coated base.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 311+ for methods under the class definition of making electrical devices having nonplanar or printing surfaces.

12 With diverse type coating operation:

This subclass is indented under subclass 9. Method combined with a deposition operation other than produced by gaseous material or aerosol.

- (1) Note. This subclass includes methods where the gas or vapor generated is not utilized to form a coating.
- (2) Note. The coating applied by the methods in this subclass does not need to be applied to the same base as the base coated by the vapor, gas, mist, or smoke.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 11, for methods of depositing plural coating - see the search notes thereunder.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 240+, for methods of reactively coating solid metal employing a gaseous or vaporous reactant material.

13 With subsequent treatment of the coating:

This subclass is indented under subclass 9. Method wherein the deposition layer or coating is subjected to a further processing or conditioning operation.

- (1) Note. This subclass includes methods where the coating material is deposited at one place within the envelope of the lamp or discharge device and then revaporized to deposit the material as a coating at another place.
- (2) Note. This subclass includes mere heating of the coating after it has been deposited.

SEE OR SEARCH THIS CLASS, SUBCLASS:

11, where the subsequent treatment includes depositing another coating upon the first coating by means of vapor, gas, mist, or smoke.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 220+ for electrolytical coating methods in combination with subsequent treatment of the coating.

427, Coating Processes, subclasses 58+ for coating processes, per se, wherein the coated product has electrical utility, and subclasses 331+ for methods with post-treatment of the coating or the coating material.

14 Coating on particular base material, part or place:

This subclass is indented under subclass 9. Method wherein the deposition layer or coating is produced upon a specific component, location, or composition of matter.

- (1) Note. This subclass gettering where the getter is condensed in a particular place.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 240+ for processes of reactively coating a metal substrate wherein an external agent combines with a component of the metal substrate to produce a coating on the metal substrate that contains a component of the metal substrate.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for electrolytic coating, and subclasses 118+ for coating selected areas.

313, Electric Lamp and Discharge Devices, subclasses 558+ for electric lamps and electric space discharge devices which are provided with a getter or a gas or vapor generating means and which are provided with means for causing the deposit or coating from the gas, vapor, mist or smoke generated when the getter or gas or vapor generating material is vaporized to deposit in a particular place within the device.

427, Coating Processes, subclasses 58+ for coating processes, per se, wherein the coated product has electrical utility, and subclasses 256+ for coating processes, per se, which produce nonuniform coating.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 311+ for methods under the class definition of making electrical devices having nonplanar or printing surfaces.

15 Plural gas or vapor generating operations:

This subclass is indented under subclass 9. Method which involves a plurality of gaseous material or aerosol production or creation sequences.

SEE OR SEARCH THIS CLASS, SUBCLASS:

11, for this subject material where the generated gas or vapor is utilized to deposit a plurality of coatings - see the search note thereunder.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 255.23+ for coating methods, per se, utilizing a mixture of vapors, gases or smoke.

16**With gas introduction:**

This subclass is indented under subclass 9. Method in combination with the operation of bringing or producing from an outside source gaseous material into the enclosure of the lamp or discharge device.

SEE OR SEARCH CLASS:

53, Package Making, for methods including introducing gas, vapor or liquid into a portable receptacle. An electric lamp and an electric space discharge device are deemed to be encompassed by the term "portable receptacle" when there are no claimed limitations restricting the method or apparatus to the manufacture and/or repair of Class 445 devices, e.g., (1) limitation to electrode heating or assembly of components other than an envelope closure would require classification in this class (445) while mere heating of an envelope during evacuating would not require exclusion from Class 53; (2) methods and apparatus for such methods, which include performing a chemical reaction to eliminate gas or vapor by reacting the gas or vapor with some chemical to form a nonvolatile compound; or which include performing a chemical reaction to generate gas or vapor - whether the reaction is performed outside of or within the envelope when the method or apparatus is directed to use in manufacturing a lamp or discharge device are excluded from Class 53 and classified in this class. See especially subclasses 403+ for processes of gas filling and/or evacuating combined with closing and subclasses 79+ for equivalent apparatus.

141, Fluent Material Handling, With Receiver or Receiver Coating Means, subclasses 4+ for methods and subclasses 65+ for apparatus pertaining to the evacuation of and/or

filling receivers with gas or vapor including lamps or electric space discharge devices.

17**With precedent or subsequent heating of tube or electrode:**

This subclass is indented under subclass 9. Method including thermally warming the envelope or the conductor structure of the lamp or discharge device prior to the coating or gas generating operation or following the gas generating operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

13, where the method includes forming a coating from a vapor, gas, smoke or mist, and then subsequently treating the deposited coating by heating it.
19, where the method includes electromagnetic induction heating.
20, where the method includes filament heating.

SEE OR SEARCH CLASS:

427, Coating Processes, subclasses 314+ for coating methods, per se, with heating pretreatment of the base, and subclasses 372.2+ for coating methods, per se, with heating post-treatment of coating or coating material.

18**Including establishing an electric space discharge:**

This subclass is indented under subclass 9. Method which includes setting up or producing an electric arc or current flow between electrodes of the lamp or discharge device.

(1) Note. The discharge may be established between the discharge electrodes where the device being treated is a discharge device, or between any members of the device between which a discharge can be established.

(2) Note. The discharge may be established for the purpose of heating or treating the gas or vapor generating material, or may be established for other purposes.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

72, for apparatus under the class definition including means to establish an electric space discharge.

SEE OR SEARCH CLASS:

148, Metal Treatment, for processes of treating metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition. Use of electrical heating does not negate Class 148 placement, if the other criteria for Class 148 are met.

204, Chemistry: Electrical and Wave Energy, subclasses 164+ for chemical preparation of a compound or element by using an electrostatic field or electrical discharge and subclasses 192.1+ for coating, forming, or etching by sputtering.

219, Electric Heating, subclasses 121.11+ for methods of metal heating by means of an electric discharge.

427, Coating Processes, subclass 580 for coating methods, per se, utilizing direct application of an electric discharge.

19 **Electromagnetic induction heating:**

This subclass is indented under subclass 9. Method which includes heating a part of the lamp or discharge device by placing the lamp or discharge device in an electromagnetic field so as to induce current flow in the part to be heated, the heat being generated by the induced current.

SEE OR SEARCH CLASS:

148, Metal Treatment, subclasses 240+ for processes of reactively coating a metal substrate wherein an external agent combines with a component of the metal substrate to produce a coating on the metal substrate that contains a component of the metal substrate.

204, Chemistry: Electrical and Wave Energy, subclasses 155+ for chemical preparation of a compound or element by using electrical or wave energy in a magnetic field.

219, Electric Heating, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, and subclasses 764+ for capacitive dielectric heating.

427, Coating Processes, subclass 591 for coating methods, per se, utilizing direct application of induction or dielectric heating.

20 **Filament heating:**

This subclass is indented under subclass 9. Method which includes supplying current to the conducting cathode, anode or grid structure of the lamp or discharge device so as to cause thermally warming.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclass 549 for electric lamps and electric space discharge devices which are provided with a getter or a gas or vapor generating material and which have combined therewith means for heating the getter or the gas or vapor generating material.

21 **Generating gas or vapor from reactive composition containing a reducing agent:**

This subclass is indented under subclass 9. Method wherein gaseous material or an aerosol is produced by or from a mixture containing two substance, one substance being a reducing agent with respect to the other, the other substance releasing a gaseous material or aerosol when acted upon by the reducing agent.

SEE OR SEARCH CLASS:

252, Composition, subclasses 181.3+ for the compositions which are used in this method.

22 **Combined, e.g., with shaping of lamp or device envelope:**

This subclass is indented under subclass 1. Method which includes a step which is, per se, (1) not provided for in this class and which (2) performs a function other than that utilized to perfect an operation provided for in this class.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 592+ for processes of making metallic articles and processes of working metal not classified in specific classes. Subclasses 592+ are not limited to metal working operations, and nonmetal working operations are included in combination with a metal working operation. Also note subclasses 592.1+ for miscellaneous processes for making electrical devices which include a metal working operation. Subclasses 874+ provides for processes for making contacts and terminals for electric lamps, electric space discharge devices and other electrical devices.
- 34, Drying and Gas or Vapor Contact With Solids, subclass 427, for contacting of the article or the material with either or both gases or vapors combined with a diverse type process.
- 65, Glass Manufacturing, subclasses 17.1+, for appropriate process subclasses limited to glass shaping or reshaping, or fusion bonding of glass to a formed part.
- 144, Woodworking, for a woodworking process involving an operation other than woodworking in addition to the woodworking operation where no specific class provides for the combined operations.
- 148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition.
- 164, Metal Founding, subclass 76.1, for metal casting processes combined with a diverse nonperfecting operation.
- 204, Chemistry: Electrical and Wave Energy, appropriate subclasses for electrical or wave energy processes

provided for by the Class 204 definition.

- 219, Electric Heating, subclasses 50+ for electric heating of metal, per se.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 238, for methods of plastic molding, shaping, or working combined with a diverse operation.
- 315, Electric Lamp and Discharge Devices: Systems, subclasses 178+ for plural diverse type load devices.
- 427, Coating Processes, subclass 401 for coating processes combined with a diverse nonperfecting operation.

23

With assembly or disassembly:

This subclass is indented under subclass 1. Method in which a plurality of self-sustaining preforms are associated, disassociated, juxtaposed, put together or removed, with or without securing, in a nontransitory arrangement.

- (1) Note. Merely stacking, moving or otherwise arranging preforms to effect or facilitate transportation, per se, is not considered an assembly operation.
- (2) Note. Association or disassociation with a tool, work holder, or transitory attached material, none of which constitute part of the finished product, is not considered assembly or disassembly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 66+, for apparatus having assembly or disassembly means.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 2 for battery grid making, subclasses 592.1+ for methods of manufacturing miscellaneous electrical devices, subclasses 426.1+ for miscellaneous methods of disassembly, and subclasses 428+ for miscellaneous methods of assembly.
- 140, Wireworking, subclasses 111+ for method of joining wire, per se.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 47+ for making electrical conductors of indefinite length, and sub-

- classes 60+ for methods of surface bonding and/or assembly therefor.
- 164, Metal Founding, subclasses 91+ for methods of composite article forming under the class definition.
- 228, Metal Fusion Bonding, subclasses 101+ for a method under the class definition, especially subclasses 179.1+ for a method of metallurgically bonding plural joints of an electrical device.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 241+ for methods of mechanically shaping or molding to produce composite, plural part or multilayered article.
- 419, Powder Metallurgy Processes, appropriate subclasses, for methods of powder metallurgy.
- 24 Display or gas panel making:**
This subclass is indented under subclass 23. Method which produces or manufactures a device which is intended to exhibit a visual readout or message.
- (1) Note. Many display panels are filled with gaseous media, however a display panel can be another Class 445 type device such as a liquid crystal display device.
- (2) Note. Merely indicating a single binary message, e.g., on/off, go/no go, is not considered to warrant placement in this subclass.
- SEE OR SEARCH CLASS:
- 29, Metal Working, subclasses 592.1+ for processes of manufacturing miscellaneous electrical devices, which employ electrically activated light valve means to block or change the path of pre-existing light.
- 313, Electric Lamp and Discharge Devices, subclasses 513+ for electric lamp and discharge devices with character display.
- 359, Optics: Systems (Including Communication) and Elements, subclasses 26+ and 245+ for display devices, per se, employing electrically activated light valve structure.
- 25 With sealing:**
This subclass is indented under subclass 24. Method which includes closing and making secure against leakage an enclosure of the display or gas panel.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 43, for assembly or disassembly methods with particular sealing which methods include evacuation, degasification or gas, vapor or liquid introduction - see the search notes thereunder.
- 44, for methods of hermetically assembling plural parts.
- SEE OR SEARCH CLASS:
- 277, Seal for a Joint or Juncture, for a generic sealing means or process, subclasses 628+ for a static contact seal for other than an internal combustion engine, or a pipe, conduit, or cable.
- 26 Arc tube making, e.g., fluorescent lamp:**
This subclass is indented under subclass 23. Method for fabricating or manufacturing a lamp or device which produces light by means of electric current flow or discharge through ionized gas between two electrodes.
- SEE OR SEARCH CLASS:
- 313, Electric Lamp and Discharge Devices, subclasses 483+ for electric lamp or discharge device with luminescent solid or liquid material.
- 27 Incandescent lamp making:**
This subclass is indented under subclass 23. Method for fabricating or manufacturing a device that produces light when a filament is heating in a vacuum or inert atmosphere by passing an electric current through the filament.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
- 28, for methods of manufacturing flash lamp, X-ray or laser.
- 29+, for methods including electrode or getter mounting.
- 35+, for methods of assembly or disassembly including electrode making.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, appropriate subclass 315 for incandescent lamps, per se, subclasses 578+ for incandescent lamps having envelope with gas or vapor.

28 Flash lamp, X-ray tube or laser making:

This subclass is indented under subclass 23. Method for fabricating or manufacturing a device that, (1) produces bursts of light of short duration and high intensity such as are used for photography, or (2) produces a penetrating electromagnetic radiation known as roentgen rays such as by accelerating electrons to high velocity and suddenly stopping them by collision with a solid target or body, or (3) produces a narrow beam of coherent, powerful and nearly monochromatic electromagnetic radiation using the laser principle of light amplifications by stimulated emission of radiation, i.e., LASER.

SEE OR SEARCH CLASS:

372, Coherent Light Generators, appropriate subclasses for laser devices, per se.
 378, X-Ray or Gamma Ray Systems or Devices, subclasses 119+ for X-ray tubes, per se.
 431, Combustion, subclasses 358+ for a fuel charge within sealed transparent casing, e.g., bulb.

29 Including electrode or getter mounting:

This subclass is indented under subclass 23. Method which includes the operation of placing or securing in final position (1) an electrical conductor through which an electric current enters or leaves a vacuum or a fluent medium or which is designed to produce light by incandescent or (2) a degasser or substance that absorbs, or otherwise binds up undesired gases or aerosols, which degasser or substance is used in a vacuum or atmosphere therein.

SEE OR SEARCH THIS CLASS, SUBCLASS:

4, for methods including electrode positioning by optical operation.
 35+, for methods including assembly or disassembly which includes electrode making.

46+, for other methods of making electrodes.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 825+ for mechanical manufacturing methods for making an electrical conductor or circuit including assembly operations.
 313, Electric Lamp and Discharge Devices, subclasses 238+ for support and/or spacing structure for electrode and/or shield structure, per se.

30 CRT mask mounting:

This subclass is indented under subclass 29. Method including attaching or manipulating a perforated panel or equivalent arrangement located adjacent the screen of a cathode ray tube to delineate the path of various electron or light beams within the tube as in a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

37, for methods of assembly including CRT mask making.
 47, for other methods of making a CRT mask.
 68, for apparatus having means for CRT mask manipulation.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 402+ for CRT shadow mask, support or shield, for the devices, per se.
 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition for making a CRT or components thereof.

31 Getter mounting:

This subclass is indented under subclass 29. Method including mounting a degasser or substance that absorbs, adsorbs or otherwise binds up undesired gases or aerosols, which degasser or substance is used in a vacuum tube to maintain the desired vacuum or atmosphere therein.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 238+ for support and/or spacing structure for electrode and/or

shield structure of lamp or discharge devices.

417, Pumps, subclasses 48+ for electrical or getter type pump, per se.

32 Incandescent filament mounting:

This subclass is indented under subclass 29. Method wherein an electrical conductor or electrode which generates light by emission when the electrode under intense heat becomes glowing or luminous is mounted.

SEE OR SEARCH THIS CLASS, SUBCLASS:

27, for methods including assembly which manufacture an incandescent lamp.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 271+ for support or spacing structure for filaments.

33 Plural electrode mounting:

This subclass is indented under subclass 29. Method wherein two or more conductors or electrode are mounted or secured in final position.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 243+ for support or spacing structure for plural electrodes of a discharge device.

34 CRT grid or cathode gun:

This subclass is indented under subclass 33. Method wherein the mounted plural electrodes are part of the internal conducting structure, which emits and/or controls an electron beam in a cathode-ray tube such as a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

36+, for methods of assembly including electrode making.
46+, for other methods of making electrodes under the class definition.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 441+ for ray generating or control structure for CRT's.

35 Electrode making:

This subclass is indented under subclass 23. Method for fabricating or manufacturing an electrical conductor through which an electric current enters or leaves a vacuum or fluent.

(1) Note. For original placement of a patent within this subclass it is not necessary that the electrode structure itself be produced by an assembly step provided that an assembly step is claimed in the fabrication or manufacture of the lamp or discharge device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

29+, for methods of mounting electrodes.
46+, for methods of making electrodes without any assembly operation.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 326+ for electrode and shield structures.

36 CRT type:

This subclass is indented under subclass 35. Methods wherein the electrode or the electrical conductor fabricated or manufacture is similar to or identical with those in a cathode-ray tube such as a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

30, for methods of CRT mask mounting.
34, for methods of mounting plural electrodes including CRT grid or cathode gun.
46+, for methods of making CRT electrode which do not include any assembly operation.

SEE OR SEARCH CLASS:

313, Electric Lamp and Discharge Devices, subclasses 458+ for ray generating or control means including CRT electrode.
427, Coating Processes, subclasses 64+ for methods of producing fluorescent or phosphorescent CRT screen coating.

430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition for making a CRT or element thereof.

37 CRT mask making:

This subclass is indented under subclass 36. Method wherein the fabricated or manufactured electrode is a perforated panel or equivalent panel or equivalent arrangement located adjacent the screen of a cathode-ray tube to delineate the path of various electron or light beams within the tube as in a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

30, for methods of CRT mask mounting.
47, for methods of making CRT masks which do not include assembly operations, which include at least one Class 445 type operation.
68, for apparatus with assembly or disassembly means for CRT mask manipulation.

SEE OR SEARCH CLASS:

313, Electrical Lamp and Discharge Devices, subclasses 402+ for CRT shadow mask, support or shield, for the devices, per se.
430, Radiation Imagery Chemistry: Process, Composition, of Product Thereof, subclasses 23+ for processes under the class definition for making a CRT or component thereof.

38 Including evacuating, degasifying or gas, vapor, liquid or meltable or sublimable solid introduction:

This subclass is indented under subclass 23. Methods which includes (1) applying gaseous material, aerosol, or liquid within an enclosure of an electric lamp or electric space discharge device; (2) removing, absorbing or adsorbing gaseous material, occluded gaseous material, or aerosol from within an enclosure of the lamp or device, or (3) inserting into an enclosure a solid material intended to be vaporized or liquified.

(1) Note. Where the envelope is evacuated after a gas or vapor has been introduced

into the envelope, the patent is classified in the indented subclasses.

(2) Note. Merely introducing solid material into the lamp or device enclosure is not, per se, an assembly operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

9+, for this subject matter where the evacuating operation includes generating a gas or vapor within the envelope of the lamp or discharge device which acts as a getter.
53+, for methods of evacuating, degasifying or introducing getter or fluent material which methods do not include any assembly or disassembly operations.
70, for the corresponding apparatus.

SEE OR SEARCH CLASS:

423, Chemistry of Inorganic Compounds, subclasses 210+ for methods under the class definition for modifying or removing components of normally gaseous mixture.

39 With cooling, e.g., to condense:

This subclass is indented under subclass 38. Method for removing thermal energy from within the enclosure of the lamp or device.

(1) Note. Merely providing a time delay for allowing passive cooling, i.e., normal heat flow across an unchanged thermal gradient; is not considered sufficient for inclusion in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

54, for similar subject matter which does not include any assembly or disassembly operation.

SEE OR SEARCH CLASS:

62, Refrigeration, subclasses 56+ for general cooling processes, per se.

40 With heating, e.g., to outgas:

This subclass is indented under subclass 38. Method for supplying or increasing thermal energy within the enclosure of the lamp or device.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

57, for similar subject matter which does not include any assembly or disassembly operation.

SEE OR SEARCH CLASS:

148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal including metal electrodes to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition. Use of electric heating does not negate placement in Class 148, if the other criteria of Class 148 are met.

219, Electric Heating, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, subclasses 764+ for capacitive dielectric heating, and subclass 162 for methods of electrically heating metal.

264, Plastic and Nonmetallic Article Shaping or Treating: Process, subclasses 345+ for methods of treating a shaped or solid nonmetallic article by means of a temperature change.

432, Heating, subclasses 9+ for processes of heating to treat an article, container, or body as an unit.

41 By gettering:

This subclass is indented under subclass 38. Method which includes introducing a chemical material such as a solid or vapor to absorb, adsorb or chemically tie up undesired materials such as gases within the sealed enclosure of the lamp or device.

(1) Note. Gettering includes using materials which, when placed in the envelope, reduce the gas or vapor pressure in any manner, even though the theory of operation is not known. Gettering, therefore, includes using a reactive material which will chemically combine with the gas or vapor to form a nonvolatile compound, or to form a compound of lower vapor

pressure or ionic activity. One gas may therefore be a getter for another gas. Gettering also include using materials, such as charcoal, with adsorb and absorb the gases or vapors.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

9+, for methods of gettering which include generating a gas or vapor from a normally nongaseous and non-vaporous material in the envelope, the generated gas or vapor being active as a getter. Flashing magnesium is the subclasses 9+.

55, for similar subject matter which does not include any assembly or disassembly operation.

SEE OR SEARCH CLASS:

252, Compositions, for miscellaneous chemical compositions, note especially subclasses 181.11+, for getter compositions. Note also subclasses 182.11+ for chemical agents or materials.

313, Electric Lamp and Discharge Devices, subclasses 174+ for electric lamps and electric space discharge devices which are provided with a getter. Class 313 provides for such devices with a getter whether claimed prior to the use of the getter (incompletely manufactured) or subsequent to such use.

417, Pumps, subclasses 48+ for electrical or getter type devices.

420, Alloys or Metallic Compositions, appropriate subclasses for metal powder products which are alloys.

423, Chemistry of Inorganic Compounds, appropriate subclasses, for inorganic compounds and nonmetallic elements which may be useful in gettering. Also note subclasses 210+ for modifying or removing gaseous material.

502, Catalyst, Solid Sorbent, or Support Therefor: Product or Process of Making, for a composition comprising a catalyst or support therefor or sorbent of general utility.

42 With subsequent evacuation:

This subclass is indented under subclass 38. Method which includes a following step of establishing a partial vacuum by physically removing a portion or all of the gaseous materials or aerosols from within the enclosure of the lamp or device.

- (1) Note. The gas or vapor need not be completely evacuated from the envelope of the lamp or discharge device, but the evacuation may be stopped when the desired pressure in the envelope is obtained.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 56, for similar subject matter which does not include any assembly or disassembly operations.

SEE OR SEARCH CLASS:

- 53, Package Making, subclasses 403+ for methods of gas filling and/or evacuating of receptacles combined with closing, and see (3) Note and the reference to Class 53 under "SEARCH CLASS" in the class definition of this class (445) for the line.
- 141, Fluent Material Handling, With Receiver or Receiver Coating Means, subclass 4, 8 and 65+ for methods of and apparatus for gas filling and/or evacuating of receptacles.

43 With particular sealing:

This subclass is indented under subclass 38. Method wherein significance is attributed to the sealing operation such as by the use of specific materials for closing and making secure against leakage the enclosure of the lamp or discharge device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 22, for combined method under the class definition, e.g., with shaping of lamp or device envelope.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 422 for miscellaneous methods of shaping a container end to encapsulate material.

- 53, Package Making, subclasses 403+ for methods of gas filling and/or evacuating of receptacles combined with closing, and see (3) Note and the reference to Class 53 under "SEARCH CLASS" in the class definition of this class (445) for the line.

- 65, Glass Manufacturing, subclass 34 for a glassworking process including sealing off of a gas evacuating opening.

- 174, Electricity: Conductors and Insulators, subclasses 50.61+ for housings with bonded seal for conductive member.

- 228, Metal Fusion Bonding, subclass 60 for closing metal tube ends by metal fusion operations, e.g., soldering.

44 Hermetically assembling plural parts:

This subclass is indented under subclass 23. Method for sealing together two or more parts to form an airtight enclosure or receptacle.

SEE OR SEARCH CLASS:

- 65, Glass Manufacturing, subclasses 36+ for processes of fusion bonding glass to a formed part.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 60+ for processes of adhesive or chemical bonding together plural parts.
- 174, Electricity: Conductors and Insulators, subclasses 17.05+ for fluid or vacuum housings of the hermetic sealed envelope type.
- 228, Metal Fusion Bonding, subclasses 101+ for processes of metallurgically bonding together plural parts.
- 285, Pipe Joints or Couplings, subclasses 238+ for nonmetal to metal joints or couplings, and subclasses 328+ for particular interface of joints or couplings.

45 CRT:

This subclass is indented under subclass 44. Method for producing a cathode-ray type tube such as a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 30, for methods of CRT mask mounting.

- 34, for methods of mounting plural CRT grids or cathode guns.
- 36, for methods of assembly or disassembly including making CRT type electrodes.

SEE OR SEARCH CLASS:

- 313, Electric Lamp and Discharge Devices, subclasses 364+ for CRT structures and components, per se.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition for producing CRT or element thereof.

46 Electrode making:

This subclass is indented under subclass 1. Method for fabricating or manufacturing an electrical conductor through which an electric current enters or leaves a vacuum or a fluent media.

- (1) Note. For original placement within this subclass it is not only necessary that the electrode structure itself be produced without any recited assembly or disassembly operation but also that no other fabrication or manufacture of the product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 35+, for method of making electrodes, which methods include at least one assembly or disassembly operation.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 874+ for miscellaneous methods of manufacturing electrical contacts or terminals.
- 216, Etching a Substrate: Processes, subclass 11 for chemical etching processes for making an article whose final configuration has a projection, and subclasses 59+ and 84+ for processes of etching combined with measuring, testing, or inspecting.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 29.2 for methods of carbonizing a nonmetallic material to form a filament.

- 313, Electrical Lamp and Discharge Devices, subclasses 326+ for electrode and shield structure of electric lamp and discharge devices.

- 427, Coating Processes, subclass 74 for methods of coating to form a photoconductive product which responds to visible, infrared, or ultraviolet illumination by (a) emitting electrons, (b) generating an electromotive force, or (c) varying electrical conductivity and subclasses 111+ for coating methods of producing a filament for lamp or tube.

- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 311+ for methods under the class definition of making electrical devices having nonplanar or printing surface.

- 438, Semiconductor Device Manufacturing: Process, subclass 20 for methods of making semiconductor-based electron emitters.

47 Multi-apertured panel making, e.g., CRT mask:

This subclass is indented under subclass 46. Method wherein the fabricated or manufactured electrode is a panel having lateral dimensions much larger than its thickness and which is provided with an array of perforations or equivalent arrangement such as that located adjacent the screen of a cathode-ray tube to delineate the path of various electron or light beams within the tube as in a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 37, for method including an assembly or disassembly step wherein a CRT mask is made - see the search notes thereunder.

SEE OR SEARCH CLASS:

- 216, Etching a Substrate: Processes, subclass 56 involving etching to produce porous or perforated article.
- 427, Coating Processes, subclasses 58+ for coating methods of making an electrical product.

48 Incandescent filament making:
This subclass is indented under subclass 46. Method for fabricating or manufacturing a device that produces light when a filament is heated in a vacuum or inert atmosphere by passing an electric current through the filament.

SEE OR SEARCH THIS CLASS, SUBCLASS:

27, for methods including assembly which make incandescent lamps.

SEE OR SEARCH CLASS:

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclass 29.2 for methods of carbonizing a nonmetallic material to form a filament.

313, Electric Lamp and Discharge Devices, subclasses 326+ for electrode and shield structures of electric lamp and discharge devices.

427, Coating Processes, subclasses 111+ for coating methods of producing a filament for lamp or tube.

49 Electrode shaping:
This subclass is indented under subclass 46. Method for fabricating or manufacturing a configured electrode by means of non-assembly steps which significantly alter the physical structure of the stock material of the electrode.

(1) Note. The shaping may be by cutting, machining, etching, or plastic deforming.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 874+ for miscellaneous methods of manufacturing contacts or terminals.

72, Metal Deforming, appropriate subclasses, for methods and apparatus for metal deforming, per se.

140, Wireworking, subclasses 71.5+ for methods of making electric lamp or space discharge device electrodes where only wireworking operations are involved.

148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal including metal

electrodes to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition.

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 640+ for electrolytic erosion to change the shape or surface configuration of a workpiece (e.g., etching, polishing, etc.).

216, Etching a Substrate: Processes, appropriate subclasses for shaping of an electrode involving etching.

264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses, for methods of shaping, forming, or treating nonmetallic materials under the class definition.

50 Emissive type:
This subclass is indented under subclass 49. Method for manufacturing or fabricating an electrode of the type which emits or gives off electrons, the electrodes being itself eventually consumed in the process.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51, for methods of making emissive type electrodes without involving a shaping operation.

SEE OR SEARCH CLASS:

252, Compositions, subclasses 500+ for electrically conductive or emissive compositions.

313, Electric Lamp and Discharge Devices, subclasses 326+ for electrode and shield structure of lamp and discharge devices, note especially subclass 346 for cathode containing or coated with electron emissive material.

51 Emissive type:
This subclass is indented under subclass 46. Method for manufacturing or fabricating and electrode of the type which emits or gives off

electrons, the electrode itself eventually consumed in the process.

SEE OR SEARCH CLASS:

- 252, Compositions, subclasses 500+ for electrically conductive or emissive compositions.
- 313, Electric Lamp and Discharge Devices, subclasses 326+ for electrode and shield structures of lamp and discharge devices, note especially subclass 346 for cathodes containing or coated with electron emissive material.

52 Fluorescent type or mosaic electrodes:

This subclass is indented under subclass 46. Method for manufacturing or fabricating (1) an electrode of a substance which emits visible light when bombarded by electrons, or (2) a bidimensional array of adjacent electrodes or conductive areas.

- (1) Note. CRT screen making processes are found in this subclass unless specially provided for elsewhere.

SEE OR SEARCH CLASS:

- 313, Electric Lamp and Discharge Devices, subclass 329 for mosaic electrodes, per se.
- 427, Coating Processes, subclasses 58+ for methods of producing electrical products by coating processes, note especially subclasses 64+ for fluorescent or phosphorescent base coating.
- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition which produced a CRT or element thereof.

53 Including evacuating, degasifying or getter or fluent material introduction:

This subclass is indented under subclass 1. Method which includes (1) applying gaseous material, aerosol, liquid or other fluent material within an enclosure of the electric lamp or electric space discharge device or (2) removing, absorbing or adsorbing material occluded gaseous material, or aerosol from within an enclosure of the lamp or device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 38+, for a method of assembly or disassembly including evacuating, degasifying or gas, vapor, liquid or solid introduction.

SEE OR SEARCH CLASS:

- 34, Drying and Gas or Vapor Contact With Solids, the subclasses indented under the title "Processes" which is the generic place for processes of contacting of solids with either or both gases or vapors, and for miscellaneous processes for the separation of liquids from solids by drying. Note especially subclass 427 for such processes combined with a diverse type process and subclasses 437+ for the processes peculiar to hollow articles. Class 34 includes processes for drying a material by placing the material in a chamber and evacuating the chamber. See the notes to the class definition and the subclass definitions of Class 34 for other classes which provide for such processes.
- 53, Package Making, subclasses 403+ for methods of gas filling and/or evacuating of receptacles combined with closing, and see (3) Note and the reference to Class 53 under "SEARCH CLASS" in the class definition of this class (445) for the line.
- 65, Glass Manufacturing, subclass 34 for a glassworking process including sealing off of a gas evacuating opening.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, subclass 4, 8 and 65+ for methods of and apparatus for gas filling and/or evacuating or receptacles.
- 148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as

- described in the Class 148 definition. Class 148, subclasses 206+, takes as original processes of carbonizing or nitriding a metal substrate with an external source of carbon or nitrogen including the use of gas therefor. Moreover, Class 148, subclasses 240+, takes as original processes of reactive coating of metal with an external gaseous agent that combines with a component of the metal substrate to form a coating thereon which contains a component of the metal substrate.
- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 687+ for electrolytic methods of removing occluded gases from materials.
- 222, Dispensing, subclasses 1+ for processes of dispensing and subclasses 3+ for vapor or gas dispensing.
- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, appropriate subclasses, particularly subclasses 500+ for processes within the class definition, for molding or shaping plastic materials which include the step of directly applying fluid pressure or vacuum to the work or molding material. For formation of electrical articles, per se, see particularly subclasses 104+ and 614+.
- 313, Electric Lamp and Discharge Devices, subclasses 549+ for electric lamps and electric space discharge devices which are provided with means for regulating the gas or vapor pressure in the envelope of the lamp.
- 315, Electric Lamp and Discharge Devices: Systems, subclasses 108+ for electrical systems for supplying electric energy to electric space discharge devices of the gas or vapor filled type, the system including means to regulate the gas or vapor pressure in the envelope of the discharge device.
- 378, X-Ray or Gamma Ray Systems or Devices, subclasses 91+ for methods of energization and electrical control of space discharge devices producing X-rays.
- 417, Pumps, subclasses 48+ for electrical or getter type devices.
- 423, Chemistry of Inorganic Compounds, subclasses 210+ for purification or separations of gases by a chemical reaction.
- 54 With cooling, e.g., to condense:**
This subclass is indented under subclass 53. Method for removing thermal energy from within the enclosure of the lamp or device.
- (1) Note. Mere ambient cooling by passive means is not considered sufficient for inclusion in this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
39, for similar subject matter which includes an assembly or disassembly apparatus.
- SEE OR SEARCH CLASS:
62, Refrigeration, subclasses 56+ for general cooling processes, per se.
- 55 By gettering:**
This subclass is indented under subclass 53. Method introducing a chemical material such as a solid or vapor to absorb, adsorb or chemically tie up undesired material such as gases within the sealed enclosure of the lamp or device.
- (1) Note. Gettering includes using materials which, when placed in the envelope, reduce the gas or vapor pressure in any manner, even though the theory of operation is not known. Gettering, therefore, includes using a reactive material which will chemically combine with the gas or vapor to form a nonvolatile compound, or to form a compound of lower vapor pressure or ionic activity. One gas may be a getter for another gas. Gettering also includes using materials, such as charcoal which adsorb and absorb the gases or vapors.
- SEE OR SEARCH THIS CLASS, SUBCLASS:
9+, for methods of gettering which include generating a gas or vapor from a normally nongaseous and non-

vaporous material in the envelope, the generated gas or vapor being active as a getter. Flashing magnesium is in subclasses 9+.

- 41, for similar subject matter which include an assembly or disassembly operation.

SEE OR SEARCH CLASS:

- 252, Compositions, for miscellaneous chemical compositions, note especially subclasses 181.1+, for getter compositions. Note also subclasses 182.11+ for chemical agents or materials.
- 313, Electric Lamp and Discharge Devices, subclasses 549+ for electric lamps and electric space discharge devices which are provided with a getter. Class 313 provided for such devices with a getter whether claimed prior to the use of the getter (incompletely manufactured) or subsequent to such use.
- 417, Pumps, subclasses 48+ for electrical or getter type devices.
- 420, Alloys or Metallic Compositions, appropriate subclasses for metal powder products which are alloys.
- 423, Chemistry of Inorganic Compounds, appropriate subclasses, for inorganic compounds and nonmetallic elements which may be useful in gettering. Also note subclasses 210+ for modifying or removing component of normally gaseous material.
- 502, Catalyst, Solid Sorbent, or Support Therefor: Product or Process of Making, for a composition comprising a catalyst or support therefor or sorbent of general utility.

56 With subsequent evacuation:

This subclass is indented under subclass 53. Method which includes a following step of establishing a partial vacuum by physically removing a portion or all of the gaseous materials or aerosols from within the enclosure of the lamp or device.

- (1) Note. The gas or vapor need not be completely evacuated from the envelope of the lamp or discharge device, but the evacuation may be stopped when the

desired pressure in the envelope is obtained.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 42, for similar subject matter which includes an assembly or disassembly operation.

SEE OR SEARCH CLASS:

- 53, Package Making, subclasses 403+ for methods of gas filling and/or evacuating of receptacles combined with closing, and see (3) Note and the reference to Class 53 under "SEARCH CLASS" in the class definition of this class (455) for the line.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, subclass 4, 8 and 65+ for methods of and apparatus for gas filling and/or evacuating of receptacles.

57 With heating, e.g., to outgas:

This subclass is indented under subclass 53. Method for supplying or increasing thermal energy within the enclosure of the lamp or device.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 40, for similar subject matter which includes an assembly or disassembly operation.

SEE OR SEARCH CLASS:

- 148, Metal Treatment, appropriate subclasses for processes of treating solid or semi-solid metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition.
- 219, Electric Heating, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, subclasses 764+ for capacitive dielectric heating, and subclass 162 for methods of electrically heating metal.

- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 345+ for methods of treating a shaped or solid nonmetallic article by means of a temperature change.
- 432, Heating, subclasses 9+ for processes of heating to treat an article, container, or body as an unit.

58 With coating, e.g., providing protective coating on sensitive area:

This subclass is indented under subclass 1. Method for treating the surface of a workpiece so as to form a film or surface layer of material thereupon.

- (1) Note. The coating material may be the same or different composition from the base material.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 9+, for methods including coating by vapor, gas, mist or smoke within the envelope.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 424 for methods of utilizing a temporary protective coating, subclasses 458+ for methods of assembly including coating step previous to assembly, and subclass 460 for methods of assembly including a subsequent coating step.
- 148, Metal Treatment, subclasses 240+ for processes of reactive coating of metal wherein an external agent combines with a component of a metal substrate to form a coating thereon which contains a component of the metal substrate.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses, note especially subclass 278 for methods of surface bonding or assembly therefor which include coating of nonadherent face of lamina, and subclass 289 for methods of surface bonding or assembly therefor which utilize parting or release material to prevent adhesion.
- 204, Chemistry: Electrical and Wave Energy, subclasses 192.1+ for coating, forming, or etching by sputtering.

- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 80+ for electrolytic coating processes.

- 264, Plastic and Nonmetallic Article Shaping or Treating: Processes, subclasses 129+ for methods under the class definition of coating a workpiece (out of the mold).

- 427, Coating Processes, appropriate subclasses, note especially subclass 122 for carbon coating, subclasses 123+ for metal coating, and subclasses 126.1+ for metallic compound coating, all of which are indented under subclass 58 which is methods for producing electrical products.

59 Including cleaning:

This subclass is indented under subclass 1. Method for removing or eliminating undesired or foreign material from the surface of a workpiece or manufactured product.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 5, for methods including use of electric arc or current for removing an undesired particle, i.e., spot knocking.
- 55, for methods including the introduction of getter material.

SEE OR SEARCH CLASS:

- 15, Brushing, Scrubbing, and General Cleaning, subclasses 1.51+ for electrostatic cleaning.
- 29, Metal Working, subclasses 81.01+ for removing scale from metal workpiece.
- 134, Cleaning and Liquid Contact With Solids, see subclass 1.1, 1.2, 1.3 for cleaning of specialized materials with or without plasma, for processes of cleaning or treating various solids (including electrodes and blanks) with liquids, and including the acid treatment of metals in subclasses 3, 37, 28, and 41.
- 205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 640+ for electrolytic erosion to change the shape or surface config-

- uration of a workpiece (e.g., etching, polishing, etc.).
- 216, Etching a Substrate: Processes, for methods of chemical etching.

60**Apparatus:**

This subclass is indented under the class definition. Machine or implement .

- (1) Note. This and the indented subclasses include all apparatus for the manufacture of electric lamps, liquid crystal display devices and electric space discharge devices from an material and by any type of operation where no specific class provides for the claimed subject matter.
- (2) Note. Work holders are usually classified with the apparatus for performing the operation. Miscellaneous work holders for assembly operations are in Class 269, Work Holders.
- (3) Note. This and the indented subclasses include only such apparatus as is used during the manufacture of the lamp or discharge device. If the claimed subject matter is intended to be used during the operation of the lamp or discharge device and to thereby control the operating characteristics of the lamp or discharge device, the patent is excluded and will be found in the classes referred to in the notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1+, for the corresponding methods. See also the search notes thereto.

SEE OR SEARCH CLASS:

- 29, Metal Working, appropriate subclasses, for diverse apparatus for manufacturing miscellaneous electrical devices. Also see subclasses 33+ for plural diverse manufacturing apparatus including metal shaping and/or assembly, and subclass 650 for plural diverse manufacturing apparatus.
- 34, Drying and Gas or Vapor Contact With Solids, the subclasses indented under the title "Apparatus" is the generic place for apparatus for the separation of liquids from solids by

drying and the contacting of solids with either or both gases or vapors. See the notes to the class definition and the subclass definitions of Class 34 for other classes which provide for such apparatus.

- 65, Glass Manufacturing, subclass 270 for glassworking apparatus comprising means for glass envelope tipping off, with or without exhausting means.
- 118, Coating Apparatus, subclasses 58+, for coating apparatus combined with means to heat or dry the work.
- 140, Wireworking, appropriate subclasses, for miscellaneous apparatus for assembling and making wire articles where only wireworking operations are involved. Note especially subclass 71.5 for making (including forming and assembling) electrodes made of wire for electric lamps and electric space discharge devices, such as grids, filaments, and subclass 71.6 for apparatus for joining wire electrodes (grids, filaments) to their support wires, subclasses 93+, for apparatus for applying wires to particular articles, and subclasses 111+, for apparatus for joining wire.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, appropriate subclasses for apparatus for making electrical devices by an adhesive joining step only.
- 204, Chemistry: Electrical and Wave Energy, subclasses 194+ for electrolytic coating apparatus combined with means for heat treating the coated article, see especially subclass 210 for such apparatus where the article being coated is a continuous strip or filament.
- 219, Electric Heating, subclasses 50+ for electric heating of metal, subclasses 200+ for electric heating of nonmetal, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, and subclasses 764+ for capacitive dielectric heating.
- 222, Dispensing, subclasses 3+ for apparatus for dispensing vapor, compressed air or gas.

- 250, Radiant Energy, subclasses 200+ for photocells and circuits and apparatus including photocells.
- 266, Metallurgical Apparatus, subclasses 102+ for means to heat treat a continuous metal strip, subclasses 114+ for heat treating a metal object combined with liquid contact apparatus, e.g., quench tank, and 249+ for heat treating a metal object in the presence of a treating or protective gas.
- 313, Electric Lamp and Discharge Devices, appropriate subclasses, for the devices, per se.
- 373, Industrial Electric Heating Furnaces, appropriate subclasses, for electric furnace structures.
- 396, Photography, subclasses 546+ for means to record an image which is to be used as a multicolor luminescent target of a CRT.
- 409, Gear Cutting, Milling, or Planing, subclasses 288+ for planing machines.
- 417, Pumps, subclasses 48+ for electrical or getter type pumps.
- 422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, subclasses 129+ and 243+ for miscellaneous apparatus especially designed to perform chemical and analogous processes.
- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, appropriate subclasses, for shaping or reshaping apparatus peculiar to plastic or powdered materials, especially subclasses 113+ for applying a coating to a conductor by extrusion shaping means and subclass 117 for apparatus for making a composite of a preform and fluent material.
- portion of an electric lamp or electric space discharge that would otherwise be discarded.
- (1) Note. The apparatus in this subclass is limited by some claimed subject matter to use in repairing or salvaging a discharge device or lamp and is not merely apparatus of general utility which is disclosed as being useful in such repair or salvage.
- (2) Note. Class 269 is the residual locus for patents to a device for clamping, supporting and/or holding an article (or articles) in position to be operated on or treated. See notes thereunder for other related loci.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 2, for corresponding methods. See the search notes thereunder.

SEE OR SEARCH CLASS:

- 29, Metal Working, appropriate subclasses, note especially subclasses 762+ for means to disassembly miscellaneous electrical devices.
- 65, Glass Manufacturing, subclasses 286+ for apparatus for reshaping a glass preform.
- 118, Coating Apparatus, appropriate subclasses, for coating apparatus, per se.
- 204, Chemistry: Electrical and Wave Energy, appropriate subclasses, for electrolytic coating apparatus and cathode sputtering coating apparatus.
- 313, Electric Lamp and Discharge Devices, subclass 236 for electric lamps and electric space discharge devices which are provided with a spare electrode, and subclass 237 for electric lamps and discharge devices which are provided with means so that an electrode can be readily replaced or which have the discharge device especially designed to be readily disassembled, and subclass 314 for electric lamps and discharge devices which are especially designed to be non-repairable.

61 Repairing, converting or salvaging means:

This subclass is indented under subclass 60. Apparatus having means to (1) restore or recondition an inoperative electric lamp or electric space discharge device to its functional, stable or working condition; (2) alter or modify an electric lamp or electric space discharge device to produce a lamp or device of substantially different capacity, size, function or type of operation; or (3) recover or reclaim a

62 Having means to operate the device or portion thereof, e.g., to age:

This subclass is indented under subclass 60. Apparatus which (1) subject an electric lamp or electric space discharge to similar forces and environment substantially duplicating those encountered under real operating conditions, or (2) impose operating conditions which will mature the device or components thereof.

SEE OR SEARCH THIS CLASS, SUBCLASS:

6, for methods including start up, flashing or aging. See Also the notes thereunder.

SEE OR SEARCH CLASS:

29, Metal Working, appropriate classes, for assembly apparatus and diverse manufacturing apparatus. See especially subclass 722, for an assembly or disassembly apparatus including means to provide a controlled environment.

118, Coating Apparatus, appropriate subclasses, for coating apparatus, per se.

204, Chemistry: Electrical and Wave Energy, appropriate subclasses, for electrolytic coating apparatus and cathode sputtering coating apparatus.

219, Electric Heating, appropriate subclasses, for electric heating and welding apparatus.

266, Metallurgical Apparatus, subclasses 249+, for means treating solid metal.

422, Chemical Apparatus and Process Disinfecting, Deodorizing, Preserving, or Sterilizing, appropriate subclasses, for apparatus for treating chemical compounds or compositions even though only a physical reaction is discernible.

425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclasses 445+ for miscellaneous apparatus for treating a product of a molding apparatus for nonmetals not otherwise provided for. Also see the notes thereunder.

63 Testing or adjusting means:

This subclass is indented under subclass 60. Apparatus which (1) determine or examine the operating or functional characteristics or

parameters or simulations thereof of an electric lamp or electric space discharge devices or a portion thereof or (2) modify or change the conformance of the lamp or device parts or components.

(1) Note. Apparatus designed for manufacturing and testing electric lamp and space discharge devices are in the above subclass. Apparatus designed for testing only are provided for in the appropriate measuring and testing class.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3+, for corresponding methods. See also the search notes thereunder.

SEE OR SEARCH CLASS:

29, Metal Working, appropriate subclasses, for plural diverse manufacturing apparatus under the class definition, note especially subclass 705 for means to disassemble or assemble including means to test work or product.

73, Measuring and Testing, appropriate subclasses, for measuring and testing means, per se.

315, Electric Lamp and Discharge Devices: Systems, subclasses 364+ for circuits and apparatus for testing electric lamps and electric space discharge devices.

324, Electricity: Measuring and Testing, subclasses 403+, for system, apparatus, and methods for testing the operativeness or characteristics of electric lamp or discharge devices.

64 Having optical means to sense or adjust electrode position:

This subclass is indented under subclass 63. Apparatus including means for determining or regulating the proper location of electric terminals by means of light, ultraviolet or infrared electromagnetic radiation.

(1) Note. The optical means may be a projecting apparatus for projecting an image of the filament of a lamp upon a screen or optical viewing means so that the operator of the apparatus can align the electrodes in proper position or means

which include a photo-sensitive element to receive the light emitted by the filament of a lamp and to position the filament with respect to a base or connector when the light intensity is a maximum.

- (2) Note. Most of the apparatus in this subclass are designed to position the filament of a lamp with respect to the base so as to make a prefocused lamp.
- (3) Note. This subclass provides for all apparatus for positioning the electrodes by optical means even though another class may provide for the particular means used to assemble the electrodes. For example, apparatus for cementing a base to an electric lamp is in Class 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, but such apparatus, when provided with optical means to position the filament with respect to the base, is in this class (445).

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 4, for corresponding methods - see also the search notes thereunder.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 720+ for assembly or disassembly apparatus having signal, scale, illuminator or optical viewer, and subclass 746 for an apparatus for assembling an electrical terminal in the manufacture of a device particularly adapted to transmit or utilize electrical energy.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclass 379 for surface bonding means and/or assembly means therefor with inspecting and/or illuminating means.
- 356, Optics: Measuring and Testing, subclass 123 for apparatus to adjust the focal position of a light filament generally with respect to a reflector or a lens.

65

Combined:

This subclass is indented under subclass 60. Apparatus combined with means not provided for in the class and which means performs a

function other than to perfect means that are provided for in the class.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 22, for corresponding methods - see also search notes thereunder.

SEE OR SEARCH CLASS:

- 29, Metal Working, appropriate subclasses for miscellaneous plural diverse manufacturing apparatus, especially subclasses 33+ and 650.
- 65, Glass Manufacturing, subclasses 138+ for electronic envelope header, terminal or stem making by glassworking means, subclasses 152+ for fusion bonding by glassworking means, and subclasses 181+ for means in addition to or combined with glass working apparatus.
- 118, Coating Apparatus, subclass 75 for coating apparatus combined with diverse features.
- 140, Wireworking, subclass 1 for apparatus for wireworking in combination with means not specific to wireworking.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 349+, for surface bonding means and/or assembly means therefor.
- 164, Metal Founding, subclasses 270.1+ for a metal casting apparatus with diverse means.
- 219, Electrical Heating, subclasses 600+ for inductive heating, subclasses 678+ for microwave heating, subclasses 764+ for capacitive dielectric heating, and subclasses 209+ for heating devices combined with diverse - type electrical devices.
- 250, Radiant Energy, subclass 215 for a photocell combined with a diverse-type device.
- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclass 317 for shaping or reshaping apparatus combined with diverse means for treating or working stock material.
- 432, Heating, subclass 92 for apparatus for the generation of heat combined with a diverse additional structure having a

function other than the application of heat.

66

Assembly means:

This subclass is indented under subclass 60. Apparatus including means for associating, juxtaposing or putting together, with or without securing, a plurality of self-sustaining preforms in a nontransitory arrangement.

- (1) Note. Merely stacking, moving, or otherwise arranging preforms to effect or facilitate transportation, per se, is not considered an assembly operation.
- (2) Note. Work holders are usually classified with the apparatus for performing the operation. Miscellaneous work holders for assembly operations are in Class 269, Work Holders.

SEE OR SEARCH THIS CLASS, SUBCLASS:

23+, for methods including assembly. See also the search notes thereto.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclasses 729+ for an assembly apparatus for manufacturing miscellaneous electrical devices.
- 65, Glass Manufacturing, subclasses 152+ for glass fusion bonding means.
- 156, Adhesive Bonding and Miscellaneous Chemical Manufacture, subclasses 349+ for surface bonding means and/or assembly means therefor, note especially subclass 424 for apparatus for assembling and bonding an electric lamp or space discharge device envelope to its base.
- 227, Elongated-Member-Driving Apparatus. appropriate subclasses, for apparatus for driving a member such as a rivet into work, and particularly subclasses 51+ for combined apparatus for driving and heading such member.
- 228, Metal Fusion Bonding, appropriate subclasses, for joining of work portions by solder, welding or brazing.

67

Having electrode positioning or assembly means:

This subclass is indented under subclass 66. Apparatus including means for orienting, associating or juxtaposing components, parts or portions of an electrical conductor structure through which an electric current enters or leaves a vacuum or a fluent medium.

- (1) Note. Electrode mount means, per se, is not appropriate subject matter for this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 29+, for methods of assembly including electrode mounting.
- 64, for apparatus including optical means to sense or adjust electrode position.

SEE OR SEARCH CLASS:

- 29, Metal Working, subclass 746 for an apparatus for assembling an electrical terminal in the manufacture of a device particularly adapted to transmit or utilize electrical energy.

68

Having means to manipulate a CRT mask:

This subclass is indented under subclass 67. Apparatus which includes means for positioning a perforated panel or equivalent arrangement located adjacent the CRT screen for precisely focusing various electron beams or light beams within a cathode-ray tube such as a color television picture tube.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 30, for methods of CRT mask mounting.
- 37, for methods of assembly including CRT mask making.
- 47, for other methods of making CRT masks

SEE OR SEARCH CLASS:

- 430, Radiation Imagery Chemistry: Process, Composition, or Product Thereof, subclasses 23+ for processes under the class definition for making a CRT or components thereof.

69 Having means to manipulate lead wire, lamp base or terminal:

This subclass is indented under subclass 66. Apparatus including means for positioning or orientating electric conductor positions of an electric lamp or electric space discharge device.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 729+, for apparatus having means to assemble electrical devices, note especially subclasses 747+ for means for assembling terminal or connecting structure.

70 Having evacuation or degasification means or means to introduce gas, vapor, liquid or solid treating agent:

This subclass is indented under subclass 66. Apparatus including means for (1) applying gaseous material, aerosol, liquid, or solid treating material within an enclosure of an electric lamp or electric space discharge device; (2) removing, absorbing, or adsorbing gaseous material or aerosol from within an enclosure of the lamp or device; or (3) removing gases or vapors from other parts of the lamp or discharge device.

SEE OR SEARCH THIS CLASS, SUBCLASS:

38+, for methods of assembly including evacuating, degasifying or gas, vapor, liquid, or meltable or sublimable solid introduction.

73, for similar subject matter which does not include any assembly apparatus - see the search notes thereunder.

71 With turret means:

This subclass is indented under subclass 66. Apparatus including a pivoted and revolvable holder structure having a plurality of work stations or positions.

SEE OR SEARCH CLASS:

29, Metal Working, subclasses 33+ for various turret mechanisms in apparatus for plural diverse manufacturing including metal shaping and/or assembly.

72 Including means to establish an electric space discharge:

This subclass is indented under subclass 60. Apparatus including means to set up or have an electric current flow between two spaced parts or electrodes, at least part of the path followed by the current flow being within a vacuum or a fluent media.

(1) Note. Means for establishing a space discharge solely to evacuate the space will be found in subclasses 70 and 73.

(2) Note. The discharge may be between electrodes other than the discharge electrodes, or between any other electrodes or parts capable of being used to establish an electric space discharge.

SEE OR SEARCH THIS CLASS, SUBCLASS:

5, for methods including use of electric arc or current for removing an undesired particle, i.e., spot knocking.

SEE OR SEARCH CLASS:

148, Metal Treatment, appropriate subclasses for processes of treating metal to modify or maintain the internal physical structure (i.e., microstructure) or chemical properties of metal. If metal casting, fusion bonding, machining, or working is involved, there is a requirement of significant heat treatment as described in section III, A, of the Class 148 definition. Use of electric heating including space discharge does not negate placement in Class 148 if the other criteria for Class 148 are met.

204, Chemistry: Electrical and Wave Energy, subclasses 193+ for apparatus under the class definition.

250, Radiant Energy, subclass 426 and the classes specified in the note to the definition of that subclass for apparatus for subjecting objects and materials to the influence of ions and/or electrons generated by an electric space discharge.

315, Electric Lamp and Discharge Devices: Systems, appropriate subclasses, and the classes specified in

the notes to the main class definition of that class, for electric systems for energizing electric lamps and discharge devices to initiate an electric space discharge in the lamp or discharge device.

- 417, Pumps, subclass 50, for pumps of the electromagnetic type.
- 425, Plastic Article or Earthenware Shaping or Treating: Apparatus, subclasses 174+ for means applying electrical energy directly to work.
- 427, Coating Processes, subclass 580 for coating methods using electrical arcing or sparking.

73 Having evacuation or degasification means or means to introduce gas, vapor, liquid or solid treating agent:

This subclass is indented under subclass 60. Apparatus which include means for (1) applying gaseous material, aerosol, liquid, or solid treating material within an enclosure of an electric lamp or electric space discharge device or (2) removing, absorbing, or adsorbing gaseous material or aerosol from within an enclosure of the lamp or device.

- (1) Note. Merely stating that an apparatus has exhaust heads does not make the apparatus an exhausting or gas filling machine where none of the operations performed on the article held in the exhaust heads are either exhausting or gas filling.
- (2) Note. This subclass includes only such apparatus as is used during manufacture of the lamp or discharge device. If the claimed subject matter is intended to be used during the operation of the lamp or discharge device and to thereby control the operating characteristics of the lamp or discharge device, the patent is excluded and will be found in the classes referred to in the notes below.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 53+, for the corresponding method.
- 70, similar subject matter which includes assembly means.

SEE OR SEARCH CLASS:

- 34, Drying and Gas or Vapor Contact With Solids, the subclasses indented under the title "Apparatus" is the generic place for apparatus for the separation of liquids from solids by drying and the contacting of solids with either or both gases or vapors. See the notes to the class definition and subclass definitions of Class 34 for other classes which provide for such apparatus.
- 53, Package Making, subclasses 79+ for apparatus for gas filling and/or evacuating of receptacles combined with closing, and see (3) Note and the reference to Class 53 under "SEARCH CLASS" in the class definition of this class (445) for the line.
- 65, Glass Manufacturing, subclass 270 for glassworking apparatus comprising means for glass envelope tipping off, with or without exhausting means.
- 118, Coating Apparatus, subclasses 58+, for coating apparatus combined with means to heat or dry the work.
- 141, Fluent Material Handling, With Receiver or Receiver Coacting Means, subclass 4, 8 and 65+ for methods of and apparatus for gas filling and/or evacuating of receptacles.
- 204, Chemistry: Electrical and Wave Energy, subclasses 194+ for electrolytic coating apparatus combined with means for heat treating the coated article, see especially subclass 210, for such apparatus where the article being coated is a continuous strip or filament.
- 222, Dispensing, appropriate subclasses, for apparatus for dispensing gases or liquids, especially subclasses 3+ for apparatus for dispensing compressed air or gas.
- 313, Electric Lamp and Discharge Devices, subclass 7 for electric lamps and space discharge devices which have combined therewith an evacuating pump designed for use during the operation of the lamp or discharge device, and subclass 549 for electric lamps and discharge devices which

are provided with means for regulating the pressure within the envelope of the lamp or discharge device.

373, Industrial Electric Heating Furnaces, appropriate subclasses, for electric furnace structures.

END