

## **CLASS 200, ELECTRICITY: CIRCUIT MAKERS AND BREAKERS**

### **SECTION I - CLASS DEFINITION**

This is the generic class for devices, per se, of general application which are used for closing or opening electrical circuits and the combination of these devices with their operating means. In the combined devices there must be something more than the mere inclusion of a circuit maker or breaker broadly.

Combinations of circuit makers and breakers with electrical plugs, sockets, or other connectors are in this class.

This class includes devices known as “controllers”, “circuit-closers”, “switches”, “circuit-breakers”, “interrupters”, “distributers”, “thermal-cut-offs”, “fuses”, and “electrical thermostats”.

Electrical systems or circuits are excluded from this class. These systems or circuits are classified in the various electrical or art classes, depending on the particular form of electrical system or of the apparatus controlled.

### **SECTION II - LINES WITH OTHER CLASSES AND WITHIN THIS CLASS**

A circuit maker or breaker of this class (200) can be distinguished from an electrical connector of Class 439, Electrical Connectors, in that a circuit maker or breaker comprises an assemblage of parts including both a movable contact and its mating contact wherein there is a positive (permanent) physical connection between the contacts such that a contact is restricted to move with respect to a mating contact along a prescribed path each time the circuit maker or breaker operates, whereas an electrical connector is physically separated from the distinct, mating connector each time the circuit is broken.

The combination of an electrical circuit maker or breaker with an electrical connector will be found in this class (200). For example, an electrical connector with a distinct switch actuated by a mating connector is included in this class (200), especially in subclasses 61.58+. An electrical connector that includes integrally therewith a “switching” component actuated by coupling engagement with a mating connector is to be found in Class 439. Search especially Class 439, subclass 188 for an electrical connector having circuit interrupting provision effected by mating.

An electrical connector, per se, may include movable contacts and be in the class of electrical connectors. For example, Search Class 439, subclasses 43+ for an electrical connector with a selectable circuit wherein no details of the circuit structure is set forth; subclasses 152+ for an electrical connector detachable from a mating connector by snap or quick-break action; subclasses 259+ for a connector with a contact moved laterally into engagement with a mating contact in a “zero insertion force device”; subclasses 296+ for an electrical connector with coupling movement-actuating means or retaining means in addition to the contact, especially subclasses 310+ for a retaining means with distinct movement-actuating means to move a coupling part axially; and subclasses 374+ for an electrical connector with guiding means for mating of a coupling part.

This class (200) has not been screened to verify placement according to this line.

Search should be made in the art or special application classes for circuit-controllers of such special type as to be peculiarly adapted for those arts-- e.g., telegraph keys in Class 178, Telegraphy, telephone-switches in Class 379, Telephonic Communications.

### **SECTION III - REFERENCES TO OTHER CLASSES**

#### **SEE OR SEARCH CLASS:**

- 75, Specialized Metallurgical Processes, Compositions for Use Therein, Consolidated Metal Powder Compositions, and Loose Metal Particulate Mixtures, for patents claiming a metal composition, e.g., an alloy or a composition having a continuous phase of free metal made by consolidating metal particles.
- 148, Metal Treatment, subclasses 400+ for elemental metal or alloys which (a) are the product of a Class 148 process (e.g., heat treated, age hardened), (b) are claimed in terms of specific magnetic properties or as having particular internal structure which affects the magnetic properties, (c) are amorphous, (d) possess the property of shape memory, (e) are the product of a significant Class 164, Metal Founding, step (e.g., chill cast, directionally solidified, etc.), (f) are the product of the dispersion of particulate matter in molten metal which particulate retains its identity in the final product (e.g., dispersion strengthened, etc.).

- 178, Telegraphy, see Lines With Other Classes and Within This Class, above.
- 234, Selective Cutting (e.g., Punching), appropriate subclasses, and particularly subclasses 59+ for a pattern-controlled selective cutting machine wherein the pattern sensor may involve electrical circuit-controllers.
- 252, Compositions, subclasses 500+ for electrically conductive compositions and devices defined solely in terms of the composition of which they are composed. Included are contacts and switches defined solely in terms of their composition or stock.
- 313, Electric Lamp and Discharge Devices, appropriate subclasses. Class 313 is the generic class for space discharge devices. See subclasses 146+ of Class 313 for discharge devices which are provided with a movable electrode. Some discharge devices are closely analogous in structure to some types of circuit makers and breakers. See Lines With Other Classes and Within This Class in Class 313 for the distinction between a space discharge device and a circuit maker and breaker.
- 314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses for electric space discharge devices designed to pass an electric current (e.g., arc, spark, etc.) between two electrodes spaced apart in a vacuum or a gas or vapor atmosphere (including atmospheric air). See Class 314 where the discharge device is provided with an electrode which is consumed during the operation and has means to feed the electrodes together to compensate for the consumption of the electrode.
- 333, Wave Transmission Lines and Networks, subclasses 101+ for plural channel systems including branched circuits with switching, subclass 13 for resonator type breakdown discharge system, e.g., T-R or R-T systems, and subclass 262 for long line elements and components which may perform a switching or blocking function, e.g., long line short circuiting switches and long line shorting plugs.
- 334, Tuners, subclasses 47+ for tuners which are varied or adjusted by a switching operation which usually involves a make and break type switch.
- 343, Communications: Radio Wave Antennas, subclass 768 for slot type antennas with periodic control of the slot or coupling; subclass 777 for plural wave guide type antennas with control of the individual antenna; subclass 876 for antennas with switching between the antennas and lines; and subclass 904 for antennas which may be combined with a switch.
- 361, Electricity: Electrical Systems and Devices, subclasses 600+ for arrangements of circuit closures on a mounting or in a housing. See also, subclass 115 for specific circuit breaker structure in protection of safety of a system or device.
- 379, Telephonic Communications, see Lines With Other Classes and Within This Class, above.
- 420, Alloys or Metallic Compositions, for alloys containing metal or metallic compositions which contain a continuous phase of metal.
- 427, Coating Processes, subclasses 58+ for coating processes, per se, wherein an electrical product is produced.
- 428, Stock Material or Miscellaneous Articles, appropriate subclasses, especially subclasses 379+ for coated electrical conductors which may include contacts and switches, but which are merely coated bases recited solely as a substrate with a particular coating therein; see also subclasses 411.1+ for a composite web or sheet which is characterized solely by the compositions of the layers.
- 439, Electrical Connectors, see Lines With Other Classes and Within This Class, above.

#### SUBCLASSES

- 1 MULTIPLE CIRCUIT CONTROL:**  
This subclass is indented under the class definition. Devices in which a plurality of contacts are arranged to control two or more circuits.
- (1) Note. This group includes motor and resistance controllers, per se, the combination of these with electro-magnetic control, and operators peculiar to this type of circuit control.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
19.01+, for devices for the periodic control of a plurality of circuits.  
33+, for combinations with retarding means.  
51+, especially subclasses 51.03-51.06 for multiple circuit control switches actuated by or claimed in combination

with a plug, socket, or other connector coupling device.

**2 Loop:**

This subclass is indented under subclass 1. Devices for connecting a loop or shunt circuit into a main circuit without at any time completely interrupting the circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51+, especially subclass 51.1 for such devices actuated by or claimed in combination with a plug, socket, or other connector coupling device.

**3 Combined thermal current:**

This subclass is indented under subclass 1. Devices include combinations with thermal current cut outs or fuses. These devices are generally used for starting alternating-current motors.

SEE OR SEARCH CLASS:

337, Electricity: Electrothermally or Thermally Actuated Switches, for thermal-current cut outs, per se.

**4 Combined pivoted and reciprocating contact:**

This subclass is indented under subclass 1. Devices in which a contactor moving in a circular path is combined with one moving in a straight line.

**5 Multiple switch:**

This subclass is indented under subclass 1. Devices comprising a plurality of switches each being separately operated and usually provided with interlocking means to permit their operation only in a definite order.

SEE OR SEARCH THIS CLASS, SUBCLASS:

9, for multiple contact or pivoted contact of plural switch devices.

13, for dial-type plural switch devices.

18, for plural switch devices with operating means.

50.01+, for retarded interlocking switches.

SEE OR SEARCH CLASS:

341, Coded Data Generation or Conversion, subclasses 22+ for a keyboard controlled code transmitter.

**6 Pivoted contact:**

This subclass is indented under subclass 1. Devices in which the contactors are mounted so as to move in a circular path.

SEE OR SEARCH THIS CLASS, SUBCLASS:

4, for combined pivoted and reciprocating contact switches.

37, for retarded multiple contact rotary switches.

**7 Combined types:**

This subclass is indented under subclass 6. Devices comprising two or more of the following different types of pivoted contact controllers.

**8 Radial contact pressure:**

This subclass is indented under subclass 6. Devices in which the contact-pressure between the fixed and movable contacts is exerted in a line radial to the arc of movement of the pivoted contact.

(1) Note. This type comprises largely the devices known as "drum-controllers".

SEE OR SEARCH THIS CLASS, SUBCLASS:

7, for radial contact pressure pivoted switch combined with other type.

17, for radial contact pressure switches with operating means.

**9 Plural switch:**

This subclass is indented under subclass 8. Devices in which two or more controllers have movement relative to one another.

**10 Arc extinguishing and preventing:**

This subclass is indented under subclass 8. Devices in which special means are provided for extinguishing or preventing the formation of arcs upon separation of the contacts.

## SEE OR SEARCH CLASS:

218, High-Voltage Switches With Arc Preventing or Extinguishing Devices, subclasses 1+ for arc preventing or extinguishing devices

**11 Dial type:**

This subclass is indented under subclass 6. Devices comprising two or more contacts arranged in the arc of a circle, the contact-surface being in a plane and having a pivoted cooperating sliding contact moving in a plane parallel to that of the contact-surfaces.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

7, for dial-type switch combined with other type.  
17, for dial type switch with operating means.

**12 Electromagnetic release:**

This subclass is indented under subclass 11. Devices in which the movable contact is biased toward a certain position, usually the off position, and is adapted to be held in some other position and released by means of an electromagnet.

## SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 2+ for electromagnetically actuated circuit controllers generally.

**13 Plural switch:**

This subclass is indented under subclass 12. Devices in which there are two or more controllers which have movement relative to one another.

**14 Plural switch:**

This subclass is indented under subclass 11. Devices comprising two or more dial-type controllers which have movement relative to one another.

**15 Knife blade:**

This subclass is indented under subclass 6. Devices comprising conducting blades adapted to make contact by being projected between conducting leaves.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

3, for pivoted contact knife blade switch combined with thermal current.  
7, for pivoted contact knife blade switch combined with other type of pivoted contact switch.  
554+, for single-contact switches of the knife-blade type.

**16 Reciprocating contact:**

This subclass is indented under subclass 1. Devices in which the movable contact operates in a straight line.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

4, for combined reciprocating contact and pivoted contact switch.

**17 Operating means:**

This subclass is indented under subclass 1. Means peculiarly adapted for the operation of multiple-circuit controllers.

(1) Note. Search should be extended to appropriate subclasses in this group of multiple-circuit control.

## SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, for operators of general application; and subclass 565 for controller checks.

**18 Plural switch:**

This subclass is indented under subclass 17. Devices for operating two or more controllers which have movement relative to one another.

## SEE OR SEARCH THIS CLASS, SUB-CLASS:

9, for radial pivoted contact pressure plural switches.  
13, for dial-type plural switch, electromagnetic release.  
14, for dial-type plural switch.

**19.01 PERIODIC:**

This subclass is indented under the class definition. Devices in which the circuit is made and broken intermittently or at constantly recurring intervals.

- (1) Note. There is usually a constantly driven member which operates a contact or plurality of contacts to intermittently make and break the contact.
- (2) Note. This group includes devices known as "interrupters", "distributors", and "flashers".
- 19.02 Combined:**  
This subclass is indented under subclass 19.01. Devices comprising a plurality of circuit-controllers, one at least of which is of the intermittent type.
- 19.03 Rotary and cam:**  
This subclass is indented under subclass 19.02. Subject matter in which a rotating intermittent contact is combined with a cam-operated contact.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.07, for rotary multiple contact.  
19.13, for cam-operated multiple contact.  
19.18, for periodic rotary contact.
- 19.04 Timer:**  
This subclass is indented under subclass 19.03. Subject matter including a special clock mechanism used to perform switching operations at predetermined time intervals.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.08, for rotary multiple-contact timer.  
19.29, for cam-operated periodic contact timer.  
19.31, for periodic contact breaker assembly timer.
- 19.05 Adjustable:**  
This subclass is indented under subclass 19.03. Subject matter in which means are provided for changing the relative positions of the fixed and movable contacts to vary the time of contact.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.11, for adjustable rotary multiple contact.  
19.19, for periodic adjustable rotary contact.  
19.21, for adjustable cam-operated contact.
- 19.06 Multiple contacts:**  
This subclass is indented under subclass 19.01. Subject matter in which a plurality of moveable contacts are arranged for engagement with a plurality of fixed contacts.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
1+, for multiple-circuit control generally.
- 19.07 Rotary:**  
This subclass is indented under subclass 19.06. Subject matter in which a rotating contact cooperates with a plurality of contacts.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.03, for periodic rotary and cam-operated contact.  
19.18, for periodic rotary contact.  
36+, for retarded clock train, plural-contact rotary switch.
- 19.08 Timer:**  
This subclass is indented under subclass 19.07. Subject matter wherein the rotary contact is used in a special clock mechanism to perform switching operations at predetermined time intervals.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.04, for rotary and cam contact timer.  
19.29, for cam-operated periodic contact timer.  
19.31, for periodic contact breaker assembly timer.
- 19.09 Commutator:**  
This subclass is indented under subclass 19.07. Subject matter wherein the rotary contact is used in a direct current generator to reverse the direction of an electric current and maintain a current flowing in one direction.
- 19.1 Distributor:**  
This subclass is indented under subclass 19.07. Subject matter wherein the rotary contact is used in a device in a multicylinder engine for distributing the ignition voltage to the spark plugs in a definite sequence.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.14, for automotive distributor.  
 19.24, for cam-operated distributor plate.
- 19.11 Adjustable:**  
 This subclass is indented under subclass 19.07. Subject matter in which the relative positions of the fixed and movable contacts may be changed to vary the time of contact.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.05, for adjustable rotary and cam-operated contact.  
 19.19, for adjustable rotary-operated contact.  
 19.21, for adjustable cam-operated contact.
- 19.12 Radial contact pressure:**  
 This subclass is indented under subclass 19.07. Subject matter in which the contact pressure between the fixed and movable contacts is exerted in a line radial to the arc of movement of the pivoted contact.
- 19.13 Cam operated:**  
 This subclass is indented under subclass 19.06. Subject matter in which the movable contacts are operated by a rotating cam or cams.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.03, for periodic rotary and cam-operated contact.  
 19.2, for periodic cam-operated contact.
- 19.14 For automotive:**  
 This subclass is indented under subclass 19.13. Subject matter in which the switches are used in automobiles.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.1, for rotary multiple-contact distributor.  
 19.24, for periodic cam-operated distributor plate, per se.
- 19.15 Programming timer:**  
 This subclass is indented under subclass 19.13. Subject matter including an electromechanical timer which repeats a preset program continuously.
- 19.16 For sign display:**  
 This subclass is indented under subclass 19.15. Subject matter in which the switches are used for general advertising and display.
- 19.17 Traffic control signs:**  
 This subclass is indented under subclass 19.16. Subject matter whose use as the display sign is directly associated with a traffic control for automobiles, airplanes, elevators, etc.
- 19.18 Rotary:**  
 This subclass is indented under subclass 19.01. Subject matter in which a rotating contact cooperates with a fixed contact.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.03, for periodic rotary and cam-operated contact.  
 19.07, for rotary multiple contact.  
 19.13, for cam-operated multiple contact.  
 36+, for retarded clock train rotary switch.
- 19.19 Adjustable:**  
 This subclass is indented under subclass 19.18. Subject matter in which the relative positions of the fixed and movable contacts may be changed to vary the time of contact.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.05, for adjustable rotary and cam-operated contact.  
 19.11, for adjustable rotary multiple contact.  
 19.21, for adjustable cam-operated contact.
- 19.2 Cam operated:**  
 This subclass is indented under subclass 19.01. Subject matter in which the movable contact is actuated by a cam.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
 19.03, for periodic rotary and cam-operated contact.  
 19.13, for periodic cam-operated multiple contact.  
 38+, for retarded clock train, cam-operated switch.

**19.21 Adjustable:**

This subclass is indented under subclass 19.2. Subject matter wherein means are provided for changing the relative positions of the cam and cooperating contact.

- (1) Note. The adjustment may be manual or automatic.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 19.05, for adjustable rotary and cam-operated contact.  
19.11, for adjustable rotary multiple contact.  
19.19, for periodic adjustable rotary contact.

SEE OR SEARCH CLASS:

- 464, Rotary Shafts, Gudgeons, Housings, and Flexible Couplings for Rotary Shafts, subclasses 1+ for a speed responsive device for adjusting the relative rotational position of coupled members.

**19.22 Contact breaker assemblies:**

This subclass is indented under subclass 19.21. Subject matter including complete adjustable operating units so that the adjustment of the breaker contact points is made during actuation of the cam.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 19.26, for automotive distributor contact assembly.  
19.3, for periodic contact breaker assembly.

**19.23 Centrifugal advance mechanism:**

This subclass is indented under subclass 19.21. Subject matter including a mechanism directed outward away from a center that is used for automatically advancing the time of the spark in response to a predetermined increase in engine speed.

- (1) Note. The centrifugal advance mechanism may be used singly or in combination with a vacuum or suction controlled advance mechanism.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 19.25, for vacuum or suction controlled advance mechanism.

**19.24 Distributor plate:**

This subclass is indented under subclass 19.21. Subject matter including a broad, thin sheet of metal to which the contact breaker structure may be mounted.

- (1) Note. The mounting of the plate assembly may be adjacent to the shaft and also to the housing. The mounting structure prevents undue vibration of the contact breaker assembly.  
(2) Note. The distributor plate assembly may also be referred to as "cam plate" or "interrupter plate".

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 19.01, for periodic breakers of general utility.

**19.25 Vacuum or suction controlled advance mechanism:**

This subclass is indented under subclass 19.21. Subject matter wherein the process or condition of sucking controls advance mechanism, directly responsive to changes in engine temperature, automatically adjusts the time of the spark.

**19.26 Automotive distributor contact breaker assembly:**

This subclass is indented under subclass 19.2. Subject matter wherein the cam-operated contact breaker assembly is used in automotive distributors.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 19.22, for adjustable contact breaker assembly.  
19.3, for general contact breaker assemblies of periodic switches.

**19.27 Contact breaker lever detail:**

This subclass is indented under subclass 19.26. Subject matter comprising details of a rigid bar turning upon an axis and its associated support members and contacts.

- (1) Note. The support member includes pivot post and cam follower.
- 19.28 Ignition point detail:**  
This subclass is indented under subclass 19.26. Subject matter comprising details of a set of ignition points.
- 19.29 Timer:**  
This subclass is indented under subclass 19.26. Subject matter including a special clock mechanism used to perform switching operations at predetermined time interval.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.04, for rotary and cam contact timer.  
19.08, for rotary multiple-contact timer.  
19.31, for periodic contact breaker assembly timer.
- 19.3 Contact breaker detail:**  
This subclass is indented under subclass 19.01. Subject matter comprising details of a contact breaker.
- (1) Note. The contact breaker assembly may be either (a) a distributor cap-rotor combination or (b) cam operated.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.22, for adjustable contact breaker assembly.  
19.26, for automotive distributor contact assembly.
- 19.31 Timer:**  
This subclass is indented under subclass 19.3. Subject matter including a special clock mechanism used to perform switching operations at predetermined time intervals.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.04, for rotary and cam-contact timer.  
19.08, for rotary multiple-contact timer.  
19.29, for cam-operated periodic contact timer.
- 19.32 Distributor cap detail:**  
This subclass is indented under subclass 19.01. Subject matter comprising details of a distributor cap which may include fixed contact arrangements, adjustability of cap to housing, electrical connection of wires to the cap, ventilation means, etc.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
19.38, for protective cover means disposed on the distributor or wires for multi-purpose shielding functions.
- 19.33 Distributor rotor detail:**  
This subclass is indented under subclass 19.01. Subject matter comprising details of a distributor rotor-contact arrangement.
- 19.34 Elevated:**  
This subclass is indented under subclass 19.01. Subject matter in which the circuit breaker is lifted up for easy access.
- 19.35 Locks:**  
This subclass is indented under subclass 19.01. Subject matter including a mechanism for preventing operation of the distributor contact assembly or removal of the distributor cap.
- 19.36 Magnet:**  
This subclass is indented under subclass 19.01. Subject matter which contains a plurality of switches operated periodically by a fixed or rotatable permanent magnet assembly.
- SEE OR SEARCH CLASS:  
123, Internal-Combustion Engines, subclass 154 for electromagnetically actuated switches.  
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 205+ for permanent magnet actuated nonperiodic switches.
- 19.37 Traffic signal:**  
This subclass is indented under subclass 19.01. Subject matter wherein the circuit breaker produces a set of signals operating the movement of vehicles, ships, or persons in an area.



**19.38 Wire guard:**

This subclass is indented under subclass 19.01. Subject matter in which a protective cover means (e.g., rubber, metal, wood, etc.) encapsulates the distributor housing or cap and wires.

- (1) Note. The protective cover means shields the internal distributor from moisture, etc. and also may serve as radio interference shielding means.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.32, for distributor cap.

**19.39 Distributor:**

This subclass is indented under subclass 19.01. Subject matter in which a rotary contact is used in a device in a multicylinder engine for distributing the ignition voltage to the spark plugs in a definite sequence.

**19.4 With noise preventing means:**

This subclass is indented under subclass 19.39. Subject matter including means to suppress noise which radiates from the ignition distributor.

**33 RETARDED:**

This subclass is indented under the class definition. Devices including means for timing or delaying the operation of the contacts.

- (1) Note. These devices include the so-called "time-switches".

SEE OR SEARCH CLASS:

178, Telegraphy, subclass 76 for retarded circuit closers peculiar to telegraph systems.

307, Electrical Transmission or Interconnection Systems, subclasses 141+ for a switching system including a time delay or retardation means controlling a switch actuation.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 59+ for electromagnetically operated retarded circuit-makers.

337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for electrothermally and thermally actuated switches with retarded action.

**34 Dashpot:**

This subclass is indented under subclass 33. Devices in which the retarding means is a dashpot.

SEE OR SEARCH CLASS:

188, Brakes, subclasses 297+ for a dashpot, per se.

**35 Clock train:**

This subclass is indented under subclass 33. Devices in which clocks, clock-trains, or similar gearing are used as a retarding means.

**36 Rotary:**

This subclass is indented under subclass 35. Devices in which the movable contact has a rotary motion.

**37 Multiple contact:**

This subclass is indented under subclass 36. Devices in which the movable contact cooperates with a plurality of fixed contacts.

**38 Cam operated:**

This subclass is indented under subclass 35. Devices in which the contacts are operated by means of a rotating cam.

**39 Latch trip:**

This subclass is indented under subclass 35. Devices in which the switch contact is held from movement by means of a latch which is released by a clock mechanism.

SEE OR SEARCH THIS CLASS, SUBCLASS:

405+, for oscillating contact double snap switch.

427+, for reciprocating contact latch switch.

468+, for oscillating contact single snap of switch.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 39+ for electromagnetically actuated retarded trips in

automatic circuit interrupters, and subclasses 174+ for electromagnetically actuated latch trips.

**40 Motor release:**

This subclass is indented under subclass 39. Devices in which the tripping of the latch releases a motor, usually a spring-motor, which operates the contact.

**41 Weight release:**

This subclass is indented under subclass 39. Devices in which the tripping of the latch releases a weight, which in falling operates the contact.

**42.01 PLURAL SWITCHES CONTROL SINGLE CIRCUIT:**

This subclass is indented under the class definition. Devices wherein a single circuit is closed or opened by placing a plurality of circuit controlling switches in a specified relationship to complete or open the circuit.

(1) Note. These devices are commonly known as permutation switches.

(2) Note. The switches are normally in series when the desired state is circuit completion and the switches are normally parallel when the desired state is an open circuit.

**42.02 Coded removable actuator:**

This subclass is indented under subclass 42.01. Devices including a separate and distinct actuator for opening or closing the switches in a predetermined pattern, which actuator can be withdrawn from the switch (e.g., key).

SEE OR SEARCH THIS CLASS, SUBCLASS:

43.06, for devices of the type where each individual switch controls a circuit.

**43.01 SWITCH ACTIVATION INHIBITOR (e.g., UNAUTHORIZED INADVERTENT USE PREVENTION):**

This subclass is indented under the class definition. Devices having structure to prohibit or restrain the operation of a switch actuator including for example coded elements (e.g., combination codes), locks or other circuit completing means.

(1) Note. The term “switch” is a device for making or breaking an electrical circuit and it normally activated by an “actuator”. The actuator may take many forms such as button, handles, keys or some other type of element. A “coded element” may be in the form of a special tool, key, combinations such as permutation codes or combination locks.

SEE OR SEARCH THIS CLASS, SUBCLASS:

5+, and 50.01+, for interlock switches which have the actuator blocked depending upon the condition of the plug, the switch housing or another switch.

304, and 333, for switch shields which limit access to the actuator but which do not block the actuator or prevent access to the actuator.

SEE OR SEARCH CLASS:

380, Cryptography, particularly subclasses 26+ for mechanical control of signal encryption.

**43.02 Combined which connector coupling:**

This subclass is indented under subclass 43.01. Devices wherein a lock-type switch is associated with an electrical connector for opening and closing an electrical circuit.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51+, for connector couplers which do not include restraining or inhibiting means and see the definitions of 51+ for placement of combined switches and electrical connectors classifiable in this subclass and subclasses 51+.

**43.03 Engine starter protector:**

This subclass is indented under subclass 43.01. Devices having structure which prevents an actuator for an ignition switch from being returned to start position after being activated without first being moved to “off”, standby or some other nonactivated position.

**43.04 Removable actuator:**

This subclass is indented under subclass 43.01. Devices wherein the actuator is designed to be readily removable.

- (1) Note. The actuator is in many instances termed a key.

**43.05 Actuator is circuit completing element:**

This subclass is indented under subclass 43.04. Devices wherein the switch is activated by introducing a coded actuator which becomes part of the circuit-completing means.

SEE OR SEARCH CLASS:

439, Electrical Connectors, appropriate subclasses for contact plugs in general.

**43.06 Plural switches actuated by a single coded element:**

This subclass is indented under subclass 43.04. Devices comprising multiple switch contacts to activate multiple circuits where all circuits are selectively actuated by introducing a single coded element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

42.02, for devices of the type where a single circuit is controlled by the switches.

**43.07 Reciprocating actuator activates switch:**

This subclass is indented under subclass 43.04. Devices wherein the switch device includes structure which is mechanically moved to an activated condition by inserting a coded element, and to a nonactivated condition by removal of the coded element.

- (1) Note. The activated condition may be either opened or closed.

**43.08 By rotation of actuator:**

This subclass is indented under subclass 43.04. Devices wherein the actuator is a coded element normally referred to as a key which key activates a switch device typically including structure such as lock cylinders and plungers.

- (1) Note. The devices provided for in this subclass require a key which will only

operate a switch having a matching plunger configuration.

**43.09 Combination automatically actuates switch:**

This subclass is indented under subclass 43.01. Devices wherein contacts are spontaneously activated by means of a series of combination moves of a combination lock.

- (1) Note. The combination locks provided for in this subclass are generally disclosed as tumbler type, where a series of correct rotations of the operating mechanism releases a part of the lock to automatically activate the switch contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43.12, for combination lock which control a separate locked actuator and the actuator must first be unlocked before it can be manipulated.

**43.11 Actuator locking device:**

This subclass is indented under subclass 43.01. Devices including means that prevent unauthorized movement of the actuator or the contacts, or prohibits access to the actuator, until the lock is opened.

**43.12 Combination lock control actuator:**

This subclass is indented under subclass 43.11. Devices wherein a combination type lock prevents manipulation of a separate and distinct switch actuator.

**43.13 Reciprocating actuator (e.g., push button):**

This subclass is indented under subclass 43.11. Devices wherein the actuator is a button or knob that when pushed operates to open or close an electric circuit, and including a lock which prevents operations of the button or knob.

SEE OR SEARCH THIS CLASS, SUBCLASS:

530, and 341, for various types of push button actuators including push-push and push-pull.

**43.14 Circuit breaker handle type (i.e., padlock):**  
This subclass is indented under subclass 43.11. Devices wherein the actuator comprises a handle type assembly which is prevented from any movement by means of a removable lock.

(1) Note. The padlock device must be removable for proper classification in this subclass.

**43.15 Including attachments to lock handle:**  
This subclass is indented under subclass 43.14. Devices wherein the actuator is prevented from movement by means attached to the handle assembly in addition to the lock.

**43.16 Actuator blocking device (e.g., latch):**  
This subclass is indented under subclass 43.01. Devices including structure which prevents the inadvertent movement of the actuator, and which must be moved or removed in order to move the actuator.

**43.17 Hand grip type (e.g., power tool):**  
This subclass is indented under subclass 43.16. Devices wherein the actuator preventing means is structurally attached to the handle portion of a hand held appliance.

**43.18 Push button type:**  
This subclass is indented under subclass 43.16. Devices wherein the blocking device prevents the urging or depression of a button or knob.

SEE OR SEARCH THIS CLASS, SUBCLASS:  
43.13, for push button type actuators that are locked and must be unlocked before the button can be depressed.

**43.19 Removable blocking element:**  
This subclass is indented under subclass 43.16. Devices wherein the means that block the movement of the actuator must be completely removed from the switch assembly before the actuator can be moved.

**43.21 Mounted on actuator:**  
This subclass is indented under subclass 43.19. Devices wherein the blocking element is mounted on the actuator handle, lever, plunger or other type actuator and the blocking element

must be removed to enable movement of the actuator.

**43.22 Locked cover prevents access to actuator:**  
This subclass is indented under subclass 43.01. Devices including means to enclose and lock the switch assembly.

SEE OR SEARCH THIS CLASS, SUBCLASS:

333, for actuator covers which are not of the unauthorized prevention type.

SEE OR SEARCH CLASS:

220, Receptacles, subclass 242 for closures for face plate type openings.

**46 PATTERN-SHEET CONTROLLED:**  
This subclass is indented under the class definition. Devices in which the contact is controlled by means of a perforated or embossed sheet, card, or strip.

(1) Note. This subclass is limited to such devices, per se.

SEE OR SEARCH CLASS:

84, Music, in most subclasses of "Automatic" that have the word "electric" in the titles, for combinations of pattern-sheet-controlled circuit closers in a system.

178, Telegraphy, subclass 3 for pattern-operated automatic telegraph systems, and subclass 17 for pattern-operated telegraph transmitters or recorders.

234, Selective Cutting (e.g., Punching), subclasses 59+ for a pattern controlled selective cutting machine which may involve electrical circuit controllers.

235, Registers, subclass 56 for voting machines using sheet controlled switches, and subclasses 441+, 444+ and 452 for record-sensing devices wherein switches may be opened or closed or circuits made in accordance with areas on the record that contain coded indicia, the area where said indicia is sensed conveying particular information.

- 341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter of general utility.
- 345, Computer Graphics Processing and Selective Visual Display Systems, subclasses 108+ for visual display systems including plural mechanically movable display elements with selective electrical control.

**47 LIMIT SWITCH:**

This subclass is indented under the class definition. Devices include circuit-controllers adapted to limit the travel of electrically-driven devices. They are generally used in hoisting devices to break the circuit at the desired limits of travel.

**48 HIGH-POTENTIAL TYPE:**

This subclass is indented under the class definition. Devices especially adapted for breaking high-voltage circuits.

- (1) Notes. These breakers are generally used out of doors and contacts separate in the air. They are usually provided with horn arc-dissipating means.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 49, for high potential type switches adapted for use as pole switches.

SEE OR SEARCH CLASS:

- 313, Electric Lamp and Discharge Devices, appropriate subclasses for electric space discharge devices, including arc and spark discharge devices.

**49 POLE SWITCH:**

This subclass is indented under the class definition. Devices adapted to be mounted on a telephone-pole to disconnect the transmission-line. They are usually adapted to be operated from indoors and isolate the telephone during a storm.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 48, for high potential type switches.  
538+, for mechanical pull type switches.

**50.01 Interlocking:**

This subclass is indented under the class definition. Devices in which means are provided for insuring a predetermined sequence of operation of a plurality of switches or of a switch and an associated element, as the switch-casing cover or an auxiliary plug.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 5, for multiple switch for multiple circuit control, having interlocking means.

SEE OR SEARCH CLASS:

- 74, Machine Element or Mechanism, subclass 483 for interlocking devices generally.
- 246, Railway Switches and Signals, subclasses 131+ for railway signaling systems involving interlocking switch arrangements.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 120 and 60 for an interlock associated with electrical power distribution systems and devices.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 43, 201 and 339 for an interlock associated with electrothermally or thermally actuated switches, and subclasses 284+ for a plurality of fusible switches selectively or sequentially inserted in the same circuit.
- 361, Electricity: Electrical Systems and Devices, subclasses 601+ for an interlock associated with electrical power distribution system and devices.

**50.02 Between switches and housing:**

This subclass is indented under subclass 50.01. Subject matter wherein the interlocking means associated between the switch and a casing, a box, or a container having a cover or a door to facilitate engagement and disengagement of switch operating mechanism.

**50.03 Handle latches cover:**

This subclass is indented under subclass 50.02. Subject matter wherein the element includes means attached to the housing to be gripped by

- the hand to latch the cover or the door when the switch is closed.
- 50.04 Simultaneous operation:**  
This subclass is indented under subclass 50.03. Subject matter including means to actuate the cover or the door and the switch to be opened or closed at the same time.
- 50.05 Handle disconnected from actuator:**  
This subclass is indented under subclass 50.03. Subject matter including means attached to the cover of the switch box so that the cover may be opened and closed and automatically disengages and engages the handle from an interior switch actuator.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
50.06, for engaging and disengaging handle from an interior switch actuator.
- 50.06 Handle disconnected from actuator:**  
This subclass is indented under subclass 50.02. Subject matter wherein the element includes means to be gripped by the hand so that automatically disengages and engages the handle from an interior switch actuator.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
50.05, for handle latching cover.
- 50.07 Fuse blocks:**  
This subclass is indented under subclass 50.02. Subject matter wherein an insulating base or slab houses a protective device, usually a short piece of wire but sometimes a chemical compound which melts and breaks a circuit when a current exceeds a rated value.
- 50.08 Contacts shielding member:**  
This subclass is indented under subclass 50.02. Subject matter including a barrier member for protecting or screening terminal contacts of the switch from electric or magnetic fields generated within the device.
- 50.09 With key-controlled:**  
This subclass is indented under subclass 50.02. Subject matter including a metal instrument inserted into the interlocking means to move its bolt to operate the device.
- 50.1 Lid-controlled:**  
This subclass is indented under subclass 50.02. Subject matter wherein the interlocking means is controlled by a movable piece, separate or hinged, for closing the opening of the housing.
- 50.11 Switch handle locking means:**  
This subclass is indented under subclass 50.02. Subject matter including a mechanical means for fastening or securing a switch handle in a position.
- 50.12 Dual interlocked between door and switch:**  
This subclass is indented under subclass 50.02. Subject matter wherein the interlocking means is operatively connected between the switch mechanism and the door so that the opening of the switch is prerequisite to the opening of the door, and the closing of the door is prerequisite to the closing of the switch.
- 50.13 Door independently opened:**  
This subclass is indented under subclass 50.12. Subject matter including means to open or close the door when the switch is opened.
- 50.14 Lid carrying switch elements (e.g., contacts, terminals, or movable switch member):**  
This subclass is indented under subclass 50.12. Subject matter wherein the housing cover carries the switching elements such as contacts, terminals, or a moving switch member.
- 50.15 Defeater interlock:**  
This subclass is indented under subclass 50.12. Subject matter including means to deactivate the interlocking means so that the door can be open while the switch is closed.
- 50.16 Independently locked switch:**  
This subclass is indented under subclass 50.12. Subject matter including a second locking mechanism, independent of the interlocking means, to lock the switch in its closed or open positions.
- 50.17 Drawout-type switchgear:**  
This subclass is indented under subclass 50.12. Subject matter comprising an aggregate of switching facilities having components on a sliding box or receptacle that is opened by pulling out and closed by pushing in, combined

with an enclosure for a power station or transforming station.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

50.21, for interlocking means, per se.

**50.18 Switch latches cover:**

This subclass is indented under subclass 50.02. Subject matter including means automatically locks a lid of the switch housing in a closed position when the switch is electrically closed.

**50.19 Predetermined handle position locks or unlocks switch:**

This subclass is indented under subclass 50.02. Subject matter including means attached to the housing to be gripped by the hand for selectively locking or unlocking a cover of the switch housing closed in one or more predetermined positions of such handle corresponding to the opened and closed condition of the switch.

**50.2 For bus-duct type:**

This subclass is indented under subclass 50.02. Subject matter wherein the interlocking means is used for a duct run containing bus bars and a connector box having retractable contacts and an interlock cover to prevent the opening of the box when the contacts are in the engaged position.

**50.21 Drawout-type switchgear:**

This subclass is indented under subclass 50.01. Subject matter comprising an aggregate of switching facilities having components on a sliding box or receptacle that is opened by pulling out and closed by pushing in, combined with an enclosure for a power station or transforming station.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

50.17, for dual interlocked between door and switch.

**50.22 Shutter over contacts:**

This subclass is indented under subclass 50.21. Subject matter wherein the interlock means is in the form of a sliding guard or shutter which physically closes off connecting apertures to the switch gear contacts.

**50.23 Truck type:**

This subclass is indented under subclass 50.21. Subject matter wherein the drawout-type switch gear is carried by a carriage with wheels.

**50.24 With racking mechanism:**

This subclass is indented under subclass 50.21. Subject matter including a force amplifying or levering mechanism for locking the breaker in each of its plurality of positions automatically without need for guesswork by the operator as to how far the circuit breaker must be moved to place it in the desired position.

**50.25 Racking screw:**

This subclass is indented under subclass 50.24. Subject matter wherein the racking mechanism is a forming a continuous helical rib, or thread, with the cylindrical shank, or spindle, from which it projects.

**50.26 With position indicating means (i.e., connect, disconnect, or test):**

This subclass is indented under subclass 50.21. Subject matter including means providing a visual indication of the connect, disconnect, or test positions of the circuit interrupter unit in the draw-out type switchgear.

**50.27 Contact or contact mounting structure:**

This subclass is indented under subclass 50.21. Subject matter comprising structural details of support to hold electrode, or electrode which engages or disengages to open or close the circuit within the circuit interrupter,

**50.28 Between switch and connector assembly:**

This subclass is indented under subclass 50.01. Subject matter wherein the locking means is associated with the switch and a connector assembly comprising a plug and an outlet to facilitate engagement and disengagement of switch operating mechanism.

**50.29 Switch locks plug:**

This subclass is indented under subclass 50.28. Subject matter wherein the locking means prevents the withdrawal of the plug except when the switch is in the off position.

**50.3 Dual interlock:**

This subclass is indented under subclass 50.28. Subject matter wherein the interlocking means is operatively connected between the switch mechanism and the connector assembly so that the opening of the switch is prerequisite to the opening the plug from the receptacle, and the locking the plug on the receptacle is prerequisite to the closing the switch.

**50.31 Plug controls switch:**

This subclass is indented under subclass 50.28. Subject matter including means which prevents withdrawal of the plug from the receptacle when the switch is in the on position, and to prevent movement of the switch into the on position in the absence of a plug positioned in the receptacle.

**50.32 Between plural switches:**

This subclass is indented under subclass 50.01. Subject matter including two or more switches with the interlocking mechanism connecting the switches such that the operation of one or more of those switches affects the operation of the others of the switches.

**50.33 Alternately operated:**

This subclass is indented under subclass 50.32. Subject matter including means to control the operation of the electrical switch, to maintain one electrical switch in an inoperative condition during the time that another electrical switch is energized.

**50.34 Rotary:**

This subclass is indented under subclass 50.33. Subject matter wherein the switches which turn and variable interleaf in a circular or orbital path about a fixed axis.

**50.35 Pivot:**

This subclass is indented under subclass 50.33. Subject matter including a pin or shaft on the end of which the switch is rested and turned or rotated.

**50.36 Push button:**

This subclass is indented under subclass 50.33. Subject matter wherein the switch contacts are moved into engagement or disengagement by a push button actuator having a single surface on

which pressure is exerted to engage and disengage the contacts.

**50.37 Sequentially operated:**

This subclass is indented under subclass 50.32. Subject matter wherein the interlocking arrangement for two or more operating mechanisms of two or more switches in series conducting relation whereby one switch must be opened before the other switch or switches can be opened.

**50.38 Grounding transformer switch:**

This subclass is indented under subclass 50.37. Subject matter including a transformer switch intended primarily for the purpose of providing a neutral point for grounding purposes.

**50.39 Disconnect switch:**

This subclass is indented under subclass 50.37. Subject matter including an electrical switch of the bypass type for removing a load from its electrical supply sources.

**50.4 With handle:**

This subclass is indented under subclass 50.37. Subject matter wherein the interlocking means is gripped by the hand to control the operation of the electrical switches.

**51 COMBINED WITH OR ACTUATED BY CONNECTOR COUPLING:**

This subclass is indented under the class definition. Connector coupling devices (a) combined with a switch in a unitary structure, or (b) capable of functioning as a switch; i.e., having means specially provided for holding the complementary coupling parts in mechanically coupled but open-circuit position. (For exceptions, see especially Note (4) below).

(1) Note. "Connector coupling" as used above refers to electrical connectors, other than mere binding posts, comprising a pair of complementary parts each having contact means adapted to be readily engaged or disengaged by manipulation of said parts. Such parts are commonly known as plugs, sockets, receptacles, and the like.

(2) Note. For the distinction between "connectors" and "switches", see Note (3) to the main class definition.



- (3) Note. The plug, socket, et cetera, may constitute or be combined with the base of a lamp, heater, or other translating device and mere recitation by name only of the lamp, heater, or such other device does not exclude the patent from this class.
- (4) Note. Combinations of connector-coupling devices with the following specified types of circuit makers and breakers are excluded from this subclass and will be found in the subclasses indicated below in Search This Class, Subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 19.01, for periodic switches.  
33+, for retarded switches.  
50.01+, for switches and connectors.

SEE OR SEARCH CLASS:

- 315, Electric Lamp and Discharge Devices: Systems, subclasses 32+ for electric lamps and electric space discharge devices which have structurally combined therewith an electric switch, note especially subclasses 32, 47, 63, 64+, subclasses 72, 73, and 74+.
- 439, Electrical Connectors, especially subclass 188 for an electrical connector having circuit interrupting provision effected by mating or having a "dead" contact actuated after mating. See Lines With Other Classes and Within This Class in this class (200) for more details of the lines between this class and Class 439.

**51.01 Candle-simulating assembly:**

This subclass is indented under subclass 51. Devices the parts of which are specially shaped or arranged to resemble a candle or to permit the assembly to be inclosed in a relatively elongated tubular sheath having the appearance of a candle.

SEE OR SEARCH CLASS:

- 362, Illumination, subclasses 190, 202 and 392+ for such devices claimed in combination with light modifying or distributing means.

- 439, Electrical Connectors, subclasses 123+ for electrical connectors, per se, which simulate a candle in shape.

**51.02 Multiple coupling:**

This subclass is indented under subclass 51. Devices having a plurality of separate plug, socket, or other coupling parts for cooperation with a like number of complementary coupling parts.

- (1) Note. This subclass includes, for example, (a) devices having a plug at one end and a socket at the other, sometimes known as adapters, (b) lamp sockets having one or more plug receptacles combined therewith, and (c) multiple lamp sockets, sometimes known as cluster lamp sockets.

SEE OR SEARCH CLASS:

- 439, Electrical Connectors, subclasses 638+ for two or more plural contact coupling part connectors combined in one integral unit.

**51.03 Multiple circuit control, selective:**

This subclass is indented under subclass 51.02. Devices in which single or plural switching means may be so operated as to open or close a selected part only of the total number of circuits under control of the switching means.

- (1) Note. This subclass includes, for example, multiple lamp sockets having a switch which can be operated to light any desired number of lamps at will of the operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 1+, for switches, per se, for multiple-circuit control.  
19.01+, for switch devices for periodic control of a plurality of circuits.  
51.05+, for single coupling connector devices combined with multiple-circuit, selective switching means.

**51.04 Plural switch:**

This subclass is indented under subclass 51.03. Devices in which the switching means comprises two or more independent switches, each

complete in itself, and having separate operating means.

- (1) Note. This subclass includes, for example, multiple lamp socket devices, each socket of which is provided with an individual switch.

**51.05 Multiple circuit control, selective:**

This subclass is indented under subclass 51. Single coupling connector devices in which single or plural switching means may be so operated as to open or close a selected part only of the total number of circuits under control of the switching means.

- (1) Note. This subclass includes, for example, lamp sockets combined with switching means for selectively controlling a remote lamp in addition to the lamp in the socket.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 1+, for switches, per se, for multiple-circuit control.  
51.03+, for multiple-coupling connector devices combined with selective switching means.

**51.06 Three-or-more contact coupling:**

This subclass is indented under subclass 51.05. Devices in which the coupling member has three or more insulated contacts for cooperation with the contacts of a complementary coupling member.

- (1) Note. This subclass includes, for example, multiple-filament lamp sockets having switching means for selectively lighting the filaments to effect different degrees of illumination.

SEE OR SEARCH CLASS:

- 315, Electric Lamp and Discharge Devices: Systems, subclasses 64+ for such devices claimed in combination with a multiple filament lamp.  
439, Electrical Connectors, subclasses 626+ for a plural-contact coupling part which may have three or more contacts.

**51.07 Plural-position coupling:**

This subclass is indented under subclass 51. Devices in which the two complementary parts of a connector coupling may be moved relative to one another to open or close a circuit, without completely uncoupling the parts.

- (1) Note. This subclass includes, for example, plug and socket devices wherein the circuit may be broken by turning the plug in the socket without removing the plug from the socket.
- (2) Note. Where the circuit can be broken by partially uncoupling the plug from its socket, this subclass includes only those wherein special means (latch, detent, etc.) is provided for holding the parts in their partially uncoupled relation. Thus, this subclass does not take mere screw-threading coupling devices, such as screw-shell lamp sockets in which the lamp may be extinguished by partially unscrewing the same from the socket, unless special means are provided for holding the lamp in the "Off" position.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

- 51.09+, for connector coupling devices wherein a switching means automatically operated by the act of separating the parts of the coupling.

**51.08 Bayonet-coupling:**

This subclass is indented under subclass 51.07. Devices in which the coupling is of the "Bayonet" type; i.e., coupling of the parts is effected by engagement of a pin, stud, or other projection carried by one of the parts in a slot or groove having entrance and seat portions and formed in the other part.

**51.09 Coupling-actuated switch:**

This subclass is indented under subclass 51. Devices in which a switch is automatically operated upon engagement or disengagement of the complementary coupling parts.

- (1) Note. This subclass includes, for example, lamp sockets wherein upon removal of the lamp therefrom, a switch automatically opens the circuit of the socket con-

tacts, thus preventing short-circuiting of the socket contacts by tools, foreign matter, etc., or preventing shock by accidental touching of the contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.07+, for connector coupling devices in which a circuit is made or broken by relative motion of a coupling member with respect to a complementary coupling member without completely separating the coupled parts.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclasses 135+ and especially subclasses 137+ for connectors having movable non-use covering means operable upon disengagement of the coupling parts to cover or prevent access to any contact thereof; and subclasses 310+ for an electrical connector having a “dead” contact actuated after mating.

#### 51.1 Switch closing on coupling separation:

This subclass is indented under subclass 51.09. Devices in which separation of the coupling members automatically close a switch, usually to “short-circuit” the contacts of one of the coupling members.

- (1) Note. This subclass includes, for example, (a) lamp sockets for series lighting systems having switching means automatically operable upon removal of the lamp to “short-circuit” the contacts of the socket thus permitting the remainder of the lamps in series therewith to remain lit, and (b) connector couplings used in train-line signaling systems in which separation of the coupling members causes the contacts of one of the coupling members to come together, thus completing a circuit for signaling or other purposes.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.11, for connector coupling devices having independent manually operated switching means for short circuiting the contacts of one of the coupling members.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclass 188 for an electrical connector having a circuit interrupting provision effected by mating or having a “dead” contact actuated after mating; and see Lines With Other Classes and Within This Class in this class (Class 200) definition. Search subclasses 507+ for a jumper to be temporarily inserted across an electrical flow path having means for matching or interengaging union with such connector to divert or shunt the flow of electricity so as to shorten the path and/or to preserve the circuit continuity.

#### 51.11 Switch in parallel with coupling contacts:

This subclass is indented under subclass 51. Connector coupling members in which the switch contacts are in parallel with or “bridge” the coupling contacts thus short circuiting the coupling contacts when the switch is closed.

- (1) Note. This subclass includes, for example, lamp sockets for use in series lighting systems having a push-button or other switch for short circuiting the filament of the lamp.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.1, for connector coupling devices having short circuiting means automatically operable upon separation of the complementary coupling members.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclass 188 for an electrical connector having a circuit interrupting provision effected by mating or having a “dead” contact actuated after mating; and see the line notes in Lines With Other Classes and Within This Class, in this class (Class 200) definition.

#### 51.12 Meeting contacts of coupling members forming switch contacts:

This subclass is indented under subclass 51. Connector coupling devices comprised of two separable coupling members, in which one of the switch contacts is mounted in or on one of

the coupling members and a cooperating switch contact is mounted in or on the complementary coupling member, said switch contacts serving also as coupling contacts of the respective members.

- (1) Note. This subclass includes, for example, lamp sockets of the screw-shell type, the center contact of which may be disengaged from the center contact of the lamp base by an actuating means without disturbing the relation between the lamp and the socket.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.07+, for connector coupling devices wherein the circuit is opened or closed by relative movement between the coupled members without complete separation thereof.

#### **51.13 Bayonet-coupling:**

This subclass is indented under subclass 51. Connector coupling devices in which the coupling is of the "Bayonet" type, i.e., coupling of the parts is effected by engagement of a pin, stud, or other projection carried by one of the parts in a slot or groove having entrance and seat portions, and formed in the other part.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.08, for bayonet-type couplings in which the circuit may be made or broken without completely uncoupling the parts.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclasses 671+ for a plural-contact coupling part having a bayonet-coupling contact, and see the search note appended thereto for another type of bayonet coupling electrical connector.

#### **51.14 Screw-coupling:**

This subclass is indented under subclass 51. Devices in which one of the coupling members is screwed into the other to effect coupling thereof.

SEE OR SEARCH CLASS:

439, Electrical Connectors, subclasses 661+ for a plural-contact coupling part having a screw-thread-coupling contact, and see the search notes appended thereto for the location of other screw coupling type electrical connectors, per se.

#### **51.15 Pull-chain switch:**

This subclass is indented under subclass 51.14. Devices in which the switch is operated by means of a pull chain or cord.

SEE OR SEARCH THIS CLASS, SUBCLASS:

410+, for rotary contact pull snap switches.  
464+, for mechanical rotating pull switches.  
519, for pull switches.

#### **51.16 Push-button switch:**

This subclass is indented under subclass 51.14. Devices in which the switch is operated by means of a pushbutton.

SEE OR SEARCH THIS CLASS, SUBCLASS:

410, for rotating contact pull snap switch.  
527, for rotating pull switch.  
530, for push button type switch.

#### **51.17 Rotatable-key switch:**

This subclass is indented under subclass 51.14. Devices in which the switch is operated by means of a rotatable key.

#### **52 SPECIAL APPLICATION:**

This subclass is indented under the class definition. Devices in which the circuit maker or breaker is associated with various devices acting either as special operators for or modified to carry the circuit controller. The circuit controller must be an essential element of the combination. A mere conventional or incidental showing of the circuit controller is not enough.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 76+ for systems for supplying electric energy to lamps and/or electric space discharge devices of the gaseous ionization type, the system including an

electric switch which is associated with a particular device (as a brake pedal), the switch being operated by the movement of some part of the device.

340, Communications: Electrical, subclasses 500+ for electric alarm systems which are automatically responsive to a condition, which condition may control a switch.

396, Photography, subclasses 180+ for illumination means with a camera shutter synchronizer wherein a switch is operated concurrently with the actuation of the shutter.

**56 Indicating instrument:**

This subclass is indented under subclass 52. Circuit-controllers are arranged to cooperate with the pointer of an indicating instrument or there is a common operator for the pointer and the circuit-controller.

**SEE OR SEARCH CLASS:**

73, Measuring and Testing, for most measuring instruments (see the Notes to that class for other measuring instrument classes) and for the combination of a Class 73 measuring instrument and a circuit controller wherein the circuit controller is claimed broadly (Class 200 subclass 56 provides for the combination when specific structure of the circuit controller is claimed).

**60 Portable light:**

This subclass is indented under subclass 52. Circuit controllers which are specially adapted for use with portable hand flashlights.

**SEE OR SEARCH CLASS:**

362, Illumination, subclasses 205+ for combinations of circuit controllers with portable self-contained electric lamp structures.

**61 Incubator:**

This subclass is indented under subclass 52. Circuit controllers especially adapted to be used with incubators and operated by the lever which controls the heater-damper.

**SEE OR SEARCH CLASS:**

119, Animal Husbandry, subclasses 318+ for incubator in combination with the switch.

**61.01 Sound wave responsive:**

This subclass is indented under subclass 52. Circuit controllers which are operatively responsive to compressional impulses propagated in an elastic medium.

**61.02 Light responsive:**

This subclass is indented under subclass 52. Circuit controllers comprising means whose action is initiated by energy received from a source of illumination.

(1) Note. These devices for the most part comprise means initiated by photo-sensitive gases.

**SEE OR SEARCH CLASS:**

250, Radiant Energy, subclasses 200+ for photo cells, circuits and apparatus, and see (7) Note (Class 250, subclass 200) for a field of search for photo-cells, per se.

340, Communications: Electrical, subclass 600 for electric automatic radiant energy responsive indicating systems.

**61.03 Gas or smoke responsive:**

This subclass is indented under subclass 52. Circuit controllers comprising means whose action is initiated by the presence of non-liquid fluids including colloidal suspensions of solid particles in a gas.

(1) Note. These circuit controllers may involve mechanisms which become unbalanced as a result of exothermic reaction, breakdown of surface tension, or buoyancy due to the presence of the gas.

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

61.04, for liquid or moisture responsive devices.

## SEE OR SEARCH CLASS:

340, Communications: Electrical, subclasses 628 through 634 for electric automatic gas or smoke responsive indicating systems.

**61.04 Liquid or moisture responsive:**

This subclass is indented under subclass 52. Circuit controllers having means which become operative as a result of contact with nongaseous fluid(s) whose presence is merely Adventitious, or with vapor.

## SEE OR SEARCH CLASS:

340, Communications: Electrical, subclasses 603+ for electric automatic fluent material responsive indicating systems.

**61.05 Conducting liquid:**

This subclass is indented under subclass 61.04. Devices in which a circuit is completed by an electrolyte, that is, liquid bridges the gap between the electrical conductors.

**61.06 Humidity responsive:**

This subclass is indented under subclass 61.04. Devices having hygroscopic means responsive to the presence of vapor in the atmosphere.

## SEE OR SEARCH CLASS:

73, Measuring and Testing, subclasses 29.02+ for hygrometers and hygrometers.

236, Automatic Temperature and Humidity Regulation, subclass 44 for apparatus controlling the humidity of a room, etc., by means of a device responsive to the relative humidity therein.

340, Communications: Electrical, subclass 602 for electrical automatic moisture or humidity responsive indicating systems.

**61.07 Weight of absorbed water:**

This subclass is indented under subclass 61.06. Devices in which a certain quantity of water taken up by the hygroscopic means causes operation of the circuit controller.

**61.08 Frangible or destructible type:**

This subclass is indented under subclass 52. Current Conductors which become circuit interrupters or cut-outs by their destruction by other than thermal action.

## SEE OR SEARCH CLASS:

337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for switches responsive to heat generated by current in the circuit or heat from some external source or a combination of both.

**61.09 Tramp metal actuated:**

This subclass is indented under subclass 52. Circuit controllers which are responsive to the presence, in a particular zone, of metal articles or particles whose presence in that zone is not desired.

## SEE OR SEARCH CLASS:

324, Electricity: Measuring and Testing, subclass 204 for fluid material examination, and subclasses 228+ for testing material by means of a magnetic field.

**61.1 Game or amusement piece operated:**

This subclass is indented under subclass 52. Apparatus in which a propelled or independently movable element of a game or amusement device brings about the actuation of a switch by that element's contacting with, or proximity to, a switch part.

## SEE OR SEARCH CLASS:

273, Amusement Devices: Games, subclasses 108+ and 317+ for game devices involving aerial and surface projectiles, and subclass 238 for removable and discrete game pieces which change the status of an electrical circuit located in a game board.

**61.11 Ball (e.g., pin ball):**

This subclass is indented under subclass 61.1. Apparatus in which the propelled or independently movable element is a sphere.

## SEE OR SEARCH CLASS:

273, Amusement Devices: Games, subclass 118 for game devices involving a ball rolling on a surface.

**61.12 Bicycle chain, sprocket or brake actuated:**

This subclass is indented under subclass 52. Circuit controllers responsive to a change in chain tension or direction of movement of the braking or driving mechanisms of velocipedes.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

61.39, for circuit makers and breakers controlled by direction of rotation of a shaft or spindle and not associated with a bicycle.

**61.13 Running length, web or strand actuated:**

This subclass is indented under subclass 52. Circuit makers and breakers in which the operating mechanisms thereof are controlled by continuous or indefinite lengths of material such as motion picture film, rope, yarn, endless belts and the like, travelling in a given path or being wound onto or unwound from spools or reels.

- (1) Note. For textile machines, including fiber preparation apparatus, which have an electrical switch controlled by a thread or strand, search the following classes listed below.:

## SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, subclasses 187 and 227.  
 57, Textiles: Spinning, Twisting, and Twining, subclass 81.  
 66, Textiles: Knitting, subclasses 161 and 163.  
 139, Textiles: Weaving, subclasses 353+.  
 226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material, especially subclasses 10+ for a feeder provided with material responsive control means.  
 242, Winding, Tensioning, or Guiding, subclasses 390.1, 390.2+, 413+, 418.1, 419.1, 420.5, 421.5, 472.9+,

479.9+, 484.8, 484.9+, 534+, 563+, 564.1, and 565 for machine control or stop for regulating running material.

340, Communications: Electrical, subclasses 675 through 677 for alarms controlled by web, sheet or work feeding.

**61.14 Actuator attached to or part of web or strand:**

This subclass is indented under subclass 61.13. Devices wherein the control is effected by a special configuration or characteristic given or applied to the material at a definite point along its length.

- (1) Note. For textile machines including fiber preparation apparatus which have an electrical switch controlled by a knot or variation in diameter of a thread or stand, search the following classes listed below:

## SEE OR SEARCH CLASS:

28, Textiles: Manufacturing, subclasses 187 and 227.  
 57, Textiles: Spinning, Twisting, and Twining, subclass 81.  
 66, Textiles: Knitting, subclasses 161 and 163.  
 139, Textiles: Weaving, subclasses 353+.

**61.15 Spooled or reeled quantity:**

This subclass is indented under subclass 61.13. Devices wherein the response of the circuit maker or breaker corresponds to the attainment of a given amount of material wound upon a spool or reel.

**61.16 Diameter sensing:**

This subclass is indented under subclass 61.15. Devices wherein the amount of material on the spool or reel is determined by means responsive to the distance the material is built up from the axis of spool rotation.

**61.17 Spool, reel or idler rotation:**

This subclass is indented under subclass 61.13. Devices in which the controller is actuated concurrently with the attainment of or departure from a predetermined rotational speed (including zero rpm) of a member which is in rolling frictional contact with the material.

**61.18 Absence or loss of tension (e.g., breakage or misalignment):**

This subclass is indented under subclass 61.13. Circuit controllers in which the actuation is in response to slack or reduction in tautness, breakage, runout or failure to travel along the intended path of the material being fed.

- (1) Note. For textile machines including fiber preparation apparatus which have an electrical switch controlled by the slack, breakage, runout or failure to properly track of a thread or strand, search the following classes listed below:

**SEE OR SEARCH CLASS:**

- 28, Textiles: Manufacturing, subclass 187.  
57, Textiles: Spinning, Twisting, and Twining, subclass 81.  
66, Textiles: Knitting, subclasses 161 and 163.  
139, Textiles: Weaving, subclasses 353+.  
340, Communications: Electrical, subclass 668 for electrical automatic tension responsive indicating systems.

**61.19 Movable or removable interposed non-conductor:**

This subclass is indented under subclass 52. Circuit controllers comprising a nonconductive body located between the contacts of a circuit maker to hold the said contacts physically separated during the presence of said body, absence thereof permitting the said contacts to come into abutting or face-to-face relation.

**SEE OR SEARCH CLASS:**

- 361, Electricity: Electrical Systems and Devices, subclasses 126+ for high voltage dissipators, per se, comprising interposed nonconductive compositions.

**61.2 Container contents level responsive:**

This subclass is indented under subclass 52. Circuit makers and breakers which are actuated by an element which responds, in circuit making or breaking manner, to the height or volume within a receptacle of the surface of material contained thereby.

**SEE OR SEARCH CLASS:**

- 340, Communications: Electrical, subclasses 612+ for electrical automatic fluent material level responsive indicating systems.

**61.21 Fluent solid bin or hopper:**

This subclass is indented under subclass 61.2. Devices in which the said element responds to the volume within the said receptacle of particulate nonfluid material.

**61.22 Pneumatic tire inflation responsive:**

This subclass is indented under subclass 52. Circuit makers and breakers associated with a pneumatic tire for a vehicle in use, whose actuation is controlled by means responsive to an increase and/or decrease above or below a normal operating pressure range of the air or other gas used to maintain the tire in its inflated condition.

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

- 61.45+, for circuit controllers actuated in response to the tilting of a vehicle when a tire becomes deflated.

**SEE OR SEARCH CLASS:**

- 73, Measuring and Testing, subclass 146.2 for a fluid pressure gauge combined with a vehicle wheel, tire or tire stem.  
116, Signals and Indicators, subclass 34 for mechanical signals, indicators or alarms associated with tires and responsive to pressure conditions therein.  
137, Fluid Handling, subclasses 224+ for pressure sensitive switches utilized to control the pressure within the tire and see the search notes thereto.  
340, Communications: Electrical, subclasses 442+ for electric signals automatically actuated by a change in the pressure within pneumatic tires.

**61.23 Casing deformation feeler:**

This subclass is indented under subclass 61.22. Devices in which the control means is a sensing member which contacts the "bulge" at the ground engaging area of the tire casing which results from the deflation of the tire.



**61.24 Ground engaging feeler:**

This subclass is indented under subclass 61.22. Devices in which the control means is actuated by a member which moves into contact with the vehicle supporting surface as a result of the lowering of the vehicle caused by the deflation of the tire.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.44, for vehicle mounted feelers actuated by contact with an object proximate the path of the vehicle.

**61.25 Fluid pressure actuated:**

This subclass is indented under subclass 61.22. Devices wherein the control means is operated by the pressurized fluid within the tire casing. Included are such means as bellows, Bourdon tubes, pistons and diaphragms.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

81+, for fluid pressure operated circuit makers and breakers other than those operatively associated with vehicle tires while in use.

**61.26 Biased tube engaging member:**

This subclass is indented under subclass 61.25. Devices in which the fluid pressure actuated control means is feeler means which is resiliently urged into contact with the gas confining tube of the tire and which moves as a result of the softening of the tube due to a decrease in gas pressure.

**61.27 Turn indicator type switches:**

This subclass is indented under subclass 52. Circuit makers and breakers especially adapted for use on vehicles to control the supply of current to vehicle turn indicating devices, and being generally operated by movement of a vehicle controlling means or by independent manual or pedal means.

(1) Note. Switches disclosed for use with illuminating means, as for example, auxiliary headlamps (e.g., curve lamps) which are switch controlled by vehicle turning, are included in this group together with other disclosed vehicle turning switch controlled devices.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclass 80 for systems for supplying electric energy to lamp and/or electric space discharge devices of the gas or vapor ionization type, the system including a switch which is operated by the movement of a vehicle controlling means (steering wheel, hand or foot lever).

340, Communications: Electrical, subclass 465 for signals which automatically respond to vehicle turning or steering and subclasses 475+ for turn signals which are manually actuated and may be automatically cancelled.

**61.28 Gear shift lever mounted:**

This subclass is indented under subclass 61.27. Devices supported in or on the manual transmission ratio changer.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.88, for switches actuated concurrently with the movement of a gear shift lever into operating positions.

**61.29 Pedal controlled or mounted:**

This subclass is indented under subclass 61.27. Devices supported on a foot operated vehicle controlling means and/or which are foot operated.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.89+, for circuit makers and breakers actuated concurrently with the operation of a vehicle pedal.

86.5, for other foot operated (other than the force of gravity acting through the foot) controllers.

**61.3 Reset by completed turn:**

This subclass is indented under subclass 61.27. Devices which are restored to inoperative position by the return of the vehicle to a straight ahead course.

(1) Note. Devices in which the initiation of the turning restores the switch to inoper-

ative position are classified in subclass 61.27, the generic subclass of the group.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclasses 476+ for automatically reset vehicle turn signals.

**61.31 Set by turning:**

This subclass is indented under subclass 61.3. Devices in which the setting to signal indicating position of the circuit controller is accomplished by the turning of the vehicle from its straight ahead course.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclass 465 for automatic signals for indicating vehicle turning.

**61.32 With pre-turning setting means:**

This subclass is indented under subclass 61.31. Devices provided with additional means for manually setting the said circuit controller, or an additional circuit controller, to signal indicating position prior to turning.

**61.33 Steering arm, draglink or tie rod actuated:**

This subclass is indented under subclass 61.31. Devices in which circuit controller movement is accomplished through the motion of a vehicle's steering arm, draglink or tie rod.

**61.34 Controller moves reset dog into operative position:**

This subclass is indented under subclass 61.3. Devices in which the restoring means comprises a pivotally movable unidirectionally acting member of ratchet-like or pawl-like function brought into position for restoring engagement with some part of the steering mechanism by a manual switch setting lever or operator.

- (1) Note. The ratchet-like action or unidirectional engagement of the dog may not be accomplished by the mere resilient or elastic nature of the member, but rather by being pivoted out of engagement while the steering mechanism moves to initiate a turn.

**61.35 By movement of steering wheel or post relative to column:**

This subclass is indented under subclass 61.3. Devices in which the restoring means acts as a result of the movement of a steering wheel or steering rod relative to the steering rod casing or housing.

**61.36 Wheel or wheel attached member engages controller or rigid extension:**

This subclass is indented under subclass 61.35. Devices in which restoration is accomplished by the physical engagement of the steering wheel or an attachment thereof with some part of the manual switch setting lever or operator, or functionally integral extension thereof.

**61.37 Through gearing:**

This subclass is indented under subclass 61.35. Devices in which restoration is accomplished by motion imparted to some member of the switching organization through rolling contact means by a rotating steering wheel or post.

**61.38 Wheel carried switch unit:**

This subclass is indented under subclass 61.35. Devices in which the switching organization is mounted or supported on or in the steering wheel.

**61.39 Control by direction of rotation of shaft or spindle:**

This subclass is indented under subclass 52. Apparatus in which a circuit is made or broken in response to a mere change in direction of rotation (not to angular acceleration or deceleration) of a shaft, the manner of making or breaking the circuit consequent upon rotation of the shaft in one direction differing from that corresponding to rotation in the opposite direction.

- (1) Note. Although it is a form of acceleration, the change in direction of rotation involved in a shaft's going from rest to rotation in either direction is considered a mere change of direction for this subclass.
- (2) Note. The difference in function, dependent upon direction of rotation, may comprise the closing of alternative circuits, for instance; or by way of addi-

tional example, the making of a circuit corresponding with rotation of a shaft in one direction and the breaking of such circuit upon rotation in the opposite direction.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.12, for circuit makers and breakers associated with bicycle sprocket or brake shafts which are controlled by the direction of rotation of said shafts.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclass 672 for signals responsive to the direction of rotation of a shaft.

**61.4 Diameter responsive (e.g., wear):**

This subclass is indented under subclass 52. Devices in which the circuit maker and breaker is actuated by the accomplishment of a predetermined change in the diameter of a workpiece or of an element in an organized device.

**61.41 Stationary feeler detects transient object:**

This subclass is indented under subclass 52. Apparatus which operates to open or close a circuit in response to the motion of a fixedly supported mechanical tentacle or movable obstruction (feeler), which motion is brought about by the presence of an object moving through the zone of operation of such feeler.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.13+, for switch-actuating detectors or feelers responsive to the presence or absence of a running length of web or strand material.

**61.42 Feeler moves into detecting contact with object:**

This subclass is indented under subclass 52. Devices which operate to open or close a circuit in response to the motion of a mechanical tentacle or movable obstruction (feeler) which motion is brought about by the impingement of such feeler against an object (either moving or stationary) due to the motion of the feeler support.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.62+, for circuit makers and breakers necessarily operated concurrently with the operation or use of a closure member, operator or accessory.

**61.43 Sensitive edge type closure:**

This subclass is indented under subclass 61.42. Apparatus in which an edge of a closure is provided with circuit making and breaking means constituting a feeler means, contacting of an object by such edge resulting in circuit controlling movement.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.62+, for circuit makers and breakers necessarily operated concurrently with the operation or use of a closure member, operator or accessory.

**61.44 Vehicle attached or carried:**

This subclass is indented under subclass 61.42. Circuit makers and breakers the support for whose feeler element is transported by a conveyance (aerial, ground or marine) so that at least a component of the sensing motion of the feeler is imparted to it by the motion of the conveyance.

**61.45 Change of inclination or of rate of motion responsive (e.g., inertia and tilt switches):**

This subclass is indented under subclass 52. Circuit makers and breakers operated by (a) the action of gravity on a part thereof when the relation of the circuit controller as a unit to the horizontal is changed and/or (b) the tendency of a part thereof to remain at rest or to continue moving at a constant rate of speed when the circuit controller as a unit is caused to be accelerated or decelerated.

- (1) Note. Those circuit controllers which are actuated in response to (a) a change in direction of motion, (b) linear displacement, or (c) the attainment of a predetermined speed, without regard to the rate at which (a), (b), or (c) is accomplished are not in this subclass or in those indented hereunder, but will be found in other appropriate subclasses in this class.

- (2) Note. As applied to vehicles these controllers are generally known as collision or upset switches.
- (3) Note. The duration of the period of acceleration (or deceleration) may be imperceptible or minute such as when the circuit controller is jarred or vibrated.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclass 669 for electrical automatic acceleration responsive indicating systems.

**61.46 Rotary motion:**

This subclass is indented under subclass 61.45. Devices in which a circuit controller is operated by the change in the relative rotational velocities of two rotating units one of which is an inertia member.

**61.47 Conducting fluid type:**

This subclass is indented under subclass 61.45. Devices in which a body of current conducting liquid flows under the influence of gravity, or by reason of its inertia, into or out of circuit closing position.

- (1) Note. The switch operation must be by virtue of the inertia of the conducting fluid or by the change of inclination of the fluid containing vessel without the use of actuating levers, the fluid containing vessel being rigid with respect to the body whose inclination is changed.

**61.48 Oscillating controller:**

This subclass is indented under subclass 61.45. Devices in which an inertia body forming a part of the circuit controller unit moves with a swinging motion (relative to the circuit controller support) in response to a change in inclination or rate of motion of the said circuit controller support.

**61.49 Resilient support arm:**

This subclass is indented under subclass 61.48. Devices wherein the inertia member is constrained to move in an arcuate path by a flexible springy elongated member fixed at one end and free at the other, the said member being attached to the free end.

**61.5 Restrained against return to normal:**

This subclass is indented under subclass 61.48. Devices provided with means for preventing the swinging inertia member from reverting to the position occupied by it prior to being disturbed by the change of inclination or rate of motion.

**61.51 Conducting:**

This subclass is indented under subclass 61.48. Devices in which the swinging inertia member and/or its supporting arm conduct electrical current when the circuit controller is in its disturbed or other than normal position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61.49, for conducting oscillating controllers supported by a resilient arm.

**61.52 Tilt responsive:**

This subclass is indented under subclass 61.45. Devices whose circuit controlling member moves under the influence of gravity alone when the circuit maker and breaker undergoes a change in inclination.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61.47, and 61.48+, respectively, for tilt responsive circuit controllers utilizing conducting liquids and oscillating members.

SEE OR SEARCH CLASS:

212, Traversing Hoists, subclasses 276+ for tilt-responsive switches which shut down or otherwise regulate a crane.

340, Communications: Electrical, subclass 689 for electrical automatic tilt responsive indicating systems.

**61.53 Linearly moving controller:**

This subclass is indented under subclass 61.45. Devices in which the circuit controlling member is constrained to move along a straight line path.

- (1) Note. Patents in this subclass are generally provided with means restraining the moving members thereby requiring that an accelerating force be applied thereto

to the restraining means. For those linearly moving controlling members which are unrestrained, see subclass 61.08, tilt responsive.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61.52, and see (1) Note above.

**61.54 Steering wheel, shaft or column mounted:**

This subclass is indented under subclass 52. Circuit makers and breakers supported or carried by a vehicle steering wheel, steering rod, or steering rod casing or housing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61.27+, for turn indicator type switches mounted on a steering wheel shaft or column.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 80+ for systems for supplying electric energy to lamp and/or electric space discharge devices of the gas or vapor ionization type, the system including a switch which is operated by the movement of a vehicle controlling means (steering wheel, hand or foot lever).

**61.55 Wheel hub spring biased type:**

This subclass is indented under subclass 61.54. Devices at the center of the steering wheel and spring urged to circuit breaking position, closing the circuit requiring the overcoming of the spring means.

**61.56 With radially extending operator (e.g., horn ring):**

This subclass is indented under subclass 61.55. Devices having an actuating lever outwardly extending from the center whereby the circuit can be closed from a region proximate the periphery of the wheel.

**61.57 On or in wheel rim:**

This subclass is indented under subclass 61.54. Devices mounted on or in the peripheral portion of the wheel.

**61.58 Actuated concurrently with operation or use of art device:**

This subclass is indented under subclass 52. Circuit makers and breakers which are so connected with apparatus other than switch means that the volitional use of such apparatus, in the normal manner, necessarily brings about a substantially simultaneous actuation of such circuit maker and breaker.

- (1) Note. The volitional use (referred to above) requires that the utilizing act which initiates the circuit controlling action be brought about by human agency (e.g., through opening of a door, turning of a handle, etc.), not merely by the attainment of a certain point in the cycle of operation of a mechanism.

SEE OR SEARCH CLASS:

- 379, Telephonic Communications, subclasses 90.01+ for telephone systems combined with other electrical systems such as fire or burglar.  
396, Photography, subclasses 180+ for illumination means with a camera shutter synchronizer wherein a switch is operated concurrently with the actuation of the shutter.

**61.59 Article inserted type (e.g., pencil sharpener):**

This subclass is indented under subclass 61.58. Devices in whose operation or use the volitional act, which initiates the circuit-controlling action, is the insertion of an article into the art device.

SEE OR SEARCH CLASS:

- 340, Communications: Electrical, subclasses 568.1+ for alarms indicating the placement or removal of an article.

**61.6 Coupling of fluid conduit:**

This subclass is indented under subclass 61.58. Apparatus in whose operation the volitional use comprises the coupling of a fluid conduit to another member, such as a wall outlet or another conduit.

**61.61 Drawer:**

This subclass is indented under subclass 61.58. Means in whose operation the volitional use comprises the movement of a sliding compartment, till, or receptacle within an encompassing receptacle or cabinet.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclass 570 for electrical automatic drawer responsive indicating systems.

**61.62 Closure, closure operator or accessory:**

This subclass is indented under subclass 61.58. Circuit makers and breakers whose circuit-controlling operation is brought about by the movement of a closure member, an operator therefor or an accessory thereof.

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

61.42+, for closures which in their operation may or may not cause a circuit to be made or broken, and subclass 291 for such closures of the sensitive edge type.

**SEE OR SEARCH CLASS:**

49, Movable or Removable Closures, appropriate subclasses, for a closure of the type provided for and see the search note thereto in section IV for the loci of closures in other classes.

312, Supports: Cabinet Structure, subclasses 271+ for cabinets having movable components actuated by movement of the closure.

315, Electric Lamp and Discharge Devices: Systems, subclass 84 for systems for supplying electric energy to lamps and/or electric space discharge devices of the gas or vapor ionization type, the systems having a switch which is operated by the movement of a door or window sash.

340, Communications: Electrical, subclasses 542+ and 545.1+ for electric automatic lock or door or window movement responsive indicating systems.

396, Photography, subclasses 180+ for illumination means with a camera shutter synchronizer wherein a switch

is operated concurrently with the actuation of the shutter.

**61.63 Letter slot or box:**

This subclass is indented under subclass 61.62. Devices in which the closure member or closure operator is associated with a mail slot or receptacle.

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

61.59, for letter boxes which comprise circuit controlling means which respond to the insertion or presence of a letter in the box in addition to or instead of means responsive to the movement of a closure or its operator.

**SEE OR SEARCH CLASS:**

232, Deposit and Collection Receptacles, subclasses 35, 36 and 37 for alarms signals and indicators operated by the movement of letter box doors.

340, Communications: Electrical, subclass 569 for alarms operated during placement or removal of contents of mail boxes.

**61.64 Lock, bolt or keeper actuated:**

This subclass is indented under subclass 61.62. Devices actuated by the movement of a securing means, as for example a lock, bolt or keeper, or of an operating means therefor, such as a key.

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

43.11+, for switches provided with means for locking the movable element of the switch.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclasses 542+ for communications comprising means responsive to the operation of a lock.

**61.65 Elevator bar lock type:**

This subclass is indented under subclass 61.64. Devices in which the securing means is a bar lock applied to an elevator gate or door.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
61.67, for other operators which move bolts or the like and also move circuit controlling elements.
- 61.66 Improper key or mere presence of key in lock:**  
This subclass is indented under subclass 61.64. Devices in which (1) a substitute implement or the like, not intended for use with the lock, or (2) the mere insertion of an implement (key) or substitute therefor causes the circuit to be made.
- (1) Note. The unauthorized keys of section (1) under this subclass definition do not, of course, serve as operators for the locks or bolts; however, those which are proper operate to move the latch or lock-bolt without changing the circuit condition then present.
- 61.67 By movement of bolt:**  
This subclass is indented under subclass 61.64. Devices having a bar like securing means which is movable to engage or disengage a retaining means and also controls a circuit. The securing means is either a part of the circuit or else acts as the circuit controller.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
61.65, for circuit controllers which are moved by a bolt or the like and are associated with elevator locks.
- 61.68 In keeper:**  
This subclass is indented under subclass 61.67. Devices in which the movement of the securing means into engagement with the retaining means either (1) makes direct electrical contact therewith or (2) moves a circuit maker within said retaining means.
- 61.69 Plural closures or plural closure cycles:**  
This subclass is indented under subclass 61.62. Means including a circuit maker and breaker whose operation requires the movement of a plurality of closures into a predetermined position, or a circuit maker and breaker whose cycle of operation (i.e., a making and breaking of the circuit) corresponds to more than one closure operating cycle (i.e., more than one opening and closing of a closure).
- 61.7 Hinge member actuated:**  
This subclass is indented under subclass 61.62. Devices whose circuit-controlling member is a part of the means for pivotally mounting a closure on its supporting structure.
- SEE OR SEARCH CLASS:  
16, Miscellaneous Hardware, subclasses 221+ for hinges, per se.
- 61.71 Sliding closure:**  
This subclass is indented under subclass 61.62. Apparatus in which the closure member follows a linear path in its restricted or guided end or edgewise circuit-controlling movement.
- 61.72 Closure-dragged switch actuator:**  
This subclass is indented under subclass 61.71. Devices including a circuit maker and breaker having a part which is constrained, by frictional contact with the closure member, to move in conjunction with the closure member.
- 61.73 Abutment type switch actuator:**  
This subclass is indented under subclass 61.71. Means in which the closure member, in its circuit-controlling movement, meets a circuit-maker-and-breaker actuator in abutting or face-to-face relationship, causing the latter to make or break a circuit.
- 61.74 Spring-biased switch actuator:**  
This subclass is indented under subclass 61.71. Apparatus in which at least one of the contacts of the circuit making and breaking member is resiliently urged into or out of contact-making position.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
61.76+, for resiliently urged circuit controllers associated with a type of closure other than sliding.
- 61.75 With modified closure:**  
This subclass is indented under subclass 61.74. Means in which either the slidable closure member or its guideway or track is modified to receive or support a part of the circuit making and breaking device.

- 61.76 Spring-biased switch actuator:**  
This subclass is indented under subclass 61.62. Devices in which at least one of the contacts of the circuit making and breaking member is resiliently urged into or out of the contact-making position.
- 61.77 Pull chain operator:**  
This subclass is indented under subclass 61.76. Apparatus wherein the resilient switch has a pull chain type operator and has means responsive to opening or closing movement of a closure, to pull the said chain.
- 61.78 Spring contact:**  
This subclass is indented under subclass 61.76. Devices in which at least one of the contacting members of the circuit making and breaking means or the immediate support of such member, which is movable therewith, is itself resilient.
- 61.79 Manually disabled:**  
This subclass is indented under subclass 61.76. Circuit-controllers which may be adjusted in such a manner that opening or closing movement of the associated closure produces no circuit-making or breaking effect.
- 61.8 Manually reset:**  
This subclass is indented under subclass 61.76. Apparatus which, after responding in circuit-opening or -closing manner to an opening or closing of a closure, requires an adjustment by some means other than the reverse motion of such closure before it can respond again in the same manner to the same stimulus.
- 61.81 Mounted on closure frame or enclosure wall:**  
This subclass is indented under subclass 61.76. Devices which are mounted upon a closure frame or a wall of an enclosure to which such closure gives access, as well as being operatively connected to such closure itself.
- (1) Note. The enclosure referred to in the definition may be, for instance, a room, cabinet, box, etc.
- 61.82 In recess:**  
This subclass is indented under subclass 61.81. Means in which the frame or wall mounted portion of the device is disposed within a recess in such frame or wall.
- 61.83 Gravity actuated:**  
This subclass is indented under subclass 61.62. Apparatus in which at least one of the circuit making and breaking members is urged by gravity into or out of contact-making position.
- 61.84 Window accessory (e.g., shades and blinds):**  
This subclass is indented under subclass 61.62. Apparatus which responds, in circuit-controlling manner, to the movement of a member mounted on or adjacent to a window and which member serves as an adjunct to such window.
- SEE OR SEARCH CLASS:  
340, Communications: Electrical, subclass 550 for communications comprising means responsive to the condition of screens, gratings or curtains.
- 61.85 Manipulating, operating or carrying handle:**  
This subclass is indented under subclass 61.58. Devices in whose operation the volitional use comprises the normal or intended movement of a manually graspable guiding, lifting, or actuating member.
- SEE OR SEARCH CLASS:  
315, Electric Lamp and Discharge Devices: Systems, subclasses 80+ for systems for supplying electric energy to lamp and/or electric space discharge devices of the gas or vapor ionization type, the system including a switch which is operated by the movement of a vehicle controlling (steering wheel, hand or foot) lever.
- 61.86 For fluid controlling valve:**  
This subclass is indented under subclass 61.85. Devices in which movement of the actuating member results in the actuation of a circuit controller and of a valve.



SEE OR SEARCH THIS CLASS, SUB-CLASS:

81+, for fluid pressure actuated switches, and especially 81.9 for flow responsive devices where the valve or obstruction, if any, is present merely to operate the switch element(s).

**61.87 Hand brake lever:**

This subclass is indented under subclass 61.85. Means in which the operating handle functions to control a vehicle retarding device.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclass 457.3 for signals responsive to the position of a hand brake lever.

**61.88 Gear shift lever:**

This subclass is indented under subclass 61.85. Apparatus in which the operating handle functions to vary the relation of gears in a train, one to another, to effect a change in speed ratio or in relative directions of rotation, between the input and output of such gearing.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.28, for turn indicator type switches mounted on gear shift levers.

**61.89 Vehicle pedal:**

This subclass is indented under subclass 61.58. Means in whose operation the volitional use comprises the actuation of a foot operated member for controlling the functioning of a conveyance part.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 80+ for systems for supplying electric energy to lamp and/or electric space discharge devices of the gas or vapor ionization type, the system including a switch which is operated by the movement of a vehicle controlling (steering wheel, hand or foot) lever.

**61.9 Engine governed over-riding means:**

This subclass is indented under subclass 61.89. Devices whose circuit making or breaking effect is nullified by (1) disabling the vehicle

pedal as a circuit controller actuator, or (2) use of a series related circuit disabling switch, brought about by the attainment of a predetermined condition of the vehicle's engine.

**61.91 Transmission controlled:**

This subclass is indented under subclass 61.58. Apparatus in whose operation the volitional use comprises the rearrangement of gears in a speed-change gearing train and in which the circuit controlling elements are not directly affected by a gear shift lever.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

61.88, for circuit makers and breakers actuated concurrently with the use of a gear shift lever.

**61.93 Anti-intrusion type:**

This subclass is indented under subclass 52. Circuit-controllers which are actuated by the attempted entry into or egress from a room, compartment, building, or other enclosure, through the use of unauthorized methods or means.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclasses 541+ for electrical automatic intrusion responsive indicating systems.

**SNAP.**

This group relates to circuit makers and breakers which are constructed to operate with a quick motion. They are limited to those switches in which the quick motion of the contacts is not dependent on the rate of movement of the operator. This is usually accomplished by a spring connection between the operator and the switch-contact, so that the initial movement of the operator puts the spring under tension and when the contact is released it is snapped by action of the spring.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

557, for quick-action switches in which the contact is positively controlled by the operator, the quick action being derived through lever mechanism.

**SEE OR SEARCH CLASS:**

- 74, Machine Element or Mechanism, the subclasses under the heading "Mechanical Movements" especially subclasses 97.1+ and 100.1+, for mechanical movements, per se, involving snap actions.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, appropriate subclasses for electrothermal and thermally actuated snap switches.

**79 SUSPENDED-WIRE CONTROLLED:**

This subclass is indented under the class definition. Circuit-controllers used in transmission or trolley lines which are operated by the breaking of the wire to disconnect the broken section.

**80 CENTRIFUGAL:**

This subclass is indented under the class definition. Circuit-controllers in which the contact is operated by means responsive to centrifugal force.

**SEE OR SEARCH CLASS:**

- 73, Measuring and Testing, subclasses 535+ for a speed responsive device of the centrifugal weight type, per se.
- 361, Electricity: Electrical Systems and Devices, subclasses 236+ for speed controlled systems which may include centrifugally operated switches.

**81 FLUID PRESSURE:**

This subclass is indented under the class definition. Devices in which the operating means is responsive to pressure of a liquid, gas, or vapor. The pressure may be caused by a confined fluid or by the flow of a fluid.

- (1) Note. This group includes devices responsive to vacuum.

**SEE OR SEARCH CLASS:**

- 60, Power Plants, subclasses 632+, for one shot explosion actuated expansible chamber type motors.
- 92, Expansible Chamber Devices, appropriate subclasses for an expansible chamber device, per se.
- 235, Registers, subclass 452 for record-sensing devices wherein a switch may

be opened or closed or circuits made in accordance with areas on the record that contain coded indicia, the area where said indicia is sensed conveying particular information.

- 337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 114+ for electrothermally operated switches employing expansible or vaporizable fluid and subclasses 306+ for similar thermally actuated switches.

**81.4 Plural switch:**

This subclass is indented under subclass 81. Combinations, of two or more distinct circuit makers and breakers, each having its own operating means, at least one of said operating means being responsive to pressure of a fluid or to vacuum.

**81.5 With plural operators:**

This subclass is indented under subclass 81. Devices, having two or more distinct operating means, at least one of which is responsive to pressure of a fluid or to vacuum.

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

- 81.4, for combinations of two or more distinct circuit makers and breakers, each having its own operating means, at least one of said operating means being responsive to pressure of a fluid or to vacuum.

**SEE OR SEARCH CLASS:**

- 74, Machine Element or Mechanism, subclasses 625+ for gearing having provision for operation by either manual or power means, and subclass 479.01 for manually operated control lever and linkage systems having a plurality of controlling elements.
- 123, Internal-Combustion Engines, subclasses 179.1+ for starters equipped with dual operators.
- 236, Automatic Temperature and Humidity Regulation, subclass 91 for devices operated by a plurality of thermostats.

**81.6 Operable to cause liquid contact flow:**

This subclass is indented under subclass 81. Devices of the type in which the fluid pressure (or vacuum) acts upon a body of conductive liquid causing the latter to move so as to open or close a circuit including the conductive liquid.

- (1) Note. The fluid pressure or vacuum may be applied either directly to the conductive liquid, or indirectly through a piston or diaphragm, so that the change in pressure causes liquid motion, as distinguished from fluid pressure operated means that cause change in position of a liquid contact switch, liquid motion being due to such change in position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 182+, for miscellaneous circuit makers and breakers employing liquid contact means.  
200+, for periodic circuit makers and breakers employing liquid contact means.

SEE OR SEARCH CLASS:

- 73, Measuring and Testing, subclasses 747+ for manometric type pressure gauges.  
337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 122 and 331 for electrothermal or thermally actuated switches with conductive fluid contacts.

**81.8 Bourdon tube type:**

This subclass is indented under subclass 81. Devices, of the type in which the operating means includes a flexible, arc-shaped tube, the curvature of which changes in response to changes in the fluid-pressure therein.

SEE OR SEARCH CLASS:

- 73, Measuring and Testing, subclasses 732+ for pressure gauges of the Bourdon tube type.

**81.9 Flow-responsive type:**

This subclass is indented under subclass 81. Devices of the type in which the operating means is responsive to the flow of a fluid (including air-currents, wind, etc.), as distin-

guished from those which are responsive merely to the static pressure of the fluid.

- (1) Note. See alphabetical index to the classification of patents, the title "Flow" for the distribution of flow controlled devices in the several classes.

SEE OR SEARCH CLASS:

- 137, Fluid Handling, particularly subclasses 98+, 107, 459+, 486+, 496, and 497+ for valves with flow responsive actuating means.

**82 Piston:**

This subclass is indented under subclass 81. Devices in which the fluid acts on a piston which moves in a cylinder.

**83 Diaphragm:**

This subclass is indented under subclass 81. Devices in which the fluid acts on a flexible sheet member confined in a housing.

SEE OR SEARCH CLASS:

- 92, Expansible Chamber Devices, subclasses 96+ for a diaphragm type expansible chamber device.

**84 FLOAT:**

This subclass is indented under the class definition. Devices in which the contact is operated by the movement of a float.

SEE OR SEARCH CLASS:

- 73, Measuring and Testing, subclasses 308 and 313 for float operated switches combined with measuring structures.  
337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 314+ for thermally actuated switches employing an expansible fluid with float means.

**85 WEIGHT:**

This subclass is indented under the class definition. Circuit-controllers in which the operator is adapted to be moved by having a weight applied to it and subjected to the action of gravity.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclass 666 for electric alarms which are automatically responsive to weight.

**86 Treads:**

This subclass is indented under subclass 85. Circuit-controllers incorporated in mats or treads and adapted to be operated by a person stepping upon them.

**SEE OR SEARCH CLASS:**

340, Communications: Electrical, subclass 666 for electric alarms which are automatically responsive to the movement of a tread or treadle.

**86.5 FOOT OPERATED:**

This subclass is indented under the class definition. Circuit-controllers in which the operator by its nature, mounting or association with a device is adapted to be moved by foot applied force other than the force of gravity acting through the foot.

**175 Automatic multiple contact selective means:**

This subclass is indented under subclass 1. Subject matter wherein the claimed device includes contact selecting means which in itself is acting, or automatic, the contact selecting structure operating by its own self-contained mechanism when activated by some impersonal influence as for example a signalling current or voltage transmitted from a distance, and which is not manual and requiring personal intervention; i.e., not requiring the presence of an operator. The art to be found in this and the indented subclasses is analogous to the structure to be found in Class 335, subclasses 111+ and in Class 379, Telephonic Communications, subclasses 242+.

- (1) Note. (a) The structure to be found in Class 335 is restricted to devices which are magnetically operated and of general utility and not restricted by the language in the claims to any one art device specifically classifiable elsewhere. (b) The structure to be found in Class 379 is restricted by language in the claims, other than in the preamble, which is generally recognized as restricting the device to telephony. (c) The patents

classified in this and the indented subclasses are formerly in the telephone art but were found not to be restricted to the telephone art by any language other than perhaps in the preamble to the claims, and not recited as magnetically operated. A similar group of patents, not restricted to any otherwise classifiable art, but which are specifically claimed as magnetically activated are to be found in Class 335 subclasses 110+.

- (2) Note. The search to be complete must be extended to the appropriate subclasses in Classes 379 and 335 as discussed, supra.

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

- 1, for devices under the class definition in which a plurality of contacts are arranged to control two or more circuits and where the arrangement is not restricted to automatic selective means.

**SEE OR SEARCH CLASS:**

- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 76 for electric motor controlled switches with plural contacts, subclasses 92+ for electromagnetically controlled vibrators with plural contact activating means, and subclasses 111+ for electromagnetically activated switches with plural contacts and not forming a part of a specific art device, which is otherwise classifiable, and wherein the activating structure comprises self acting (automatic) means similar to the telephone type.
- 340, Communications: Electrical, subclasses 825+ for remote control selective systems for controlling the operation of plural devices at a distance, the said control being exercised over a lesser number of communication lines than the number of different results which can be obtained.
- 379, Telephonic Communications, subclasses 242+ for automatic telephone systems limited to instrument and their combinations for effecting the transmission of spoken sounds by

means of electricity and in which connection between subscribers are automatically and mechanically made at a central station, without the aid or presence of an operator.

**176 With multidirectional selector means:**

This subclass is indented under subclass 175. Subject matter wherein the claimed structure includes means whereby the movable contactor or wiper structure is caused to be first in one direction, and then at least in one other direction, the final selection being the result of the plurality of motions, or whereby at least two or more contactor or wiper structures are caused to have movement relative to one another. The movements may include vertical, rotary, radial or other motions.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17+, for means under subclass 1 which is peculiarly adapted for the operation of multiple circuit controllers and subclass 18 for means for operating two or more controllers which have movement relative to one another.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 112+ for switches which are of similar type, but magnetically activated, subclasses 122+ for devices wherein a plurality of individual controlled circuits are completed selectively, cyclically, alternately or intermittently by other than automatic means which may involve compound motions, subclasses 140+ for plural contact switches utilizing plural magnetic means which may or may not produce multi-directional movement.

379, Telephonic Communications, subclasses 242+ for combined rotary and nonrotary switch lock out arrangements.

**177 In different planes:**

This subclass is indented under subclass 176. Subject matter wherein the plurality of directional motions are caused to take place in different planes, as for example a first rectilinear

motion in a vertical plane combined with a rotary motion in a horizontal plane.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.07, for combined rotary and nonrotary switch arrangements.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 113 for automatic magnetically activated multiple contact switches having motion conversion means such as, rotary to reciprocal.

379, Telephonic Communications, subclasses 299+ for automatic telephone switches utilizing combined rotary and nonrotary operating means.

**178 With motion in a single plane:**

This subclass is indented under subclass 175. Subject matter wherein the claimed structure includes apparatus whereby one or more carriers for the contact selecting means is caused to move or reciprocate in a single plane. The motion usually takes place in a vertical plane.

SEE OR SEARCH THIS CLASS, SUBCLASS:

16, for multiple circuit control switches with reciprocating contact means, subclass 46 for pattern-sheet controlled switches which may comprise any number of contacts.

SEE OR SEARCH CLASS:

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 118 for multiple contact switches automatically operated in a single plane, subclass 130 for plural contact switches having reciprocating or linearly sliding means whereby the contacts are selectively cyclically, alternately or intermittently activated, and subclasses 131+ for plural contact switches having reciprocating means whereby the plurality of contacts are simultaneously activated.

379, Telephonic Communications, subclasses 299+ for automatic telephone switches establishing circuit connections by devices having motions in

which a line terminal or connector moves in a longitudinal, transverse, vertical or radial direction.

**179 Rotary:**

This subclass is indented under subclass 178. Subject matter wherein the claimed structure includes at least one wiper or movable contactor which is adapted to be brought into contact with fixed contacts selectively through the medium of a carrier or rotor turning about a fixed axis.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.07, for periodic multiple contact switches with rotary motion, subclass 37 for retarded clocktrain rotary switch with multiple contacts.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclasses 575+ for pawl and ratchet movements.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 64 for retarded or delayed type switches in which a plurality of contacts are alternately, consecutively or selectively activated by mechanical means, subclass 103 for alternating or fluctuating current activated switches utilizing induction or eddy current rotary means, subclass 117 for automatic plural contact switches with rotary selector motion, subclasses 126+ for plural contact type switches with rotary or compound motion means for selectively, cyclically, alternately or intermittent contact selection not automatic, subclasses 142+ for step by step type switches utilizing rotary motion devices which are magnetically activated.

379, Telephonic Communications, subclasses 258+ for automatic percentage telephone switching systems, utilizing rotary single level switches.

**180 With clutch:**

This subclass is indented under subclass 179. Subject matter wherein the claimed structure comprises a clutch mechanism connecting a

driving means to the carrier or rotor whereby the rotor may be disassociated from the driving means.

SEE OR SEARCH CLASS:

74, Machine Element or Mechanism, subclass 37 for reciprocating control means utilizing belt or chain means with a clutch, subclass 110 for reciprocating to reciprocating motion mechanical drive means with clutch.

192, Clutches and Power-Stop Control, subclasses 30+ for clutches in general.

246, Railway Switches and Signals, subclasses 132+ for railway signal type switching means, comprising plural contact sets and means for selecting any one or any combination of the contact sets with interlocking or clutch means.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 121 for plural contact automatically operated switches with motor driven contact activation means including clutch means, subclass 126 for nonautomatic plural contact switches with rotary or compound motion means for selectively activating the contacts.

**181 ELECTROSTRICTIVE OR ELECTROSTATIC:**

This subclass is indented under the class definition. Subject matter wherein the claimed apparatus comprises means whereby the completion or interruption of at least one electrical circuit is accomplished by means utilizing either the phenomenon wherein some materials experience an elastic strain as the result of an electric field, this strain being independent of the polarity of the field or by means utilizing the laws of electrostatics, i.e., the phenomena wherein, due to the mutual repulsion of all electricity for electricity of the same kind (of like polarity), a conductor of one polarity with its surrounding electric field is caused to attract or repulse another conductor with an electric field.

(1) Note. All crystals, in addition to their first order piezo-electric effect, have a second order electrostrictive effect in which a distortion occurs which is proportional to the electric displacement.

Patents in which piezo-electric devices are utilized for their electrostrictive effect, for the purpose of causing the control of one or more electric circuits, are to be found here.

**SEE OR SEARCH CLASS:**

- 40, Card, Picture, or Sign Exhibiting, subclasses 463+ for changeable exhibitors which may utilize electrostrictive or electrostatic effects for controlled action.
- 102, Ammunition and Explosive Devices, subclasses 200+ for fuses or ignition devices utilizing electrical magnetic wave or radiant energy.
- 307, Electrical Transmission or Interconnection Systems, subclass 91 for devices for magnetic or electrostatic field control, subclass 104 for electromagnet and highly inductive connection systems, subclass 109 for pulse producing systems utilizing the discharge of a capacitor and subclasses 125+ for switching systems responsive to electrical conditions and which may utilize electrostrictive or electrostatic principles.
- 310, Electrical Generator or Motor Structure, subclass 300 for nondynamo-electric generator or motor structure, subclasses 311+ for piezo-electric devices, per se, and subclasses 10+ for dynamo-electric generator or motor structure.
- 318, Electricity: Motive Power Systems, subclass 118 for magnetostrictive motor devices.
- 324, Electricity: Measuring and Testing, subclass 74 for motor type devices which may utilize the electrostrictive or electrostatic principles, subclass 109 for devices for measuring or testing electricity and consisting of piezo-electric or electrostatic devices and subclass 144 for testing devices with an electromagnetic field.
- 327, Miscellaneous Active Electrical Non-linear Devices, Circuits, and Systems, subclasses 509+ for miscellaneous externally effected circuits.

- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclass 18 for automatic circuit breaking devices responsive to reverse currents or voltages, subclass 35 for automatic circuit breaking devices with trip means which may depend in part on electrostrictive or electrostatic means, subclasses 78+ for switching devices in which the movement of an armature depends upon the direction of a current in the armature controlling circuit, subclass 215 for relay devices utilizing the magnetostrictive principle for obtaining mechanical force, subclass 223 for relays utilizing relatively movable conductors, e.g., dynamometer type.
- 336, Inductor Devices, appropriate subclasses for particular inductor arrangements.
- 347, Incremental Printing of Symbolic Information, subclasses 112+ for electrostatic marking.
- 361, Electricity: Electrical Systems and Devices, subclass 207 for electric circuits for relays and electromagnets which utilize the electrostatic principle, subclasses 258+ for electrostatic igniting systems.

**182 LIQUID CONTACT:**

This subclass is indented under the class definition. Switching devices in which electrical connection is made between two or more contacts or terminals by means of conducting liquid, usually mercury.

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

- 61.04+, for other electrically-conducting-liquid switching devices of special application.
- 81.6, for other liquid-contact switches of the type in which a fluid pressure (or vacuum) acts upon a body of conductive liquid causing the latter to move so as to open or close a circuit including the conductive liquid.

**SEE OR SEARCH CLASS:**

- 313, Electric Lamp and Discharge Devices, subclasses 163+ for electric discharge devices which have a liquid electrode.

- 324, Electricity: Measuring and Testing, subclasses 92+ for devices for measuring, testing or sensing electricity, per se, and utilizing fluid conductors.
- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 47+ for magnetically operated switches utilizing conductive liquid.
- 337, Electricity: Electrothermally or Thermally Actuated Switches, subclasses 21, 80+, 331, and 373 for electrothermal or thermally controlled switches utilizing liquid contacts.
- 445, Electric Lamp or Space Discharge Component or Device Manufacturing, subclasses 1+ and 60+ and the classes specified in the Notes to the definitions of those subclasses, for the apparatus and processes for the manufacture of electric lamp and electric space discharge devices, such apparatus and processes being analogous to those in making mercury switches.
- 183 Combined:**  
This subclass is indented under subclass 182. Subject matter wherein the liquid contact switch is claimed in combination with another art device having an added purpose or utility independent of the switch and which claimed combination does not include sufficient structure details of the other art device for classification elsewhere or the combination is not provided for elsewhere.
- 184 With illumination means:**  
This subclass is indented under subclass 183. Subject matter wherein the liquid contact switch is combined with an illumination means.
- 185 With electrical resistance:**  
This subclass is indented under subclass 183. Subject matter wherein the liquid contact switch is combined with an electrical resistor (e.g., the resistor may be in the form of a heating coil).
- 186 Time delay:**  
This subclass is indented under subclass 182. Subject matter wherein some means of delaying electrical connection between the switch contact and the liquid is employed.
- 187 Plural switches (in same housing):**  
This subclass is indented under subclass 182. Subject matter wherein more than one switch is contained in a single housing. The housing may be the only means by which the electrically conductive liquid is contained, wherein there are solid dividers which separate the liquid, or each switch may further be contained in an additional enclosure (e.g., a glass envelope) which is mounted within the single housing.
- 188 With common electrical connection (solid or liquid):**  
This subclass is indented under subclass 187. Plural switches wherein the switches are electrically connected by a solid metal conductor or by the liquid conductor of each switch (e.g., by the flowing-together of the liquid conductor by means of an aperture in a wall or septum).  
  
SEE OR SEARCH THIS CLASS, SUBCLASS:  
221+, for similar type connections occurring within a single switch.
- 189 Progressive contacts:**  
This subclass is indented under subclass 187. Subject matter wherein a number of circuits are to be successively completed in a predetermined sequence, responsive to the relative movement of the contacts and the liquid.
- 190 Liquid level responsive:**  
This subclass is indented under subclass 182. Subject matter wherein electrical connection of the liquid contact switch is made or broken responsive to the level or height of the liquid in the enclosing housing.  
  
SEE OR SEARCH THIS CLASS, SUBCLASS:  
61.2+, for similar switches of special application.  
230, for switches wherein electrical connection is made or broken by the buoyancy of a float which is responsive to the rise and fall of a liquid (not



to be confused with the liquid which is part of the switch).

**191 Having capillary tube means:**

This subclass is indented under subclass 182. Subject matter wherein the conductive-liquid container includes a capillary tube.

**192 With electro-capillary action:**

This subclass is indented under subclass 191. Subject matter wherein the phenomenon of electro-capillarity is utilized. Electro-capillarity action involves generation of a force when current flows from one conductive liquid to another in a capillarity tube, the force being a surface tension force at the boundary between the liquids. The direction of movement of the liquids is the same as the direction of the current.

**193 Having electrolytic conductive-liquid means:**

This subclass is indented under subclass 182. Subject matter wherein the conductive liquid constitutes and electrolyte.

**194 With significant electrolyte:**

This subclass is indented under subclass 193. Subject matter wherein the constituents of the electrolyte are specified by name or characteristics.

**195 Spray or jet by centrifugal force and/or by other pressure-producing means:**

This subclass is indented under subclass 182. Subject matter wherein the conductive liquid is converted into a spray or jet stream. Usually the conversion takes place by using a pump to transfer the liquid from a tank to a centrifugal force device which is responsible for creating the spray or jet stream which in turn establishes an electrical connection across at least two contacts.

SEE OR SEARCH THIS CLASS, SUBCLASS:

80, for circuit controllers under the class definition in which a contact is operated by means responsive to centrifugal force.

**196 Periodic:**

This subclass is indented under subclass 195. Subject matter wherein electrical connection is made or broken at predetermined time intervals.

**197 Oscillating jet:**

This subclass is indented under subclass 196. Subject matter wherein a wave-shaped conductive liquid jet is utilized for effecting the closing or interruption of an electric circuit. The wave-shape of the liquid jet is generally produced by the interaction of a current carrying liquid jet and a magnetic field.

**198 Contact dips (moves relative to container) into the conductive liquid:**

This subclass is indented under subclass 196. Subject matter wherein the contacts move relative to the container of the conductive liquid and dip into the liquid spray or jet.

**199 Contact dips (moves relative to container) into the conductive liquid:**

This subclass is indented under subclass 182. Subject matter wherein the contacts move relative to the container of the conductive liquid and dip into the liquid.

**200 Periodic:**

This subclass is indented under subclass 199. Subject matter wherein electrical connection is made or broken at predetermined time intervals.

**201 Progressive contacts:**

This subclass is indented under subclass 200. Subject matter wherein a number of circuits are to be successively completed in a predetermined sequence, responsive to the relative movement of the contacts and the liquid.

**202 Cam actuated:**

This subclass is indented under subclass 200. Subject matter wherein a cam is used to actuate the switch.

**203 Cam actuated:**

This subclass is indented under subclass 182. Subject matter wherein a cam is used to actuate the switch.

- 204 Gyrotory movement:**  
This subclass is indented under subclass 203. Subject matter wherein the cam actuation results in a wobbly motion of the container of the conductive liquid.
- 205 Periodic:**  
This subclass is indented under subclass 203. Subject matter wherein electrical connection is made or broken at predetermined time intervals.
- 206 Plural switches (switches not in same housing):**  
This subclass is indented under subclass 205. Subject matter wherein more than one switch is involved, but not in the same housing.
- (1) Note. Where two or more switches are claimed as being in the same housing classification is in subclasses 187+.
- 207 Eccentric switch movement (wobble):**  
This subclass is indented under subclass 205. Subject matter wherein the cam actuation results in a wobbly motion of the container of the conductive liquid.
- 208 Periodic:**  
This subclass is indented under subclass 182. Subject matter wherein electrical connection is made or broken at predetermined time intervals.
- 209 Piston or plunger means:**  
This subclass is indented under subclass 182. Subject matter wherein piston means (e.g., rod or plunger) are used to force the conductive liquid into electrical connection with the switch contacts.
- 210 Contact attached to or unitary with piston or plunger:**  
This subclass is indented under subclass 209. Subject matter wherein the piston functions as a contact or carries a contact to make or break the circuit.
- 211 Pressure-deformable (flexible) means:**  
This subclass is indented under subclass 182. Subject matter wherein the switch is operated by a pressure deformable or flexible element, such as a diaphragm, a bellows or a bourdon tube. The movement of the deformable flexible means produces relative movement between the liquid and the contacts.
- 212 With progressive contacts:**  
This subclass is indented under subclass 211. Subject matter wherein a number of circuits are to be successively completed in a predetermined sequence, responsive to the relative movement of the contacts and the liquid.
- 213 With movably attached contact means:**  
This subclass is indented under subclass 211. Subject matter wherein contact means are attached to the flexible element for movement into the conductive liquid to close the switch.
- 214 With movable liquid-separating or shifting means:**  
This subclass is indented under subclass 182. Subject matter wherein the switch circuit is broken by utilizing some mechanical means for separating the conductive liquid into at least two bodies, or shifting the liquid.
- 215 With external support or external housing:**  
This subclass is indented under subclass 182. Subject matter including housing or support means which is external to the switch, per se, (i.e., external to the envelope or container which contains the electrically conductive liquid and the contacts).
- 216 With hermetic or resin sealing:**  
This subclass is indented under subclass 215. Subject matter wherein the external housing is hermetically sealed. This sealing does not concern the switch envelope (usually a sealed glass container) which is almost always sealed to prevent loss of the liquid and air-evacuated to remove harmful oxidizing gases.
- 217 Dual function support:**  
This subclass is indented under subclass 215. Subject matter wherein an electrical contact of the switch extends through the switch housing or envelope and serves as a support element for the switch.
- 218 With actuator securing means:**  
This subclass is indented under subclass 217. Subject matter wherein the actuator means of the switch is held under a resilient securing means usually for the purpose of imparting on-

- off stop limits or a resistance to the movement of the actuating means.
- 219 With actuation means:**  
This subclass is indented under subclass 215. Subject matter wherein the housing or support includes actuating means for moving the switch, per se, into circuit-making or breaking position.
- 220 Tiltable or rotatable:**  
This subclass is indented under subclass 182. Subject matter wherein the switch is actuated either by tilting or rotating.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
61.47, for switch devices of special application in which a body of current conducting liquid flows under the influence of gravity, or by reason of its inertia, into or out of circuit closing position. (See also Note (1) under this subclass).
- 221 Container has plural major conductive-liquid containing chambers or spaces connected by a passageway:**  
This subclass is indented under subclass 220. Subject matter wherein the container for the liquid is divided into plural liquid containing chambers with fluid passage means interconnecting the chambers. Actuation of the switch causes the liquid of one or more of the chambers to flow into circuit closing relationship with contact elements of the switch.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
188, for plural switches in a single housing with a common conductive liquid.
- 222 Container forms at least one contact:**  
This subclass is indented under subclass 221. Subject matter wherein the switch envelope or container is formed of one or more metal parts and at least one of these parts is used as an electrical terminal for the switch, per se.
- 223 Having position sensitive ring, disk or conical contact:**  
This subclass is indented under subclass 220. Subject matter wherein a contact is of such a shape (e.g., ring, disk or cone shaped) that the electrical circuit is completed when the switch is positioned within certain predetermined angular limits and the electrical circuit is broken when the switch is not positioned within the said predetermined angular limits.
- 224 Multi-throw or multi-position:**  
This subclass is indented under subclass 220. Subject matter wherein a common contact may be moved into more than one contact closing position to establish electrical connections in one of a plurality of electrical circuits.
- 225 Single pole-double throw:**  
This subclass is indented under subclass 224. Subject matter wherein the common contact member is the single pole type and is limited to closing the electrical connection by movement into either of two contact closing positions.
- 226 Container forms at least one contact:**  
This subclass is indented under subclass 220. Subject matter wherein the switch envelope or container is formed of one or more metal parts and at least one of these parts is used as an electrical terminal for the switch, per se.
- 227 Chamber contains insulative restrictive element or means to form at least one conductive-liquid-containing recess:**  
This subclass is indented under subclass 226. Subject matter wherein the liquid container contains a restrictive element of insulative material which forms a recess or groove in the container for receiving the conductive liquid in order to make or break the switch circuit.
- 228 Chamber contains insulative restrictive element or means to form at least one conductive-liquid-containing recess:**  
This subclass is indented under subclass 220. Subject matter wherein the liquid container contains a restrictive element of insulative material which forms a recess or groove in the container for receiving the conductive liquid in order to make or break the switch circuit.
- 229 Container includes at least one integral recess:**  
This subclass is indented under subclass 220. Subject matter wherein the conductive liquid container has a recess formed integrally therewith.

- 230 Float actuated:**  
This subclass is indented under subclass 220. Subject matter wherein electrical connection is made or broken by the buoyancy of a float located in the conductive liquid. Whenever the liquid rises or falls, the float carried by the liquid is moved into contact opening or closing position. The float itself may constitute the contact, or it may carry a contact thereon.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
190, for fluid-level switching devices that do not require a float.
- 231 With significant contact-sealing means:**  
This subclass is indented under subclass 220. Subject matter wherein the sealing of a contact or contacts to the switch container is set forth in specific details. The mere statement that the contact is sealed to the container is not sufficient to cause classification in this subclass.
- 232 With anti-splash means:**  
This subclass is indented under subclass 220. Subject matter wherein some means is specified for preventing splashing of the liquid conductor within the container whenever the switch is actuated.
- 233 Particular conductive liquid:**  
This subclass is indented under subclass 182. Subject matter wherein the constituents of the conductive liquid are specified.
- 234 Having contact wetting agent:**  
This subclass is indented under subclass 233. Subject matter wherein the liquid contains a contact-wetting agent.
- 235 Particular contact structure or material:**  
This subclass is indented under subclass 182. Subject matter wherein the contact structure has specific details or the material of a contact is specified.
- 236 Mounting or attaching means:**  
This subclass is indented under subclass 235. Subject matter wherein the mounting or attaching means of the contact is set forth in specific details.
- 237 ELECTRIC SWITCH DETAILS:**  
This subclass relates to an element of an electrical switch of this class (200) wherein the element is characterized by some significant structural detail or details. If a claim is drawn to a sufficient number of elements which cooperate to form a complete switch, the patent is normally classified higher in the schedule and crossed in a “detail” subclass.
- 238 Contact:**  
This subclass is indented under subclass 237. A contact or contacts, wherein significant details are claimed which relate solely to some distinct characteristics concerning the contact.
- (1) Note. An electrical contact is defined as being one of at least two elements that constitutes the electrical connection point of a circuit maker and breaker, the elements being relatively movable to open and close a circuit.
- 239 Abutting type:**  
This subclass is indented under subclass 238. Subject matter, wherein the manner of cooperation or engagement between the contacts constitutes abutting. This type of engagement is characterized in that the relative movement between the contacts, whenever the contacts are approaching each other, terminates when the surface of one of the contacts touches the surface of the other contact. Generally, there is no further movement between the contacts after the initial touch.
- 240 With subsequent rolling:**  
This subclass is indented under subclass 239. Subject matter, wherein the engagement of the contacts by abutting is followed immediately by a rolling motion between the contacts, generally due to the curvature of at least one of the contacts. This rolling motion precludes any wiping or sliding movement between the contacts.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
241, for “Subsequent Sliding” movement.

- 241 With subsequent sliding:**  
This subclass is indented under subclass 239. Subject matter, wherein the engagement of the contacts by abutting is followed immediately by a sliding or wiping motion between the contacts. This sliding or wiping motion precludes any rolling motion between the contacts.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
240, for “subsequent rolling” movement.
- 242 Having contact cleaning structure:**  
This subclass is indented under subclass 241. Subject matter, wherein the sliding or wiping motion between the contacts is designed for cleaning the contact surfaces.
- 243 Bridging contacts:**  
This subclass is indented under subclass 239. Subject matter, wherein there are at least two contact elements mounted on a common support and electrically connected, usually by the conductive material forming the support.
- 244 With rigid pivoted member carrying the moving contact:**  
This subclass is indented under subclass 239. Subject matter, wherein the moving contact is mounted on a rigid pivoted member.
- 245 With resilient mounting:**  
This subclass is indented under subclass 239. Subject matter, wherein each of the abutting contacts are mounted on a separate piece of resilient support, such support having the ability to bounce or spring back into shape, position, etc., after being pressed or stretched.
- 246 With spring blade support:**  
This subclass is indented under subclass 245. Subject matter, wherein the resilient material is a spring blade support.
- 247 Within supporting guides:**  
This subclass is indented under subclass 245. Subject matter, wherein at least one of the resilient contact supports is held in position or guided by a slot or hole in a structural element such as an insulating block.
- 248 Self-aligning contacts:**  
This subclass is indented under subclass 239. Subject matter, wherein at least one of the abutting contacts is mounted in a semi-universal manner such that the contact will pivot or rotate to a position whereby the contact aligns itself squarely with its cooperating contact to give an efficient electrical connection.
- 249 Having contact adjusting means:**  
This subclass is indented under subclass 239. Subject matter, wherein adjusting means (e.g., a screw) is provided for positioning one of the contacts relative to its cooperating contact. This positioning includes the setting of the gap between the cooperating contacts and/or the horizontal or sideways aligning between the contacts.
- 250 Having biasing means:**  
This subclass is indented under subclass 239. Subject matter, wherein at least one of the abutting contacts is biased or pressed by some means into good electrical connection with the cooperating contact. Frequently, the biased contact is biased inherently in the material of which it is made.
- 251 Means for adjusting contact pressure:**  
This subclass is indented under subclass 250. Subject matter, wherein the biasing means includes means (e.g., a screw) for changing or adjusting the biasing pressure in order to improve the electrical connection between the cooperating contacts.
- 252 Sliding type:**  
This subclass is indented under subclass 238. Subject matter, wherein the manner of cooperation or engagement between a fixed contact and a moving contact constitutes sliding or wiping. This type of engagement is characterized in that the relative movement between the contacts, whenever the contacts are approaching each other, does “not” terminate when the surface of one of the contacts touches the surface of the other contact, but rather there is a further movement between the contacts which constitutes a sliding or wiping motion after the initial touch.

- 253 Having contact cleaning structure:**  
This subclass is indented under subclass 252. Subject matter, wherein the sliding or wiping motion between the contacts is designed for cleaning the contact surfaces.
- 253.1 Plug type contacts:**  
This subclass is indented under subclass 252. Subject matter wherein the contacts, when engaged, are arranged in such a manner that one contact is inserted into another mating part.
- 254 Knife and clip contacts:**  
This subclass is indented under subclass 252. Subject matter, wherein the sliding or wiping motion is effected by a knife blade and clip type of contacts.
- 255 Having biasing means:**  
This subclass is indented under subclass 254. Subject matter, wherein at least one of the relatively sliding contacts (usually the fixed or nonmoving contact) is biased or pressed by some means into good electrical connection with the cooperating contact. Frequently, the biased contact is biased inherently in the material of which it is made.
- 256 Means for adjusting contact pressure:**  
This subclass is indented under subclass 255. Subject matter, wherein the biasing means includes means (e.g., a screw) for changing or adjusting the biasing pressure in order to improve the electrical connection between the cooperating contacts.
- 257 With resilient mounting:**  
This subclass is indented under subclass 252. Subject matter, wherein the relative moving contacts, usually only one of these contacts, are mounted on a separate piece of resilient support, such supports having the ability to bounce or spring back into shape, position, etc., after being pressed or stretched.
- 258 Self-aligning contacts:**  
This subclass is indented under subclass 252. Subject matter, wherein at least one of the relative moving contacts, usually the fixed contact, is mounted such that the contact will pivot, rotate, or spring (according to the nature and structure of the material) into a position whereby the contact aligns itself squarely with

its cooperating contact to give an efficient electrical connection.

- 259 Having contact adjusting means:**  
This subclass is indented under subclass 252. Subject matter, wherein adjusting means (e.g., a screw) is provided for positioning one of the contacts relative to its cooperating contact. This positioning includes the setting of the gap between the cooperating contacts and/or the horizontal or sideways aligning between the contacts.
- 260 Having biasing means:**  
This subclass is indented under subclass 252. Subject matter, wherein at least one of the relatively sliding contacts is biased or pressed by some means into good electrical connection with the cooperating contact. Frequently, the biased contact is biased inherently in the material of which it is made.
- 261 Means for adjusting contact pressure:**  
This subclass is indented under subclass 260. Subject matter, wherein the biasing means including means (e.g., a screw) for changing or adjusting the biasing pressure in order to improve the electrical connection between the cooperating contacts.
- 262 Material:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is specific to the material therein.
- SEE OR SEARCH CLASS:  
428, Stock Material or Miscellaneous Articles, subclasses 544+ for a metallic contact claimed nominally, that is, of some, but insufficient structural detail for limitation as an element in a circuit maker or breaker.
- 263 Cooperating contacts of different material:**  
This subclass is indented under subclass 262. Subject matter, wherein the material of each of the cooperating contacts (i.e., a contact which abuts or slides against and relative to another contact) is different.
- 264 Infiltrated porous substance:**  
This subclass is indented under subclass 262. Subject matter, wherein the contact comprises a porous substance in which the pores have

been filled (infiltrated) with a different material.

**SEE OR SEARCH CLASS:**

428, Stock Material or Miscellaneous Articles, subclass 545 for composite stock material comprising a porous metallic powder compact impregnated with a nonmetal.

**265 Compositions:**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes a physical mixture of various ingredients, not alloyed.

**266 Alloys:**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes a chemically combined mixture of various metals or compounds of metals.

**267 One layer (i.e., additional to its mounting):**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes one layer.

- (1) Note. The support to which the layer is attached does not constitute a layer.
- (2) Note. For purposes of classification in this subclass, the term "layer" is meant to include sheet material or coating material, either material being adhesively bonded to a support (e.g., weld, resin, cold flow, etc.) or to another layer as indicated in subclasses 268 and 269.

**268 Two layers:**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes two layers. Each layer material is different from the other layer.

- (1) Note. The support to which the layers are attached does not constitute a layer.
- (2) Note. For purposes of classification in this subclass, the term "layer", is meant to include sheet material or coating material, either material being adhesively bonded to a support (e.g., weld, resin, cold flow, etc.), or to another layer as indicated in subclasses 268 and 269.

**SEE OR SEARCH CLASS:**

428, Stock Material or Miscellaneous Articles, subclasses 615+ for a metallic composite defined in terms of the composition of its components, especially subclasses 616+ for bimetallic temperature-sensitive stock.

**269 Three layers or more:**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes three or more layers. Each adjacent layer of material is different from each other layer, however, every other layer of material could possibly be similar to each other (e.g., layers 1 and 3, layers 2 and 4, or layers 3 and 5, etc.).

- (1) Note. The support to which the layers are attached does not constitute a layer.
- (2) Note. For purposes of classification in this subclass, the term "layer" is meant to include sheet material or coating material, either material being adhesively bonded to a support (e.g., weld, resin, cold flow, etc.), or to another layer as indicated in subclasses 268 and 269.

**SEE OR SEARCH CLASS:**

428, Stock Material or Miscellaneous Articles, subclass 617 for composite metallic stock having more than two components and deflectable by a temperature change, and subclass 635 for composite metallic stock having four or more distinct components with alternate recurrence of each type component.

**270 Elements:**

This subclass is indented under subclass 262. Subject matter, wherein the contact material constitutes an element of the periodic table. There may be more than one element, however they must be individual elements, not chemically combined.

**271 Blade or pole-plate:**

This subclass is indented under subclass 238. Subject matter, relating to the structure of a movable contact, referred to frequently, by the term "blade", or "pole plate".

- 272 With support:**  
This subclass is indented under subclass 271. Subject matter, wherein the movable contact is combined with support means.
- 273 Rotary:**  
This subclass is indented under subclass 271. Subject matter, wherein the movable contact is structured for rotary movement.
- 274 With support:**  
This subclass is indented under subclass 273. Subject matter, wherein the rotary contact is combined with support means.
- 275 Particular shape or structure of the contact:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is characterized by a particular shape or structure.
- 276 Coil spring contact:**  
This subclass is indented under subclass 275. Subject matter, wherein the contact is in the form of a coil spring.
- 276.1 With push button actuator:**  
This subclass is indented under subclass 276. Subject matter wherein the switch includes a push button actuator to cause the coil spring to engage or disengage the stationary contacts.
- 277 Roller contact:**  
This subclass is indented under subclass 275. Subject matter, wherein at least one of the contact elements has a rolling configuration (e.g., cylindrical, sphere, etc.).
- 277.1 With push button actuator:**  
This subclass is indented under subclass 277. Subject matter wherein the switch includes a push button actuator to cause the cylindrical or spherical contact to engage or disengage the stationary contact.
- 277.2 With rocker actuator:**  
This subclass is indented under subclass 277. Subject matter including an actuator adapted to oscillate in a limited arc to move the contacts into engagement or disengagement.
- 278 Laminated:**  
This subclass is indented under subclass 275. Subject matter, wherein the contact constitutes two or more sheets of material which are physically bonded together (e.g., screw, clamp, etc.).
- 279 Contact making surface (e.g., grooved):**  
This subclass is indented under subclass 275. Subject matter, wherein the contact is characterized by the shape or structure of the contact-making surface (e.g., grooved).
- 280 Interchangeable and reversible:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact or the support thereof may be repositioned or rearranged in order to alter the operation of the switch.
- 281 Replaceable or renewable:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact may be readily replaced by a new contact (e.g., replaceable insert); or the contact making surface may be renewed by manipulating the contact so that a different area is presented for use (e.g., reversing).
- 282 Spring clip:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is a generally U-shaped structure, usually made of spring material, which grips another contact or the contact portion of a blade.
- 283 Leaf spring support:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is supported by a leaf spring. The leaf spring itself may be the contact.
- (1) Note. Compare this definition with the definition of subclass 284.
- 284 Integral contact and terminal structure:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is integrally supported by a structure which also constitutes a terminal.
- (1) Note. This subclass is not intended to include the leaf spring with terminal as provided for in subclass 283.



- 285 Lubricated:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact has specialized structure or material for enhancing the freedom of movement when touching another contact.
- 286 Adjustment means:**  
This subclass is indented under subclass 238. Subject matter, which relates to the adjusting of the contact position relative to its carrier or support. Such a combination is sometimes called a contact finger. This subclass also provides for contact pressure adjusting not limited to claimed cooperating contacts.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
249, and 259, for position adjustment of a contact relative to its cooperating contact.  
251, 256 and 261, for pressure adjustment between cooperating contacts.
- 287 Self-adjusting:**  
This subclass is indented under subclass 286. Subject matter, wherein the adjusting of the contact is automatically performed.
- 288 Buffer, rebound preventing:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact has structure which reduces or prevents bounce when connection is made with another contact.
- 289 Cooler:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact has structure for the purpose of cooling itself.
- 290 Spring biasing means:**  
This subclass is indented under subclass 238. Subject matter, wherein the contact is biased or pressed into connection with its cooperating contact by spring means (e.g., coil spring, rubber spring, etc.).
- (1) Note. The spring means is in addition to the contact supporting structure.
- 291 Detent:**  
This subclass is indented under subclass 238. Subject matter, wherein a moving contact has detent means which is adapted for stopping and releasing the contact relative to its rigid support. An example of the detent means is a ball, carried by the contact or by the contact mounting, which is spring-biased into a slot in the rigid support.
- 292 Printed circuit:**  
This subclass is indented under subclass 238. Subject matter, wherein at least one of the contacts constitutes a printed conductor and its support.
- 293 Cases and bases:**  
This subclass is indented under subclass 237. Subject matter, wherein the switch cases or switch mounting bases constitute specific housing structure or specific supporting structure.
- 293.1 Unitary switch mounted in handle or hand-grip:**  
This subclass is indented under subclass 293. Subject matter wherein a switch with its own housing is mounted in a tool handle or hand-grip and wherein the switch is the actuator of the tool.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
332.2, for devices that also have an auxiliary housing.  
502, for switches having an auxiliary actuator, and
- 294 Surface:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing or base has significant structural details for attachment onto a surface.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
296, for housings or bases that extend into and through a surface.
- 295 With flexible mounting means:**  
This subclass is indented under subclass 293. Subject matter, wherein the attaching structure of the housing or base constitutes flexible or

- resilient structure (e.g., metal spring, plastic spring, usually integral with housing, etc.).
- 296 Panel:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing or base has significant structure which is adapted for mounting in or through a panel.
- 297 Outlet box:**  
This subclass is indented under subclass 293. Subject matter, wherein the switch casing or base has significant structure which is adapted for adjusting the switch casing or base for proper fit and alignment in a box, commonly known as an electrical outlet box or switch box. These boxes are normally located in walls of houses and other buildings.
- 298 Pendant:**  
This subclass is indented under subclass 293. Subject matter, wherein the switch case is suspended (i.e., hanging) by or on flexible cord or other means.
- 299 With lamp socket:**  
This subclass is indented under subclass 298. Subject matter, wherein the pendant housing is combined with a lamp socket.
- 300 Frangible element:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing includes a portion which can be readily shattered, cut or destroyed (e.g., fire box cover of glass).
- 301 Vibration dampening means:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing or base contains a means for counter-acting the effects of vibration (e.g., foam rubber mounted inside the housing).
- 302.1 Dust, dirt, or moisture excluding:**  
This subclass is indented under subclass 293. Subject matter wherein the switch housing contains means which inhibits the ingress of dust, dirt, moisture, etc.
- 302.2 Seal for push button actuator:**  
This subclass is indented under subclass 302.1. Subject matter wherein the excluding means includes a seal between a push button actuator and the housing.
- 302.3 Seal for rocker or lever actuator:**  
This subclass is indented under subclass 302.2. Subject matter wherein the excluding means includes a seal between a rocker actuator and the housing, or a seal between a lever actuator and the housing.
- 303 Split housing:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing is divided into components which are normally detachable or separable.
- 304 With shield:**  
This subclass is indented under subclass 293. Subject matter, wherein a portion of the casing has means which serves particularly in a protective capacity.
- (1) Note. This subclass does not include hermetical sealing and total exclusion of the elements as does subclass 302.1.
- 305 Electrical shield:**  
This subclass is indented under subclass 304. Subject matter, wherein the shield portion has electrical grounding means.
- 306 Venting means:**  
This subclass is indented under subclass 293. Subject matter, wherein the housing has significant means for venting (e.g., air holes in housing).
- 307 Stacked:**  
This subclass is indented under subclass 293. Subject matter, wherein the switch casings are provided with structural means for attaching a plurality of switch casings to each other.
- 308 Indicators:**  
This subclass is indented under subclass 237. Subject matter, wherein indicating means are utilized for showing "on" or "off" position of the switch or for showing the location of the switch.
- 309 Interchangeable inserts:**  
This subclass is indented under subclass 308. Subject matter, wherein the indicating means are inserts designed to be readily interchangeable. Typical interchangeable inserts carry different words.

- 310 Illuminated:**  
This subclass is indented under subclass 308. Subject matter, wherein the indicating means include illumination means.
- 311 Having light-filtering means:**  
This subclass is indented under subclass 310. Subject matter, wherein the illuminating means of the indicator is filtered or changed into a color by using one or more transparent color elements.
- 312 Having additional indicating means:**  
This subclass is indented under subclass 310. Subject matter, wherein the illuminating means is supplemented with an additional type of indicating means. The indicating means has to be more than mere numerals, letters or words. For example, projections indicating the switch setting position would constitute a proper type of additional indicating means.
- 313 Light visible through actuator:**  
This subclass is indented under subclass 310. Subject matter, wherein the illumination is visible through the actuator.
- 314 Push button type:**  
This subclass is indented under subclass 313. Subject matter, wherein the actuator is a push button type.
- 315 Rocker or toggle:**  
This subclass is indented under subclass 313. Subject matter, wherein the actuator is a rocker or toggle type.
- 316 Rotatable:**  
This subclass is indented under subclass 313. Subject matter, wherein the actuator is rotatable.
- 317 Light visible through housing:**  
This subclass is indented under subclass 310. Subject matter, wherein the illumination is visible through the switch housing or base.
- 318 Latches:**  
This subclass is indented under subclass 237. Subject matter, wherein a latch or detent device is utilized for holding the contacts of a switch in a desired position. The contacts are usually latched in circuit-closing position to prevent accidental opening, however; the contacts may also be latched in a circuit-opening position, or in both a circuit-closing and a circuit-opening position. The latch is usually released by hand or some other physical means when desired.
- 318.1 Mechanism to hold push button down:**  
This subclass is indented under subclass 318. Subject matter including a push button and a mechanism to hold the push button in a desired position.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
523+, for push/pull devices which include alternate action mechanism.
- 318.2 Auxiliary motion of actuator required to release (e.g., turn or slide):**  
This subclass is indented under subclass 318.1. Subject matter wherein the push button must be physically moved, either by turning or sliding, etc., in order to move the push button from its latched position.
- 319 Shockproof:**  
This subclass is indented under subclass 318. Subject matter, wherein the latch cannot be released due to vibrating and jarring conditions.
- 320 Plural latches:**  
This subclass is indented under subclass 318. Subject matter, wherein more than one latch is utilized in a switch.
- 321 Manually operated latching means:**  
This subclass is indented under subclass 318. Subject matter, wherein the latch is closed or opened manually.
- 322 Plate or lever:**  
This subclass is indented under subclass 321. Subject matter, wherein the latching means comprises a plate or lever-type element which is movable into a position necessary for locking or releasing the contacts.
- 323 Self-operating latching means:**  
This subclass is indented under subclass 318. Subject matter, wherein the latch includes self actuating means to cause its operation.

- 324 Cam (plate, lever, etc.):**  
This subclass is indented under subclass 323. Subject matter, wherein the self-operating latching means comprises a cam-type element (e.g., plate, lever, etc.), which is movable into a position necessary for locking the contacts.
- 325 Spring biased:**  
This subclass is indented under subclass 324. Subject matter, wherein the cam-type element is either a spring itself or a spring-biased element.
- 326 Gravity operated:**  
This subclass is indented under subclass 323. Subject matter, wherein the latching means is operated by gravity.
- 327 Positioning or stop member:**  
This subclass is indented under subclass 318. Subject matter, wherein one contact is stopped in a predetermined position by a detent or some other type stop element which is usually located on or near the other cooperating contact.
- 329 Actuators:**  
This subclass is indented under subclass 237. Subject matter, wherein the devices include structure of the operating handles or buttons.
- 330 Auxiliary:**  
This subclass is indented under subclass 329. Subject matter, wherein an additional actuator operates the primary operating handle or button.
- 331 Extension or remote:**  
This subclass is indented under subclass 330. Subject matter, wherein the additional or auxiliary actuator is extended to provide remote operating means for the primary operating handle or button.
- 332 Lever:**  
This subclass is indented under subclass 330. Subject matter, wherein the additional or auxiliary actuator is a handle or button which pivots about a point remote from the point of the applied or operating force.
- 332.1 Having auxiliary housing:**  
This subclass is indented under subclass 330. Subject matter including detailed structure of an auxiliary housing and actuator into which a switch having its own housing and actuator is inserted.
- (1) Note. The mounted or encased switch is often referred to as a microswitch.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
330+, for auxiliary actuators which move the actuator of a switch.
- 332.2 Housing is a handle or handgrip for tool or appliance:**  
This subclass is indented under subclass 332.1. Subject matter wherein the auxiliary housing is a hand-held housing generally in the shape of an elongated graspable handle or in the shape of a handgrip.
- (1) Note. The switch housing is generally an electrical tool or appliance, e.g., drill, vacuum cleaner, router, etc.
- 333 Covers:**  
This subclass is indented under subclass 329. Subject matter, wherein the actuator is provided with covering means.
- 334 Safety:**  
This subclass is indented under subclass 329. Subject matter, wherein the actuator is provided with safety structure to prevent accidental actuation of the switch.
- 335 Lever:**  
This subclass is indented under subclass 329. Subject matter, wherein the actuator is a handle or button which pivots about a point remote from the point of the applied or operating force.
- 336 Rotatable:**  
This subclass is indented under subclass 329. Subject matter, wherein the actuator rotates in an arcuate plane.

**337 With linkages:**

This subclass is indented under subclass 329. Subject matter, wherein the actuator comprises linkages connected between the operating handle or button and the moveable contact.

**338 With attachment:**

This subclass is indented under subclass 329. Subject matter, wherein the actuator includes additional structure for securing it to the switching mechanism and may also serve as guiding means.

**339 Rocker:**

This subclass is indented under subclass 329. Subject matter, wherein the actuator pivots about an axis (e.g., toggle or rocker).

**341 Push button:**

This subclass is indented under subclass 329. Subject matter wherein the operating structure comprises a push button element having a single surface on which pressure can be exerted.

- (1) Note. Included herein are push buttons with a single pushing surface or with two surfaces when the surfaces are coaxial.
- (2) Note. Push buttons are also called keys or caps, often with the actual pushing surface called a keypad.

**SEE OR SEARCH CLASS:**

400, Typewriting Machines, subclasses 472+ under appropriate titles for keyboard or key lever actuating mechanisms.

**342 Including lost motion connection:**

This subclass is indented under subclass 341. Subject matter including a means connected to the push button to allow pretravel motion prior to moving the contacts into engagement, or to permit the push button to have overtravel motion after moving the contacts into engagement.

**343 Hinged button (e.g., piano key):**

This subclass is indented under subclass 341. Subject matter wherein the push button is connected in a flexible manner to a supporting structure permitting pivotal motion of the push

button in only one plane pivoted about an axis along the connection.

**344 Mechanism to keep key level:**

This subclass is indented under subclass 341. Subject matter wherein structure is included to prevent tilting or sideways motion of the push button when other than a direct straight-line force is applied.

- (1) Note. The surface of the push button is normally in the form of a bar similar to a space bar of a typewriter.

**SEE OR SEARCH CLASS:**

400, Typewriting Machines, subclasses 490+ for key-cap or key-stem structure used in typewriting machines.

**345 Cap/stem and stem/housing details:**

This subclass is indented under subclass 341. Subject matter wherein the particular connecting structure between (a) the cap and a stem or plunger, or (b) between the stem and a housing or casing, are structurally defined.

**400 CONTACT MOVED BY SUDDEN RELEASE OF STORED ENERGY (E.G., SPRING CHARGER):**

This subclass is indented under the class definition. Subject matter wherein the switch device includes (a) means to stress a spring device, (b) a latching device for holding the stressed spring from operating after being stressed, and (c) an actuating device to release the stored energy of the spring to open or close a circuit.

- (1) Note. Often the spring or stored energy device is charged by an electric motor.
- (2) Note. These switches differ from snap switches in that snap switches have an actuator (e.g., a lever, rocker, push button, knob, etc.) which charges a spring and then during its motion releases the spring.

**SEE OR SEARCH CLASS:**

74, Machine Element or Mechanism, subclass 2, for similar type devices for releasing or tripping portions of machines to cause other portions to automatically operate due to the

expenditure of the potential energy possessed by such parts.

**401 Toggle mechanisms:**

This subclass is indented under the class definition. Subject matter comprising an actuator having mechanical linkage connections between the actuator and a movable contact; the linkage includes at least two links between the actuator and the contact; the switch also having a biasing member, usually a coil spring, to hold the links in various positions.

**402 Snap:**

This subclass is indented under the class definition. Subject matter comprising a switch having a moveable contact and an actuator, and wherein the contact is quickly or abruptly moved independently of the actuator during actuation.

- (1) Note. Contact movement is usually accomplished by a spring connection between the actuator and contact stressed during initial movement of the actuator followed by a quick or abrupt movement of the contact when the actuator is moved beyond a predetermined point (i.e., trigger point).

SEE OR SEARCH CLASS:

- 74, Machine Element or Mechanism, subclasses 97.1+ for a mechanical movement of the oscillating to oscillating kind and wherein movement of the driving member causes an initially delayed but subsequently rapid movement of the driven member, and subclasses 100.1+ for a mechanical movement of the reciprocating to or from oscillating kind and wherein movement of the driving member causes an initially delayed but subsequently rapid movement of the driven member.

**403 Mercury snap:**

This subclass is indented under subclass 402. Subject matter, wherein the moveable contact is a metallic conducting fluid, (i.e., mercury).

**404 Magnetic snap:**

This subclass is indented under subclass 402. Subject matter including a magnet to cause a rapid or abrupt motion of the moveable contact independent of the actuator.

SEE OR SEARCH CLASS:

- 335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 205+ for permanent magnet-actuated switches.

**405 Double snap:**

This subclass is indented under subclass 402. Subject matter wherein the moveable contact is quickly or abruptly moved independently of the actuator (i.e., snapped) towards both an open and a closed position.

**406 Including raised flexible snap element (e.g., dome):**

This subclass is indented under subclass 405. Subject matter having a flexible spring element and wherein the spring element has a dome like configuration, the shape of the spring being such that when it is actuated the direction of the spring reverses to cause snapping.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 516, for snap domes used in membrane switches.

**407 Blade element stressed to twisted configuration:**

This subclass is indented under subclass 405. Subject matter wherein the moveable contact is moved by a planar spring which is prestressed to have two stable positions separated by maximum stress over center position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

- 453+, for blades which are bent in a U-shape and act as a compression spring.

**408 Spring buckle:**

This subclass is indented under subclass 405. Subject matter including a spring with each of its ends secured to a switch housing in a stressed arched state, wherein the snap movement is caused by the buckling movement of

- the arched spring past a line defined by the two secured ends.
- (1) Note. Normally the spring is held in an arched state wherein snap occurs when the direction of the arch is reversed.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
535, for switches having the contacts controlled by a spring held at both ends where the motion is nonsnap.
- 409 Spring compressed between two points at a fixed distance from each other:**  
This subclass is indented under subclass 408. Subject matter wherein the spring ends are separated by a fixed distance with the spring under stress, and the ends of the spring generally attached to a housing.
- (1) Note. Normally the spring has its ends fixed to a housing and the actuator exerts pressure at a point between the ends.
- 410 Rotating contact:**  
This subclass is indented under subclass 405. Subject matter wherein the moveable contact moves in an arc of a circle relative to a stationary contact in a continuous unlimited rotary motion.
- (1) Note. The rotary movement is usually in one direction.
- 411 Contact movement blocked until spring is charged (e.g., latch):**  
This subclass is indented under subclass 410. Subject matter including a spring connection between the actuator and contact, and an element that (a) blocks the contact movement until the actuator has moved to stress the spring and (b) moves the blocking element from its blocking position.
- 412 Push button actuated:**  
This subclass is indented under subclass 411. Subject matter including a reciprocating type push button to move the contacts.
- 413 Pull cord actuated:**  
This subclass is indented under subclass 411. Subject matter wherein the actuator includes an elongated flexible member attached to the
- switch to actuate the switch when a pull force is exerted thereon.
- 414 Including radial motion:**  
This subclass is indented under subclass 411. Subject matter wherein the blocking means moves in a radial direction to release the contact for rotary motion.
- 415 Contact restrained until spring is charged (e.g., detent):**  
This subclass is indented under subclass 410. Subject matter including a spring connection between the actuator and contact, and a spring biased restraining element which releases the contact when the force of the connecting spring reaches a predetermined release level to cause snap motion of the contact.
- 416 Cam actuated contact:**  
This subclass is indented under subclass 410. Subject matter wherein the contact is moved by a cam, wedge or inclined surface and is quickly or abruptly released after the contact passes over the highest point of the cam, wedge or inclined surface.
- (1) Note. This is also referred to in the art as the "hill-and-valley" type.
- 417 Push button actuated:**  
This subclass is indented under subclass 416. Subject matter wherein the switch device includes a reciprocating type button to actuate the contact.
- 418 Pull cord actuated:**  
This subclass is indented under subclass 416. Subject matter wherein the actuator includes an elongated flexible member attached to the switch when a pull force is exerted thereon.
- 419 Ratchet controlled:**  
This subclass is indented under subclass 410. Subject matter comprising a spring biased rotary contact which is part of a ratchet and pawl system for limiting the rotation of the contact to a one-way rotary motion.
- 420 Pull cord actuated:**  
This subclass is indented under subclass 419. Subject matter wherein the switch device includes an elongated flexible member to actu-

- ate the switch when a pull force is exerted on the flexible member.
- 421 Pawl carries contact:**  
This subclass is indented under subclass 419. Subject matter wherein the pawl is a contact that cooperates with the rotating contact on the ratchet.
- (1) Note. The pawl is usually a leaf spring.
- 422 Push button actuated:**  
This subclass is indented under subclass 421. Subject matter including a reciprocating type push button actuator.
- 423 Pull cord actuated:**  
This subclass is indented under subclass 421. Subject matter wherein the switch device includes an elongated flexible member to actuate the switch when a pull force is exerted on the flexible member.
- 424 Contact movement is blocked until spring is charged:**  
This subclass is indented under subclass 405. Subject matter including, a spring connection between the actuator and moveable contact, and an element which blocks the movement of the contact until the actuator has moved to stress the spring and moves the blocking element from its blocking position.
- (1) Note. Included herein are devices wherein the blocking element is part of the actuator.
- (2) Note. Normally one end of the spring is directly driven by the actuator and the other end of the spring directly drives the contacts. However, the switch may also include intermediate linkages between both the actuator and a spring driving element and the contacts.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
411, for similar-type devices using a rotating contact.
- 425 Blocked by distinct latch:**  
This subclass is indented under subclass 424. Subject matter including a separate mechanical blocking element which is moved or tripped to a nonblocking position by the actuator.
- 426 Driving and driven element oscillate about a common axis:**  
This subclass is indented under subclass 425. Subject matter wherein the ends of the connecting spring are mounted on a driving and a driven element, both of which oscillate about a common axis.
- 427 With reciprocating contact:**  
This subclass is indented under subclass 426. Subject matter including a linkage to translate the oscillating motion of the driven element into a reciprocating motion of the contact.
- 428 Including cam or wedge release:**  
This subclass is indented under subclass 425. Subject matter including a cam and a spring biased cam follower element wherein movement of the cam follower relative to the cam over a high point causes a component of the bias force of the cam follower to reverse direction and wherein the actuator moves the latch to release the contact after the cam follower is past the reversal point.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
431+, and especially 437 for similar type cam or wedge release devices which do not include a latch.
- 429 Including reciprocating contact:**  
This subclass is indented under subclass 425. Subject matter wherein the contact is moved in a straight line to a closed or opened circuit position.
- 430 Contact movement is restrained until spring is charged (e.g., detent):**  
This subclass is indented under subclass 405. Subject matter including a connecting spring between the actuator and the moveable contact, and a spring biased restraining element which releases the contact when the force of the connecting spring reaches a predetermined release level to cause snap motion of the contact.



**431 Cam or wedge release:**

This subclass is indented under subclass 405. Subject matter including a cam and spring biased cam follower element wherein movement of the cam follower relative to the cam over a high point causes a component of the bias force of the cam follower to reverse direction causing a quick or abrupt motion of the contact.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

428, for similar type devices which include a latch.

**432 Roller contacts acts as cam:**

This subclass is indented under subclass 431. Subject matter wherein a spherical or cylindrical type element is utilized as both the actuating cam and the contact.

**433 Contact slides over pivot point:**

This subclass is indented under subclass 431. Subject matter wherein the contact is moved with a sliding motion over a pivot point by the actuator which causes the contact to cross over the pivot point with an abrupt snap motion.

(1) Note. Normally the contact is spring biased towards the pivot point by a plunger type element carried by the actuator, however spring biased pivot points and rigid coupling of the contact to the actuator are included.

**434 Reciprocating contact:**

This subclass is indented under subclass 431. Subject matter wherein the contact moves in a straight line to a closed or opened circuit position.

**435 Contact carrier snaps in opposite direction from actuator:**

This subclass is indented under subclass 434. Subject matter wherein the actuator carries either the cam or cam follower element, with the moveable contact carried by the other element, and with the contact reciprocating in the opposite direction from the actuator.

(1) Note. Normally the actuator takes the form of a push button but other actuators are herein classified.

**436 Including lost motion coupling to cam:**

This subclass is indented under subclass 431. Subject matter including a lost motion connection between the actuator and the cam or cam follower to permit with the cam or cam follower to rapidly complete its movement independently of the actuator once the high point of the cam is past.

(1) Note. Normally the cam follower is in the form of a spring with the cam in the form of a square.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

469, for similar devices wherein the cam snaps in one direction only.

**437 Spring biased element slides over pivoted element:**

This subclass is indented under subclass 431. Subject matter wherein a spring biased element acts against an inclined pivoted element and is suddenly released, after passing the highest point on the element, to move the contact.

(1) Note. Normally the moveable contact is carried by or is the pivoted element although linkages may be used.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

438, for similar type devices wherein the spring bias is provided by the pivoted element which engages a rigid cam follower.

**438 Spring biased pivoted element snapped when cam follower crosses pivot:**

This subclass is indented under subclass 431. Subject matter wherein a cam follower acts against a spring biased, pivoted element which abruptly pivots when the cam follower crosses the pivot point.

(1) Note. Normally the spring bias for the pivoted element is in the form of a leaf spring carried by the pivoted element with the follower directly engaging the spring or in the form of a spring biased pivot.

- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
437, for similar type devices utilizing a spring biased cam follower.
- 439 Wedge on reciprocating actuator:**  
This subclass is indented under subclass 431. Subject matter wherein the actuator includes a wedge shaped cam which forms part of the actuator and the wedge is carried by the actuator as it moves in a straight line motion to move the contacts.
- 440 With mechanism to insure positive separation of contacts (i.e., positive kick):**  
This subclass is indented under subclass 405. Subject matter combined with a mechanical linkage to positively move the contacts during a portion of the actuator travel.
- (1) Note. These devices are usually intended to break welded contacts or to overcome friction to enable the normal spring system to snap the contacts.
- 441 Contact moved by separate lever:**  
This subclass is indented under subclass 440. Subject matter including a distinct lever which is moved by the actuator to initiate movement of the contact, wherein movement of the lever is at the end of the travel of the actuator.
- 442 Actuator moves contact near limit of travel:**  
This subclass is indented under subclass 440. Subject matter including abutments on the actuator which engage the contact when the actuator is near the limits of its travel.
- 443 Contact driven by impact element:**  
This subclass is indented under subclass 405. Subject matter including a lost motion coupling between the moveable contact and an element which strikes a hammerlike blow to the contact to break contact welds or overcome friction.
- (1) Note. These devices are intended to break contact welds or overcome friction.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
446, for similar devices where the snapped element engages the contacts before
- the snapped element is moved over-center by the actuator.
- 444 Having weight drive:**  
This subclass is indented under subclass 443. Subject matter wherein the striking element is a mass acted upon by gravity.
- 445 Snap spring system using multiple diverse springs:**  
This subclass is indented under subclass 405. Subject matter including two or more dissimilar springs (e.g., leaf springs, coil springs) which cause the rapid abrupt movement of the contact.
- (1) Note. Herein included are systems having two or more sequential snap motions involved in the movement of the contact.
- 446 Systems having lost motion connections between the actuator, an intermediate snapped element, and the contact:**  
This subclass is indented under subclass 405. Subject matter including, an intermediate snapped element and nonrigid connections between the actuator, intermediate snapped element, and the contact to allow independent motion of the actuator, snapped element, and contact.
- 447 Double ended type (e.g., reciprocating bridging contacts):**  
This subclass is indented under subclass 405. Subject matter wherein there are at least two moveable contacts carried symmetrically by a support.
- (1) Note. The snapped element is normally the contacts and is normally in the shape of a disc or a rectangle with one or two springs coupling the rectangle to the rod or with a dome type spring coupling the disc to the rod.
- 448 Contact pivots moved by actuator:**  
This subclass is indented under subclass 447. Subject matter wherein the snap action of the contacts is caused by the movement of a contact pivot point; movement of the contact pivot point is caused by movement of the common support.

- (1) Note. The pivot point of the contacts is usually on the common support.
- 449 Reciprocating contacts:**  
This subclass is indented under subclass 405. Subject matter wherein the contact is caused to move in a straight line between open and closed positions.
- (1) Note. Normally the contact is driven by a pivoted element which is snapped.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
462+, for similar snap devices using pivoted contacts, where the pivoted contact is normally the snapped element and corresponds to the pivoted driven element.
- 450 Compression spring type:**  
This subclass is indented under subclass 449. Subject matter wherein a spring held in a prestressed state is utilized to cause the contact to snap.
- (1) Note. The element being snapped is pivoted and there is a linkage between the snapped element and contacts to cause the contact to reciprocate in a straight line motion.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
453, for similar devices wherein the contact is pivoted or oscillates about a limited arc where the pivoted contact is normally the snapped element and corresponds to the pivoted drive element.
- 451 End of blade pivotally carries element compressing blade:**  
This subclass is indented under subclass 405. Subject matter including a prestressed blade-like spring element and wherein one end of the blade normally carries a contact, and wherein the other end is attached to a housing and is adapted for pivotal movement during actuation.
- 452 Both ends of blade are freely floating:**  
This subclass is indented under subclass 405. Subject matter including a bladelike element with one end of the blade carrying the moveable contact and with the other end of the blade normally being moved to cause actuation.
- (1) Note. There is no definitive fixed pivot point for the blade. The blade is mounted normally by two compression springs or by a compression spring and a rigid link normally mounted between the ends of the blade.
- 453 Compression spring (e.g., push force):**  
This subclass is indented under subclass 405. Subject matter wherein the snapping action is caused by a resilient member (e.g., spring) prestressed (i.e., compressed) by colinear, opposed forces.
- (1) Note. Included herein are one piece leaf spring elements which are shaped to have legs in both compression and tension. The nature of the leg under compression governs classification.
- SEE OR SEARCH THIS CLASS, SUB-CLASS:  
450, for similar snap devices using a linkage to cause the oscillated snap element to drive the contact in a reciprocating straight line motion.
- 454 Both ends of spring move:**  
This subclass is indented under subclass 453. Subject matter wherein the spring has an initial position prior to actuation, and assumes another position after actuation, and wherein after an abrupt motion both ends of the spring are located in a new position.
- 455 Having roller contact:**  
This subclass is indented under subclass 454. Subject matter including a spherical or cylindrical-type contact.
- (1) Note. Included in this subclass are devices which utilizes a track for the roller rather than a pivoted link. In these cases the pivot point is taken to be the center of curvature of the track.

- 456 Both ends of spring are carried by blade (e.g., leaf spring):**  
This subclass is indented under subclass 454. Subject matter including a bladelike member and wherein the prestressed spring is carried between two portions of the blade.
- (1) Note. Included in this subclass are leaf spring blades where the compression spring is an integral part of the leaf spring blade.
- 457 Axially compressed coil spring:**  
This subclass is indented under subclass 454. Subject matter including a spiral shaped spring which is subjected to a force along its longitudinal axis during actuation.
- 458 One end of spring is carried by actuator:**  
This subclass is indented under subclass 454. Subject matter wherein a one piece actuator directly carries one end of the spring.
- (1) Note. The actuator is that part of the switch which is first moved to change the make or break status. There are no other mechanical connections between the actuator and the spring.
- 459 One end of spring is fixed:**  
This subclass is indented under subclass 453. Subject matter wherein one end of the spring engages a fixed abutment on a support and the other end of the spring engages a moveable member which is caused to move with a snapping action when the spring passes a fixed point.
- 460 Central portion of spring is moved to cause snap:**  
This subclass is indented under subclass 459. Subject matter wherein the central portion of the spring is directly moved by an actuator.
- 461 Blade is moved to cause snap:**  
This subclass is indented under subclass 459. Subject matter wherein the compression spring is a resilient blade and wherein an actuator directly engages the blade to cause the blade to snap.
- 462 Tension spring (e.g., pull force):**  
This subclass is indented under subclass 405. Subject matter including a spring which is used to exert a pulling force to cause the quick abrupt motion of the contacts.
- (1) Note. Normally the contacts are pivoted and directly connected to the spring although there may be a linkage between the snapped element and the contacts.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
449, for similar snap devices normally using a pivoted snapped member with a linkage to cause the contacts to reciprocate in a straight line motion.
- 463 Contact pivot point is moved to cause snap:**  
This subclass is indented under subclass 462. Subject matter including a pivoted contact which is caused to snap when its pivot point is moved beyond a line connecting the two ends of the spring.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
448, for similar devices having an even number of contacts pivoted on the actuator normally using a tension spring connected between at least two of the contacts.
- 464 Pivot point is carried by actuator:**  
This subclass is indented under subclass 463. Subject matter wherein the pivot point of the contact is directly mounted on the actuator.
- 465 Both ends of spring move:**  
This subclass is indented under subclass 462. Subject matter wherein the spring has an initial position prior to actuation, and assumes another position after actuation, and wherein after an abrupt motion both ends of the spring are located in a new position.
- 466 One end of spring is carried by actuator:**  
This subclass is indented under subclass 465. Subject matter wherein a one piece actuator directly carries one end of the spring.

**467 One end of spring is fixed:**

This subclass is indented under subclass 462. Subject matter wherein one end of the spring engages a fixed abutment on a support and the other end of the spring engages a moveable member which is caused to move with a snapping action when the spring passes a fixed point.

**468 Single snap:**

This subclass is indented under subclass 402. Subject matter wherein the contact is caused to abruptly or quickly move during part of the actuator travel in only one direction, with the contact being fully controlled by the actuator in the other direction.

**469 Including lost motion coupling to cam:**

This subclass is indented under subclass 468. Subject matter including a cam, cam follower, and a lost motion connection between the cam and actuator, wherein the quick abrupt motion of the contact is caused when the high point of the cam is moved past the cam follower with the cam then quickly moving independent of the actuator.

- (1) Note. Normally the cam follower is a spring biased contact.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

436, for similar devices wherein the cam snaps in both directions.

**470 Contact movement is blocked by latch until spring is charged:**

This subclass is indented under subclass 468. Subject matter including a spring connection between the actuator and contact, and an element which blocks the movement of the contact until the actuator has moved to stress the spring and moves the blocking element from its blocking position.

**471 Contact restrained before snap spring is charged (e.g., detent):**

This subclass is indented under subclass 468. Subject matter including a spring connection between the actuator and contact, and a spring biased restraining element which releases the contact when the force of the connecting spring

reaches a predetermined release level to cause snap motion of the contact.

SEE OR SEARCH THIS CLASS, SUB-CLASS:

430, for similar devices wherein the contact is snapped in both directions.

**472 Detent function performed by spring biased contact (e.g., knife blade):**

This subclass is indented under subclass 471. Subject matter wherein the stationary contact acts as a spring biased detent, restraining the moving contact until a spring connected to the moving contact, overcomes the detent spring force allowing the moving contact to quickly separate.

- (1) Note. Included in this subclass are double throw switches which snap away from both contacts. These are considered single snap devices because the contacts do not snap closed.

**500 Helical drive mechanism:**

This subclass is indented under the class definition. Subject matter wherein the opening or closing of an electrical circuit is operated by a helical element.

- (1) Note. The helical drive mechanism may include rack and pinions, worm drive devices, screw-type drive or helical grooves on the driving shaft.

**501 Gear driven:**

This subclass is indented under the class definition. Subject matter comprising relatively rotatable bodies or combinations of such bodies each provided with circumferential teeth intermeshing with each other to impart a drive motion to move a contact member to open or close a circuit.

**502 Solid contact:**

This subclass is indented under the class definition. Subject matter wherein an electrical circuit is completed by the physical engagement and disengagement of two solid conductive elements (i.e., contacts) to form a complete switch.

- (1) Note. Included in this subclass are devices which may have plural sets of

contacts, however, the plurality herein is an obvious duplication of a single contact.

SEE OR SEARCH THIS CLASS, SUBCLASS:

1+, for devices arranged to control two or more circuits.

**503 Rolamite-type:**

This subclass is indented under subclass 502. Subject matter comprising a flexible roller band or spring band device wherein at least a pair of rotatable roller contact members are disposed within a switch housing and the flexible resilient band is convoluted around the roller contact members in S-shaped configuration so as to maintain the roller axes parallel as they move within the housing when actuated.

**504 Coaxial switch:**

This subclass is indented under subclass 502. Subject matter wherein the switch is used to switch a signal between a first and a second coaxial cable.

SEE OR SEARCH CLASS:

333, Wave Transmission Lines and Networks, subclasses 260+ for the combination of a coaxial conductor system including switches.

**505 Hand held squeeze actuated switch:**

This subclass is indented under subclass 502. Subject matter including a switch device comprising a housing which normally consists of a bulb or sleeve element on which a pressure is exerted especially on opposite sides to actuate the conductive elements.

(1) Note. These devices lack a clearly identifiable actuator projecting from a housing such as a lever or push button element to operate the switch device.

**506 Interposed nonconductor:**

This subclass is indented under subclass 502. Subject matter including a nonconductive element which is inserted between the solid conductive elements to hold the conductive elements physically separated during the presence of the nonconductive element.

SEE OR SEARCH THIS CLASS, SUBCLASS:

61.19, for similar type devices in combination with a special application.

**507 Screw used as moving contact:**

This subclass is indented under subclass 502. Subject matter wherein a movable threaded member is utilized as the solid contact member for completing the electrical circuit.

**508 Both contacts are moved:**

This subclass is indented under subclass 502. Subject matter including structure to move each solid conductive element separately into engagement or disengagement in relation to each other.

(1) Note. There are no stationary contacts present in the switch.

**509 Bimodal (e.g., single stroke make/break-no make on return):**

This subclass is indented under subclass 502. Subject matter wherein the contacts travel in one path upon actuation and includes mechanism to divert the contacts into another path upon their return.

(1) Note. The initial actuating stroke causes a closing and then opening (or vice-versa) of the contacts. The return stroke of the actuator returns the movable contact to its original position, but the mechanism does not permit reactivation.

**510 Push button actuator:**

This subclass is indented under subclass 509. Subject matter including a reciprocating-type push button having a single surface on which pressure is exerted to actuate the contacts.

**511 Compressible elastomer:**

This subclass is indented under subclass 502. Subject matter wherein a circuit is completed by an elastomeric material containing discrete particles of electrically conductive materials embedded therein and wherein, in the compressed state, the particles come into contact with each other to complete the circuit, and as the compression is released, the particles again separate to open the circuit.

## SEE OR SEARCH CLASS:

338, Electrical Resistors, subclass 114, for variable resistors using elastomeric conductors. These switches differ from the resistors in the amount of change of resistance with pressure. The switch normally changes from open or infinite resistance to closed or low resistance with only a small change in pressure. The resistor has a gradual change in resistance such that intermediate resistance can be obtained.

**512 Membrane type:**

This subclass is indented under subclass 502. Subject matter wherein the switch includes at least one contact member which is carried on or actuated by a flexible sheet, which cooperates with another contact on a substrate to open or close a circuit.

- (1) Note. The membrane switch normally comprises a substrate and a flexible sheet sealed together with a separate spacer which is normally used to separate the substrate, and the flexible sheet normally carries the moving contact.

## SEE OR SEARCH THIS CLASS, SUBCLASS:

5, for similar type switches arranged in keyboard manner.

## SEE OR SEARCH CLASS:

341, Coded Data Generation or Conversion, subclasses 20+ for an operator actuated code transmitter including circuitry.

361, Electricity: Electrical Systems and Devices, subclass 288.

400, Typewriting Machines, subclass 479.1, for push button controllers using variable capacitance. The capacitor normally has a substrate with a conductive plate and a flexible membrane with a moveable conductive plate like a membrane switch but has in addition an insulative layer to prevent the plates from contact.

**513 Specific dome shape:**

This subclass is indented under subclass 512. Subject matter wherein the flexible sheet comprises a particularly defined convex configuration, designed to buckle under pressure, and having the moving contact within or under the convex area.

**514 Specific nonconductive materials:**

This subclass is indented under subclass 512. Subject matter comprising a substrate and a flexible member, and wherein there is disposed a spacer separating the substrate and flexible member, the spacer or flexible member being of specified nonconductive materials.

**515 Pressure equalizing means:**

This subclass is indented under subclass 512. Subject matter including means to vent a compartment formed between the flexible member and the substrate, to either the atmosphere or to another compartment so as to equalize the pressure of air or other fluid displaced by the flexible sheet member when actuated.

**516 Including auxiliary dome/disc type spring:**

This subclass is indented under subclass 512. Subject matter including an arched disc or dome type spring disposed between the flexible sheet member and the substrate, wherein the spring may be utilized as the moveable contact.

**517 Including additional actuator:**

This subclass is indented under subclass 512. Subject matter wherein the membrane switch includes additional means to actuate the membrane switch.

- (1) Note. The additional means is usually attached or applied above the flexible member in order to press on the flexible member.

**518 Plural actuators operate single switch:**

This subclass is indented under subclass 502. Subject matter including two or more actuating devices utilized to engage and disengage the solid conductive elements of a single switch device, each of the actuating devices can operate the switch individually.

**519 Push and/or pull with 3 or more positions:**

This subclass is indented under subclass 502. Subject matter wherein the contacts are moved into engagement or disengagement by manually grasping, guiding, pushing or lifting a rigid device which can be manipulated into three or more positions into and out of a switch housing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

538+, for similar type push/pull mechanical devices but which devices include only two position movements.

**520 Push button operated:**

This subclass is indented under subclass 502. Subject matter wherein the contacts are moved into engagement or disengagement by a push button actuator having a single surface on which pressure is exerted to engage and disengage the contacts.

(1) Note. Included herein are also actuators which reciprocate with one pushing surface, and also pivoted or hinged type actuators which have a single pushing surface. All of these type actuators are inherently two positions switches.

SEE OR SEARCH THIS CLASS, SUBCLASS:

538+, and 553+, for switches which have two pushing surfaces, and 51.16, for push button switches associated with connector couplings, (i.e., light bulbs).

**521 Including tactile feedback mechanism:**

This subclass is indented under subclass 520. Subject matter wherein structure is provided to simulate a varied resistance to depression of the push button to indicate by feel the position of the contacts.

(1) Note. These devices generally try to simulate the effects of a snap switch which reaches maximum resistance to travel prior to switch-over followed by an abrupt decline in resistance after the contacts are closed.

SEE OR SEARCH CLASS:

400, Typewriting Machines, subclass 491.3 for tactile feedback type mechanisms used in typewriters.

**522 Trigger actuator:**

This subclass is indented under subclass 520. Subject matter wherein the push button is a lever-type element to control the engagement or disengagement of the contacts.

(1) Note. The push button is normally in the shape of a trigger on a firearm or an actuator on an electrical tool, etc.

**523 Including alternate action mechanism, (e.g., push-pull):**

This subclass is indented under subclass 520. Subject matter wherein the position of the solid conductive element is alternated between opened and closed with each actuation of the push button and wherein the solid conductive element remains in the last position until the push button is further actuated.

**524 With heart-shape cam:**

This subclass is indented under subclass 523. Subject matter including a cam track having a generally cardioid shape which is utilized to hold the position of the solid conductive element in engagement or disengagement.

**525 With W-shaped rocking element:**

This subclass is indented under subclass 523. Subject matter wherein a w-shaped element is utilized to change the position of the solid conductive elements by rocking the w-shaped element from one side to the other with the push button and further includes means to engage alternate grooves of the w-shaped element during actuation.

**526 With rotating member, (e.g., ball point pen type):**

This subclass is indented under subclass 523. Subject matter including a rotating member and a mechanism to convert a generally reciprocating motion of the push button into unlimited rotary motion of the rotating member, wherein each actuation of the push button indexes the rotary member a predetermined amount.



- (1) Note. These devices may be similar to ball point pen retraction mechanisms having ratchet type movements.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
417, 419, 422, 526, and 532, for similar type mechanisms wherein the rotating element is a contact which is snapped.
- 527 Including rotating contact:**  
This subclass is indented under subclass 526. Subject matter wherein the rotating member carries, or is the solid conductive member which moves in an arc of a circle, engages and disengages a solid stationary conductive element.
- 528 Rotating cam moves contact:**  
This subclass is indented under subclass 526. Subject matter wherein the rotating member is a cam which engages a moveable conductive element to engage and disengage with a stationary conductive member.
- 529 Mechanism to transfer reciprocating to rotary or rocking:**  
This subclass is indented under subclass 520. Subject matter including a mechanism to convert reciprocating motion of the push button to rotary or rocking motion during actuation of the push button.
- 530 Contact carried by push button:**  
This subclass is indented under subclass 520. Subject matter wherein the push button carries the solid conductive member.
- 531 Sliding contact:**  
This subclass is indented under subclass 530. Subject matter wherein the solid conductive element carried by the push button engages a fixed solid conductive element in a sliding manner.
- 532 Leaf spring contact:**  
This subclass is indented under subclass 530. Subject matter wherein the solid conductive element is carried by the push button and is in the form of a leaf spring.
- 533 Cam actuated contact:**  
This subclass is indented under subclass 520. Subject matter wherein actuation of the push button causes relative movement between a cam and cam follower to cause motion of the solid conductive element.
- 534 Abutting contact:**  
This subclass is indented under subclass 520. Subject matter wherein engagement between the solid conductive element is characterized in that the relative movement between one of the solid conductive elements terminates when the surface of one touches the surface of the other.
- (1) Note. Generally there is no further movement between the conductive elements after the initial touch.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
508, for switches wherein both solid conductive elements are caused to engage in an abutting fashion, however there are no stationary solid conductive elements included in these switches.
- 535 Leaf spring contact:**  
This subclass is indented under subclass 534. Subject matter wherein leaf springs are utilized as either the movable or stationary conductive elements.
- 536 Sliding contact:**  
This subclass is indented under subclass 520. Subject matter wherein the solid conductive elements are engaged and disengaged in a sliding manner.
- 537 Reciprocating actuator:**  
This subclass is indented under subclass 502. Subject matter comprising means for moving or controlling the solid conductive elements into engagement or disengagement in a straight line motion.
- 538 Push/pull rod:**  
This subclass is indented under subclass 537. Subject matter wherein the solid conductive elements are moved into engagement by a rigid rod actuating member and disengaged when the rigid rod actuating member is moved in the opposite direction.

- (1) Note. These switch devices are generally the reverse of a push button switch, being pulled into engagement rather than pushed into engagement. Also included in this subclass are push rods that require a push at one end to actuate and a push at the other end to deactuate.
- 539 Specific detent structure:**  
This subclass is indented under subclass 538. Subject matter including detailed mechanical structure of means to hold the actuating rod member in an engaged position.
- 540 Contact carried by rod:**  
This subclass is indented under subclass 538. Subject matter wherein the solid conductive element is carried by the rigid rod actuating member.
- 541 Sliding contact:**  
This subclass is indented under subclass 540. Subject matter wherein the solid conductive elements are engaged and disengaged in a sliding manner.
- 542 Cam actuated contact:**  
This subclass is indented under subclass 538. Subject matter wherein movement of the rigid rod actuating member causes relative movement between a cam and cam follower to cause motion of a solid conductive element.
- 543 Pull cord:**  
This subclass is indented under subclass 537. Subject matter wherein the solid conductive members are moved into engagement and disengagement by pulling an elongated flexible member on which a pulling force can be exerted.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
413, 418, 420, and 423, for snap switches using rotating contacts wherein a pull cord is used to actuate the switch, and also 51.15 for switches combined with or actuated by connector coupling and operated by a pull chain or cord.
- 544 Rotating contact:**  
This subclass is indented under subclass 543. Subject matter wherein one of the solid conductive elements moves in an arc of a circle, relative to a stationary contact, in a continuous unlimited rotary motion.
- 545 Cam actuated contact:**  
This subclass is indented under subclass 543. Subject matter wherein a pull force of the elongated flexible member causes relative movement between a cam and cam follower to cause motion of the solid conductive elements.
- 546 Leaf spring contact:**  
This subclass is indented under subclass 543. Subject matter including a leaf spring and wherein the leaf spring is utilized as either the movable or stationary conductive elements.
- 547 Slide switch (handle projects perpendicular to motion):**  
This subclass is indented under subclass 537. Subject matter including a switch housing and a sliding actuator wherein the actuator protrudes from the housing at right angles relative to the housing, and relative to its sliding direction.
- 548 Housing and actuator form detent:**  
This subclass is indented under subclass 547. Subject matter wherein the housing and actuator include a mechanism which incorporates a holding device to retain the actuator in a given position.
- 549 Contact carried by slide:**  
This subclass is indented under subclass 547. Subject matter wherein the actuator carries the solid conductive element.
- 550 Sliding contact:**  
This subclass is indented under subclass 549. Subject matter wherein the solid conductive element, carried by the actuator, engages a fixed solid conductive element in a sliding manner.
- 551 Cam actuator contact:**  
This subclass is indented under subclass 547. Subject matter wherein movement of the actuator causes relative movement between a cam

- and cam follower to cause motion of a solid conductive element.
- 552 Two button switches (noncoaxial parallel buttons):**  
This subclass is indented under subclass 537. Subject matter wherein there are two push buttons which are movable independently of each other to engage or disengage the solid contact elements.
- 553 Rocking actuator (e.g., rocker, lever):**  
This subclass is indented under subclass 502. Subject matter including an actuator having at least two pushing surfaces wherein the actuator oscillates in a limited arc about an axis parallel to the outer surface of a switch housing from which the actuator projects.
- (1) Note. The switches in this subclass are generally characterized by having an actuator with two pushing surfaces that cause an element, normally the actuator itself, to oscillate. Often the push buttons are an integral part of the oscillating member. The two button switches in this subclass normally have both buttons projecting from the same side of the housing. Switches with the rocking actuator mounted to the side of the housing, rather than within the housing, are included in this subclass.
- SEE OR SEARCH THIS CLASS, SUBCLASS:  
538, for switches with two button actuators where the two buttons reciprocate along the same axis. These switches normally have the buttons projecting from opposite sides of the housing.
- 554 Knife blade contact:**  
This subclass is indented under subclass 553. Subject matter comprising a movable blade type conducting element and a generally U-shaped fixed receiving member so that the movable blade member can engage the U-shaped member for closing or opening a circuit.
- 555 With catch:**  
This subclass is indented under subclass 554. Subject matter including means to hold the blade conducting element and the U-shaped receiving member in a fixed opened or closed position.
- 556 Housing and actuator form detent:**  
This subclass is indented under subclass 553. Subject matter including a housing and an actuator which further includes a mechanism which incorporates a holding device to retain the actuator in a desired position.
- 557 Actuator biasing mechanism:**  
This subclass is indented under subclass 553. Subject matter including specific spring type means to urge the actuator to return to a normal nonactuated center position after momentary motion of the actuator to either side.
- 558 Cam actuated contact:**  
This subclass is indented under subclass 553. Subject matter wherein movement of the actuator causes relative movement between a cam and cam follower to cause motion of the movable solid conductive elements.
- 559 Leaf spring contact:**  
This subclass is indented under subclass 558. Subject matter wherein the solid conductive element, operated by the cam, is a leaf spring.
- 560 Rotating contact:**  
This subclass is indented under subclass 553. Subject matter wherein one of the solid conductive elements moves in an arc of a circle, relative to a stationary contact, in a limited rotary motion.
- 561 Reciprocating contact in straight-line motion:**  
This subclass is indented under subclass 553. Subject matter including mechanism to convert the oscillating motion of the actuator to limited straight-line motion.
- 562 Contact carried by actuator:**  
This subclass is indented under subclass 553. Subject matter wherein the actuator carries the movable solid conductive element.
- 563 Sliding contact:**  
This subclass is indented under subclass 562. Subject matter wherein the solid conductive element, carried by the oscillating actuator engages a fixed solid conductive element in a sliding manner.

**564 Rotating actuator (e.g., dial):**

This subclass is indented under subclass 502. Subject matter including a housing and an actuator having a graspable extension for manipulating the actuator about an axis in a limited or unlimited circular motion relative to the housing.

- (1) Note. The graspable extension may also function as a dial to indicate position of the actuator.

SEE OR SEARCH THIS CLASS, SUBCLASS:

51.17, for devices in which a switch is operated by means of a rotatable key.

**565 Housing and actuator form detent:**

This subclass is indented under subclass 564. Subject matter wherein the housing and the actuator incorporate a mechanism for holding the actuator in a desired position.

**566 Auxiliary motion required to actuate or release (e.g., push to rotate):**

This subclass is indented under subclass 564. Subject matter wherein the actuator is in an initial hold or lock state and wherein the actuator must be physically moved, such as by push or pull force in order to release the actuator from its hold or lock state prior to actuation.

**567 Rotation about a longitudinal axis of tool or appliance:**

This subclass is indented under subclass 564. Subject matter wherein the circular motion of the actuator is around the longitudinal axis of the body of a housing of a tool or appliance.

**568 Contact actuated by cam:**

This subclass is indented under subclass 564. Subject matter including a cam and cam follower, wherein movement of the actuator causes relative movement between the cam and cam follower to actuate the solid conductive element.

**569 Leaf spring contact operated by cam on actuator:**

This subclass is indented under subclass 568. Subject matter wherein the solid conductive element is a leaf spring-type contact and

wherein the leaf spring contact is actuated by a cam carried by the actuator.

**570 Rotating contact:**

This subclass is indented under subclass 564. Subject matter wherein one of the solid conductive elements moves in an arc of a circle, relative to a stationary contact, in an unlimited rotary motion.

**571 Sliding contact:**

This subclass is indented under subclass 570. Subject matter wherein the solid conductive element, carried by the oscillating actuator engages a fixed solid conductive element in a sliding manner.

**572 Linear moving contact:**

This subclass is indented under subclass 564. Subject matter including mechanism to convert the circular motion of the actuator into straight-line motion of the contact.

**573 Cam operates contact or microswitch:**

This subclass is indented under the class definition. Subject matter including a cam which imparts motion directly to the contact to open or close an electrical circuit, or imparts motion to a unitary switch, (i.e., microswitch) to actuate the switch.

- (1) Note. A unitary switch is basically comprised of its own housing, actuator and terminal. It is generally within another device.

**574 Peripheral cam:**

This subclass is indented under subclass 573. Subject matter wherein the cam includes, on its outer circumferential surface, eccentric or disc-type structure which engages the contacts of the unitary switch to impart periodic motion to the contacts.

**600 CAPACITIVE:**

This subclass is indented under the class definition. Subject matter wherein a capacitor is the circuit closing and opening device.

- (1) Note. A capacitor switch plus circuitry is classified elsewhere.

## SEE OR SEARCH CLASS:

- 307, Electrical Transmission or Interconnection Systems, subclasses 112+ for a capacitive device controlled switching circuit.
- 320, Electricity: Battery or Capacitor Charging or Discharging, subclasses 166+ for capacitor charging or discharging.
- 324, Electricity: Measuring and Testing, subclasses 658+ for measuring capacitance.
- 341, Coded Data Generation or Conversion, subclass 33 for a capacitive keyboard controlled code transmitter.
- 345, Computer Graphics Processing and Selective Visual Display Systems, subclasses 168+ for a display with a capacitive keyboard.
- 361, Electricity: Electrical Systems and Devices, subclasses 287+ for a mechanically variable capacitor, per se.
- 400, Typewriting Machines, subclass 479.1 for a typewriter keyboard with a capacitance operated switch.

END