

D. D. GORDON.
SWITCHING DEVICE.
APPLICATION FILED MAY 12, 1913.

1,146,326.

Patented July 13, 1915.

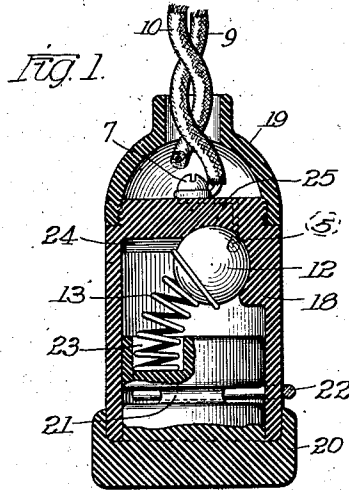


Fig. 2.

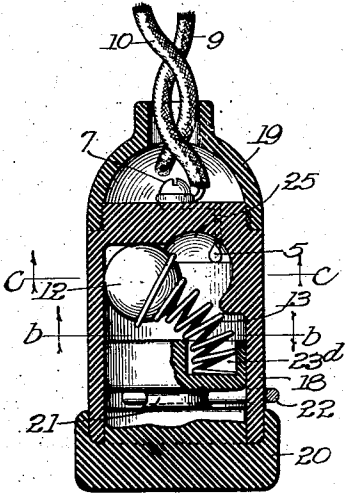


Fig. 3.

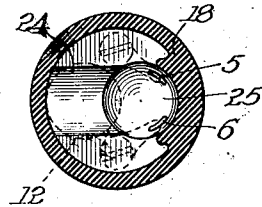


Fig. 5.

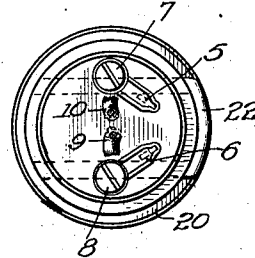
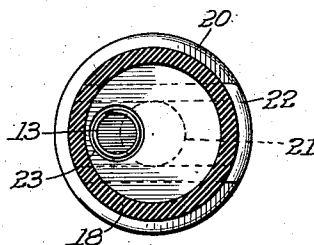


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SWITCHING DEVICE.

1,146,326.

Specification of Letters Patent.

Patented July 13, 1915.

Original application filed October 5, 1911, Serial No. 652,943. Divided and this application filed May 12, 1913. Serial No. 767,041.

To all whom it may concern:

Be it known that I, DAVID D. GORDON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Switching Devices, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to switching devices and has for its object the provision of a device of this character of the quick make and quick break variety, and in which the number of parts required is reduced to a minimum.

My invention is of a broad character and can be used in a variety of different forms of switching devices, but I will herein describe one specific form of my invention as applied more particularly to a pendant switch, although not in any way intending thereby to limit myself to such application or to the particular form of the switching devices utilized as my form of switch mechanism is applicable to socket switches, wall switches and in fact any form of allied switch mechanism.

My invention herein is a divisional application of my application Serial No. 652,943, filed October 5, 1911, which issued March 9, 1915 as Patent No. 1,131,129 in which this particular form was first presented.

The particular form of my invention herein shown, I will now describe in connection with the accompanying drawing, in which—

Figure 1 is a sectional view of a pendant switch constructed in accordance with my invention; Fig. 2 is a similar view to Fig. 1, the parts being shown in alternative position; Fig. 3 is a sectional view on line *c—c* of Fig. 2; Fig. 4 is a sectional view on line *b—b* of Fig. 2, and Fig. 5 is a top view of the device with the cover removed.

Referring to Figs. 1 to 5 my improved switching device has a body portion 18 to which any suitable rotatable member may be secured or mounted, which rotatable member by its rotation effects a quick make and quick break between switch elements, one of which switch elements is movable, being in this case shown as a ball 12. The ball 12 is designed to occupy one of two alternative positions depending upon the posi-

tion of the rotatable element, in this instance the cap 20. This cap 20 through the interposition of a suitable spring 13, coiled in this instance, effects a snap action movement of the ball 12 to make the circuit between said ball 12 and terminals 5 and 6, or to move this ball 12 away from these terminals into the position shown in Fig. 2 in which the circuit through the terminals 5 and 6 is open. The reason for using the cap 20 to effect the operation of the ball 12 is that the form of switching device herein illustrated is a pendant switch and a structure of this kind is very handy to operate the switch element 12. Whenever the element 20 is rotated for instance, from the position shown in Fig. 1 toward the position shown in Fig. 2, then at some point the spring 13 will pass beyond the position of dead center and as soon as this position is passed, the ball 12 will be snapped into the alternative position shown in Fig. 2. When the element 20 is again rotated from the position of Fig. 2 until the spring 13 passes the dead center, the ball 12 is snapped back into the position of Fig. 1. The recess 23 which carries one extremity of the spring 13, of course, moves around the path of a circle, whereas the ball 12 moves along a straight line path illustrated more in detail in Fig. 3 where a grooved portion 24 or runway is shown along which this ball travels.

I am thus enabled to transform a rotary motion of an element into rectilinear or similar movement of another element to effect quick make and quick break between switching elements. The rotatable element 20 has a grooved portion 21 and is held in the body portion 18 by means of the U-shaped holding element 22 whose tines project through the opposite walls of the body portion 18 as shown more clearly in Figs. 2 and 5. The terminal wires 9 and 10 which extend to the interior of the pendant switch are held by means of screws 7 and 8 to contact terminals 5 and 6, which contact terminals project into the runway or groove 24 provided for the ball 12. A slight indentation at 25 is provided for the ball 12 at that portion of its stroke where it engages the terminals 5 and 6 to more thoroughly hold it in its limiting position at that point. The ball 12 thus slides transversely across the element 18 within the groove 24 and

recess 25. Thus when the element 20 is rotated the ball 12 is snapped from one limiting position to the other. I am thus enabled to get a snap action of this ball 12 by rotating a suitable controlling element instead of reciprocating the controlling element as shown in my said co-pending application.

I have herein shown and particularly described one embodiment of my invention, and

What I claim as new and desire to secure by Letters Patent is:

1. A device of the character described having a contact terminal, a contact element for said terminal, a coiled resilient member engaging said element, and means rotatable in either direction of rotation to compress and rotate the free end of said resilient member in a plane substantially at right angles to its longitudinal axis to and beyond its position of repose to thereby effect change of operative position of said element by snap action to thus obtain both a quick make and a quick break.

2. A device of the character described having a contact terminal, a reciprocatory contact element for said terminal, a coiled resilient member engaging said element, and means rotatable in either direction of rotation to compress and rotate the free end of said resilient member in a plane substantially at right angles to its longitudinal axis to and beyond its position of repose to thereby effect change of operative position of said element by snap action to thus obtain both a quick make and a quick break.

3. A device of the character described having a contact terminal, a reciprocatory contact element moving along a confined path for said terminal a coiled resilient member engaging said element, and means rotatable in either direction of rotation to compress and rotate the free end of said resilient member in a plane substantially at right angles to its longitudinal axis to and beyond its position of repose to thereby effect change of operative position of said element by snap action to thus obtain both a quick make and a quick break.

4. An electric switch mechanism having a rotatable control part, a switch shiftable across the axis of rotation of said part from one side to the other thereof, and a normally distended compressible connection between said part and piece yieldable relative to each, said connection effecting a snap action movement of said piece when the control part is rotated in either direction.

5. An electric switch mechanism having a

rotatable control part, a switch piece shiftable across the axis of said part, and a shifting connection between said part and piece and yieldable relative to each spacing the same in axial relation to the part and operable by a rotation of said part to impart snap action shifting movements to said switch piece.

6. An electric switch mechanism having a rotatable control part, a terminal bridging piece axially spaced from and shiftable transversely of the axis of said part into and out of terminal bridging position, a coiled compression spring yieldingly spacing said part and piece and cooperating with said part upon a rotation thereof to impart snap action shifting movements to said piece.

7. An electric switch mechanism having a rotatable control part, a terminal bridging piece axially spaced from said part and having a confined path of shifting movements transversely of the part axis, and a yielding compressible connection between said part and piece cooperating with said part upon a rotation thereof to impart snap action shifting movements to said piece, the ends of said connection which respectively engage the part and piece having different kinds of movement during the switching action.

8. An electric switch mechanism having a rotatable control part, a terminal bridging piece spaced from said control part longitudinally of its axis and shiftable transversely of said axis, and a coiled compression spring having one end thrust against said piece and its other end thrust against said part at one side of its axis and cooperating with said part upon a turning thereof to impart snapping action switching movements to said piece.

9. An electric switch mechanism having a rotatable control part, an abutment member movable upon a movement of said control part, a terminal bridging piece spaced from said member longitudinally of the axis of said control part and shiftable transversely of said axis, and a coiled compression spring having one end thrust against said bridging piece and its other end thrust against said abutment and operable to shift the positions of said bridging piece upon predetermined movements of said abutment.

In witness whereof, I hereunto subscribe my name this 29th day of April, A. D., 1913.

DAVID D. GORDON.

Witnesses:

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