

D. D. GORDON.
 SWITCH OPERATING DEVICE.
 APPLICATION FILED FEB. 12, 1914.

1,155,307.

Patented Sept. 28, 1915.

Fig. 1

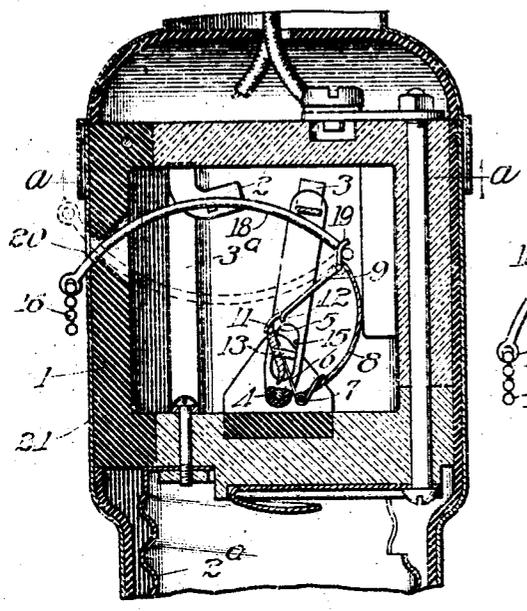


Fig. 2.

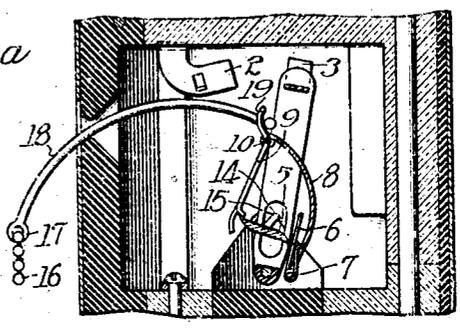
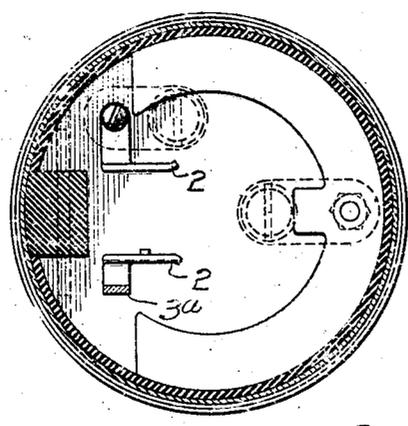


Fig. 3.



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UNITED STATES PATENT OFFICE.

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SWITCH-OPERATING DEVICE.

1,155,307.

Specification of Letters Patent.

Patented Sept. 28, 1915.

Application filed February 12, 1914. Serial No. 818,238.

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 Switch-Operating 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 is of more particular utility in connection with sockets for holding translating devices such as lamps.

My invention is designed to be an improvement over the form now utilized in operating switching devices of the character called pull sockets which are operated through the agency of a chain.

My invention is designed to overcome the necessity of having the chains enter within the confines of the socket, thus to obviate the danger of having these chains become entangled or disabled in the operations of the socket.

In accordance with my invention, I attach a preferably rigid tension member to the operating portion of the switch movement and have this tension member extend, when in its normal retracted position, to the outer wall of the socket, where a chain may be attached to it for the purpose of operating it. This tension member is curved and by reason of its curvature accommodates itself in such a manner that it can be operated by the chain no matter what may be the direction of pull exerted by the chain. The pull may be either up or down or at an angle thereto. Whenever a pull is exerted by the chain in either direction, this tension member being pivotally mounted at its extremity brings itself into position so that its curvature will accommodate it to be drawn by the chain to operate the switch element.

I will explain one form which my invention may take more in detail by referring to the accompanying drawing illustrating the same in which—

Figure 1 represents a sectional view of a switch movement having my improved operating device; Fig. 2 shows the same move-

ment with the switch movement about to reverse its position, and Fig. 3 is a sectional view on line *a-a* of Fig. 1.

My improved structure contemplates, for instance, a socket wall 1, the screw threaded portion of which and the central contact of which are only partially illustrated as they do not form parts of the invention. I do however show circuit terminals 2 which are mounted within the socket and a movable contact element 3 adapted periodically to engage the circuit terminals 2 and to effect circuit closure or opening as the case may be. A bus bar 3^a connects one of the circuit terminals 2 with the screw threaded contact element 2^a of the socket. The mechanism to control this switch arm 3 is illustrated in my application Serial No. 818,237, filed Feb. 12, 1914, in which this switch member 3 is moved by snap action to effect both a quick make and a quick break of the circuit controlled thereby. This switch element 3 is pivoted upon a shaft 4 and is controlled by a rotatable element 5 having two resting positions governed by the spring 6, which spring always retains this element 5 in line parallel to itself. This spring is preferably coiled about the stud 7, the opposite arm of the spring engaging an arm 8 also pivotally mounted on the stud 7. The arm 8 carries a further arm 9 pivotally mounted thereon and which is controlled by a spring 10 which tends to force it into a contra-clockwise direction of rotation. The arm 9 has a pair of fingers 11 and 12 which engage the rotatable element 5 and move it from one resting position beyond its position of repose so that the spring 6 completes the remainder of the movement of this element to its alternative resting position by snap action. This rotatable element 5 is rotatably mounted by means of the studs 13 and carries a projection or cam 14 adapted to engage the walls of the slot 15 provided in the switch arm 3.

It will be readily apparent that if the movable element 5 is in the position shown in Fig. 1, that the arm 3 is away from the contact 2 and that if the rotatable element 5 occupies its reverse position one hundred and eighty degrees displaced from its present position, that then the cam 14 will be on the

opposite side and will be holding the switch arm 3 against the contact 2 having forced it over by snap action in response to the actuations of the spring 6. The breaking of the circuit likewise is accomplished by snap action. This detailed description of the switching devices is given merely to lead to a proper understanding of the entire structure, it being understood, of course, that my invention is not limited to this particular style of switching mechanism, but to any style of switching mechanism where a movable element is to be periodically actuated by a tension member.

In order to actuate the arm 8 I provide a chain 16, which chain is hooked into the forked extremity 17 of a tension member 18. This tension member is curved as shown and is pivotally supported within the extremity 19 of the arm 9, so that this tension member may rotate within its mounting 19. Now if we examine the structure of Fig. 1, and assume that a tension is being exerted in the direction of the arrow by the chain 16, then the arm 18 may rest upon the upper wall 20, and will slide over it by reason of its curvature, thereby drawing the arm 8 in a contra-clockwise direction to effect movement of the switching elements. Now if, for instance, the chain 16 is pulled in the opposite direction as shown in dotted lines on Fig. 1, then the first initial pull on the chain will naturally cause the tension element 18 to reverse its position so that its curvature is opposite, and a further pull of the chain in this opposite direction will likewise cause the proper contra-clockwise movement of the arm 8. Also if the chain were pulled in a direction at right angles to that shown in the figures, the tension member 18 would accommodate itself and cause proper actuations of the arm 8. In this way I have provided a tension member automatically universally self-adjusting to accommodate itself to the direction of pull of a chain or other suitable flexible tension member to properly control the movements of a pivoted arm such as the arm 8. The outer shell 21 of the socket doesn't guide the arm 8.

From what has been described it is thought the nature of my invention will be entirely clear and readily apparent to those skilled in the art.

Having however thus described one form which my invention may take, what I claim as new and desire to secure by Letters Patent is:

1. A device of the character described having a movable element for controlling a switch, a rigid bent tension member pivotally attached at one extremity to and adapted to move said element, a guide for the opposite extremity of said member past which it is movable forming a support for

the said opposite extremity of said member, and means for exerting a pull on the opposite extremity of said member.

2. A device of the character described having a movable element for controlling a switch, a rigid bent tension member pivotally attached at one extremity to and adapted to move said element, a guide forming a support for the opposite extremity of said member with which said member has sliding engagement to define the movement of said opposite extremity, and means for exerting a pull on said opposite extremity of said tension member, said member by reason of its bent condition, pivotal mounting, and engagement with the said guide alining itself in the plane of the direction of the exerted pull.

3. A device of the character described having a movable element for controlling a switch, a rigid curved tension member pivotally attached at one extremity to and adapted to move said element, a guide forming a support for the opposite extremity of said member with which said member has sliding engagement to define the movement of said opposite extremity, and means for exerting a pull on said opposite extremity of said tension member, said member by reason of its curved condition, pivotal mounting, and engagement with the said guide alining itself in the plane of the direction of the exerted pull.

4. In a device of the character described the combination with a movable element for controlling a switch, a rigid curved tension member pivotally associated at one extremity with said movable element, a guide forming a support for the opposite extremity of said tension member, and means for exerting a pull at the opposite extremity of said tension member, said tension member by reason of its curvature and pivotal mounting alining itself in the plane of the direction of the exerted pull.

5. A device of the character described having a pivoted arm for controlling a switch, a rigid curved tension member swingingly attached at one extremity to and adapted to move said arm, a guide forming a support for the opposite extremity of said member with which said member has sliding engagement, and means for exerting a pull on said opposite extremity of said tension member, said member by reason of its curvature and swingingly attachment alining itself in the plane of the direction of the exerted pull.

6. In a device of the character described the combination with a pivoted arm for controlling a switch, a rigid curved tension member swingingly mounted at one extremity of said pivoted arm, a guide forming a support for the opposite extremity of said

tension member, and means for exerting a pull at the opposite extremity of said tension member, said tension member by reason of its curvature and swinging mounting
5 alining itself in the plane of the direction of the exerted pull.

In witness whereof, I hereunto subscribe

my name this 22nd day of January, A. D. 1914.

DAVID D. GORDON.

Witnesses:

HAZEL ANN JONES.

A. L. JONES.