D. D. GORDON.

SWITCHING DEVICE.

APPLICATION FILED SEPT. 10, 1912.

1,091,505.

Patented Mar. 31, 1914.

Fig. 1.

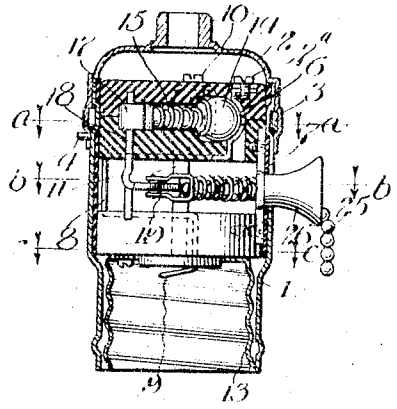


Fig. 2.

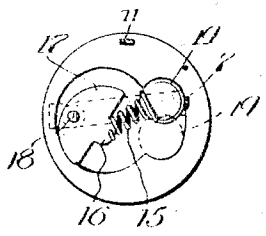


Fig. 8.

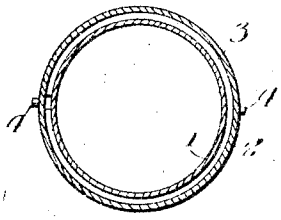


Fig. 3.

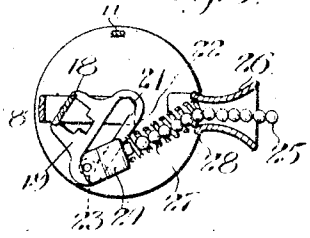


Fig. 4.

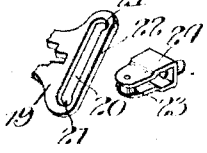


Fig. 5.

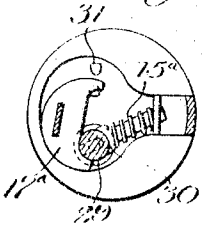


Fig. 6.

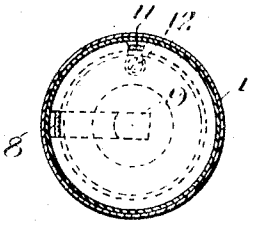
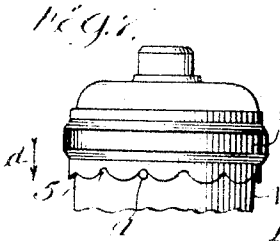


Fig. 7.



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UNITED STATES PATENT OFFICE.

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SWITCHING DEVICE.

1,091,505. Specification of Letters Patent. Patented Mar. 31, 1914.

Application filed September 10, 1912. Serial No. 719,564.

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 drawing, forming a part of this specification.

My invention relates to switching devices and has for its object the provision of an improved device of this character which finds its application among others very advantageously in connection with lamp sockets, for instance.

It will of course be understood that in describing my invention herein as specifically employed in connection with an electric lamp socket, that my invention is not to be so limited, but its principle will be readily apparent from the specific description of a particular socket which I will now describe in connection with the accompanying drawing setting forth such embodiment of my invention, in which—

Figure 1 is a sectional view of a socket constructed in accordance with my invention; Fig. 2 is a partial sectional view on line *a—a* of Fig. 1; Fig. 3 is a partial sectional view on line *b—b* of Fig. 1; Fig. 4 is a fragmentary view in perspective of certain parts set forth more clearly in Fig. 3, which parts here are shown as separated for clearness of illustration; Fig. 5 is a view of a modification of the structure shown in Fig. 3; Fig. 6 is a sectional view on line *c—c* of Fig. 1; Fig. 7 is a side view of the upper portion of the socket showing the novel manner of holding the socket parts together, and Fig. 8 is a sectional view on line *d—d* of Fig. 7.

My invention is herein shown as applied more particularly to that character of electric lamp sockets which are in the art known as pull sockets, by which I mean a socket which is provided with a chain or other suitable structure, which chain when pulled operates the switching device in such manner that successive operations of the chain will successively make or break the switch elements so that with each operation of the chain the circuit through the lamp is either made or extinguished.

Referring more particularly to Fig. 1, I show the shell 1 of a socket which is provided with the cap 2, which parts 1 and 2 are fastened together as shown more in detail in Figs. 1, 7 and 8. For the purpose of thus holding these parts together so that they may be readily separated when it is desired to do so the shell 1 is provided with a split ring 3 which occupies a recess provided in the shell 1 as shown in Fig. 1. The shell 1 is also provided with suitable pins 4. The lower portion of the cap 2 has a sort of wavy outline as indicated at 5 in Fig. 7, and this cap 2 is likewise provided with a recessed portion as shown more clearly in Fig. 1 so that this cap may when placed in position have its recess register with the split spring ring 3 thus to hold the two parts together. Now in order to easily separate the parts the cap 2 is rotated so that its lower wavy edge rides over the pins 4, thereby forcing this spring cap up from the shell 1, in other words, moving the cap upwardly out of engagement with the spring ring 3. It will be understood of course that when the parts are in their normal assembled condition the pins 4 must occupy one of the indentations of the cap 2 as shown in Fig. 7.

The switching device which forms the subject matter of my invention herein consists preferably of two contact plates 6 and 7 respectively, the contact plate 7 being continued through the bar 8 to the contact element 9 which is used for the middle contact of the socket. The contact element 6 has a binding screw 7^a by means of which this contact element 6 is connected to the supply circuit. A second binding post 10 is provided for connection to the supply circuit which through the agency of bus bar 11 connects by means of a screw 12 to the screw threaded inner terminal 13 of the socket. In order to complete the circuit to the lamp therefore, contact must be established between the elements 6 and 7 and this I accomplish through the agency of a contact element 14 in this instance shown as a sphere. This sphere is controlled through a resilient member, preferably a spiral spring 15, one extremity of which engages the ball 14, the other extremity of which spring is held in place over a projection 16 provided upon a rocking element 17, which rocking element is fixedly mounted upon a shaft 18. The shaft 18 is integral with a second oscillatory element 19 shown more

clearly in Fig. 3. Whenever the element 17 is in the position shown in Fig. 2 contact is established between the elements 6 and 7 through the agency of the ball 14. Now if the element 17 (Fig. 2) is rotated contra-clockwise, then the projection 16, before this element 17 reaches its alternative limiting position has passed beyond the center line between the shaft 18 and the center of the ball in its then position. Immediately this projection 16 has passed beyond the center line aforesaid it exerts a snap action pressure against the ball 14 to force it into the dotted position shown in Fig. 2 at which time contact between the elements 6 and 7 is broken. Now if the element 17 is then rotated clockwise a similar action takes place as regards the projection 16 passing the center line and the ball 14 is again forced into the position it is shown as occupying in Fig. 2. Now this reciprocatory motion of the element 17 is brought about through the element 19 and the instrumentalities associated therewith. To bring about this oscillatory motion of the element 19 which moves conjointly with the element 17, I provide this element 19 with a slot 20 having slightly enlarged portions at 21, 21. A sort of sliding guide 22 is thus provided in the element 19 along which a roller 23 carried by a crosshead 24 may slide. This crosshead 24 is controlled by a chain 25 which chain preferably passes outside of the socket through the bell shaped opening 26. A spring 27 tends to force the cross-head 24 away from the inner mouth 28 of the element 26, the extremities of this spring abutting respectively said mouth 28 and said crosshead 24.

Referring now specifically to Fig. 4, if the chain 25 is pulled to the right, the roller 23 resting in the recess 21 draws the element 19 in a contra-clockwise direction and this continues until the projection 16 of the element 17 has passed beyond the center line above referred to, at which time the spring 15 completes the movements of the elements 17 and 19 into their limiting position, at the same time that it forces the ball 14 into its alternative position. If the pull on the chain 25 is then released, the spring 27 forces this crosshead 24 to its alternative position at the opposite extremity of the slot 20. By again pulling on the chain 25 the roller 23 engages the alternative recess 21 and draws the element 19 and consequently the element 17 by clockwise rotation through the assistance of the spring 15 to the limiting positions occupied by these elements as shown in Figs. 2 and 3.

It will thus be seen that I have provided a very simple mechanism by which the alternative pulls on a chain 15 may be transformed respectively into a movement tending to circuit closure and a movement tending to circuit opening.

In Fig. 5 I show an alternative structure which may be advantageously used in place of the elements 14, 15, 16 and 17 and in this instance I have a circuit closing element 29 yieldingly carried in a crosshead 30, which element 29 rolls along an oscillating quadrant 17^a. A spring 15^a tends to hold the roller 29 against the guide surface of the element 17^a. When this element 17^a is oscillating from one position toward the other, the spring 15^a, when dead center is passed, serves to force the element 29 into one or the other of its alternative positions as the case may be. Certain contact elements 31 may then be provided in association with the element 29.

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

1. In a device of the character described the combination with a circuit controlling element, a movable element having resilient means interposed between it and said controlling element to control the position of said circuit controlling element, a second movable element attached to the first aforesaid movable element and having a runway, a sliding carriage for said runway, a flexible tension member to move said carriage, and a spring acting against said carriage tending to hold it in either one of its limiting positions.

2. In a device of the character described the combination with a circuit controlling element, a movable element having resilient means interposed between it and said controlling element to control the position of said circuit controlling element, a second movable element attached to the first aforesaid movable element and having a runway, a sliding carriage for said runway, a flexible tension member to move said carriage, and a spring acting against said carriage tending to hold it in either one of its limiting positions, said movable elements both being mounted on the same pivotally mounted shaft.

In witness whereof, I hereunto subscribe my name this 3rd day of September, A. D., 1912.

DAVID D. GORDON.

Witnesses:
MAX W. ZABEL,
HAZEL JONES.