Nov. 14, 1939. J. L. NEMETH 2,179,797

SOCKET SWITCH

Filed Aug. 5, 1938

Fig. 1.

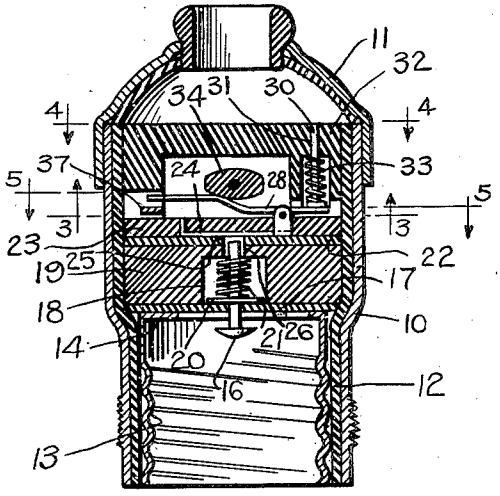


Fig. 4.

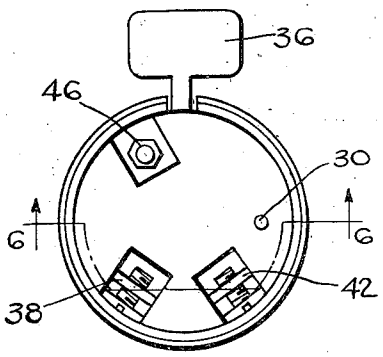


Fig. 5.

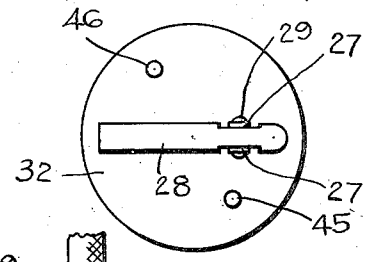


Fig. 2.

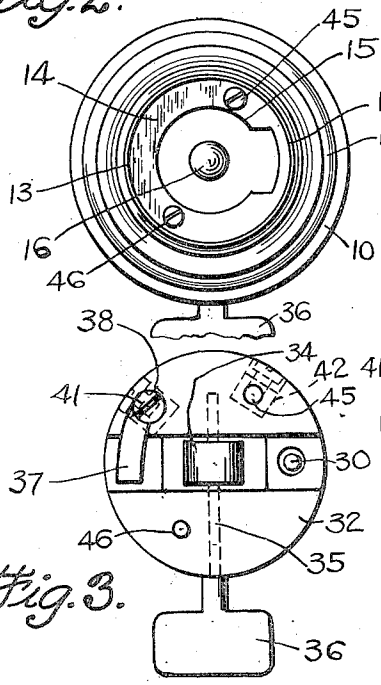
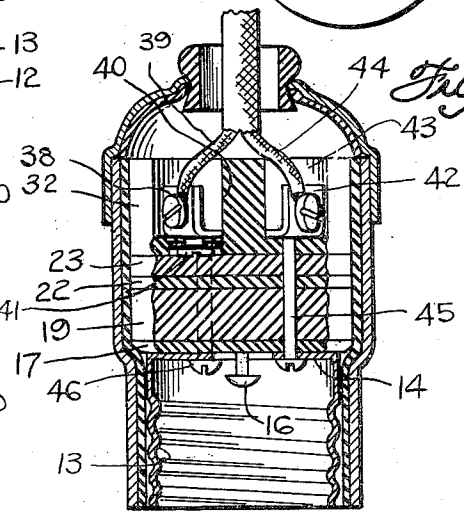


Fig. 3.

Fig. 6.



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WITNESS

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SOCKET SWITCH

John L. Nemeth, South Bend, Ind.

Application August 5, 1938, Serial No. 223,340

1 Claim. (Cl. 173—352)

This invention relates to socket switches and has for an object to provide a device of this character which is normally de-energized and two separate operations are necessary before current flows thereto, namely, a bulb or plug must be inserted to depress a center contact into circuit closing position and then the key must be turned to move a swinging contact arm into engagement with a fixed contact whereupon the socket switch is energized, so that even though the key be in "on" position no current will reach the socket when empty, and it will be impossible for one to receive a shock by inserting the finger or tools in the conventional screw terminal of the socket.

A further object of the invention is to provide a device of this character which will be formed of a few strong simple and durable parts, which will be inexpensive to manufacture and which will not easily get out of order.

With the above and other objects in view the invention consists of certain novel details of construction and combinations of parts hereinafter fully described and claimed it being understood that various modifications may be resorted to within the scope of the appended claim without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawing forming part of this specification,

Figure 1 is a longitudinal sectional view of a socket switch constructed in accordance with the invention.

Figure 2 is a bottom plan view of the socket switch shown in Figure 1.

Figure 3 is a cross sectional view taken on the line 3—3 of Figure 1 with the swinging contact arm removed.

Figure 4 is a cross sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a cross sectional view taken on the line 5—5 of Figure 1.

Figure 6 is a longitudinal sectional view taken on the line 6—6 of Figure 4.

Referring now to the drawing in which like characters of reference designate similar parts in the various views, 10 designates the conventional metal shell, 11 the conventional metal cap of a socket switch, 12 the insulating lining, and 13 the screw threaded cylindrical contact.

In carrying out the invention the inner wall 14 of the cylindrical contact is provided with an enlarged key hole opening 15 which receives a plunger 16 which projects through an insulating disc 17 disposed within the insulating lining 12 against the end wall 14 of the cylindrical contact, as best shown in Figures 1 and 2.

The plunger is housed in a recess 18 formed in a block 19 of insulating material and is provided with a collar 20 which is normally held against the insulating disc 17 through the medium of a helical spring 21 which is sleeved on the plunger. In this position of the parts the plunger projects into the cylindrical contact 13.

An insulating disc 22 is interposed between the insulating block 19 and a block 23 of insulating material, the latter carrying a substantial U-shaped metal bar 24 which is exposed to the end of the plunger through registering openings 25 and 26 formed in the insulating disc 21 and insulating block 19, respectively, as best shown in Figure 1. When a lamp bulb or a plug is inserted in the cylindrical contact 13 the plunger is depressed against the tension of the spring 21 to engage the bar 24 and close an electrical circuit through the socket switch at this point as will now be described.

The bar is provided at one end with a pair of upstanding ears 27, best shown in Figure 5, between which is pivoted a swinging contact arm 28 through the medium of a pivot pin 29 passed through the ears.

The arm bears at one end upon a pin 30, best shown in Figure 1, which is slidably fitted in an opening 31 formed in a block 32 of insulating material and has sleeved thereon a helical spring 33 which bears against the head of the pin and urges the pin to hold the swinging arm 28 against a cam 34 formed on the inner end of the stem 35 of a conventional key 36.

When the key is turned the cam 34 depresses the swinging arm to engage a fixed metal contact strip 37, best shown in Figure 3, which is connected to a conventional clip 38 for receiving a circuit wire 39. The clip is secured in a recess 40, best shown in Figure 6, formed in the insulating block 32 and is secured in place through the medium of a screw 41 which is countersunk in the bottom of the insulating block 38, as also best shown in Figure 6.

A conventional clip 42 is mounted in a recess 43 formed in the insulating block 32 and receives the other circuit wire 44. The clip is electrically connected to the cylindrical contact through the medium of a screw 45 which is passed through the insulating members 32, 23, 22, 19, 17 and through the inner wall 14 of the cylindrical contact 13, as best shown in Figure 6.

All of the insulating members 17, 19, 22, 23 and 32 are connected to the cylindrical contact

through the medium of a screw 46 arranged diametrically opposite one of the clips, as best shown in Figures 4 and 6.

When the cylindrical contact is empty it will be observed that the plunger is out of contact with the bar 24 so that no current can flow through the socket even if the key is turned to "on" position and thus one cannot receive a shock by thrusting the fingers into the cylindrical contact or inserting a metal tool therein.

However, when a plug or lamp bulb is inserted in the cylindrical contact the plunger 16 will be depressed and brought into engagement with the bar 24 closing the electrical circuit through the plug at this point. Then when the key is turned to operate the cam 34 so that the swinging bar 28 is brought into engagement with the metal contact 37, the circuit will also be closed at this point so that current can flow from one of the circuit wires through the swinging arm 28, plunger 16, lamp bulb (not shown) cylindrical contact 13, and screw 45 to energize the lamp bulb.

Attention is particularly directed to the non-shock feature of the key 36. The stem 35 is formed of metal while the cam 34 is formed of insulating material as is also the key proper 36. Thus when the insulating cam 34 is in circuit closing position no current can flow through the metal stem to the key 36. Even were one to place the finger or a tool upon the stem 35 of the key no shock could be had due to the key being insulated from the conductors by the insulating cam 34.

From the above description it is thought that the construction and operation of the invention will be fully understood without further explanation.

What is claimed is:

In a socket switch, a shell, a threaded cylindrical contact having an inner wall provided with an axial opening, an insulating disc on the inner wall, a block of insulation in the shell on the disc, a spring pressed plunger in the block projecting through the disc into the cylindrical contact and adapted to be moved endwise by insertion of a plug or lamp in the cylindrical contact, an insulating disc on the block, a conductor bar between the block and the last named disc extending across the plunger, said plunger when moved endwise projecting through the block and through the last named disc to engage the bar and form a circuit closer at this point, a hinge ear on the bar projecting through the last named disc, a contact arm pivoted between its ends on said ear, a helical spring disposed in the shell and bearing upon one end of the arm, an operating key carried by the shell having an insulated cam engaging the other end of the arm, and a stationary contact in the shell insulated therefrom and coacting with the arm in forming a circuit closer at this point.

JOHN L. NEMETH.