

Feb. 6, 1962

J. D. DOLPH

3,020,366

SAFETY LAMP SOCKET

Filed Feb. 15, 1960

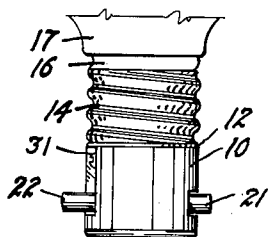


FIG 1

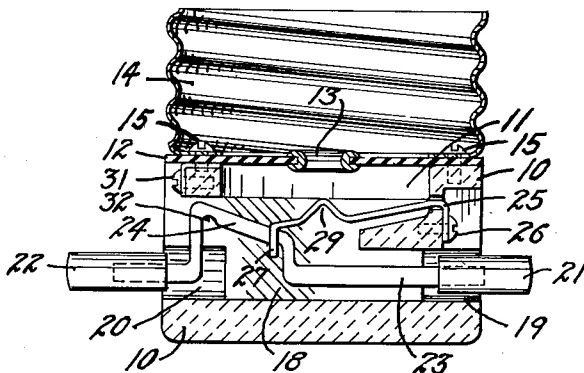


FIG 2

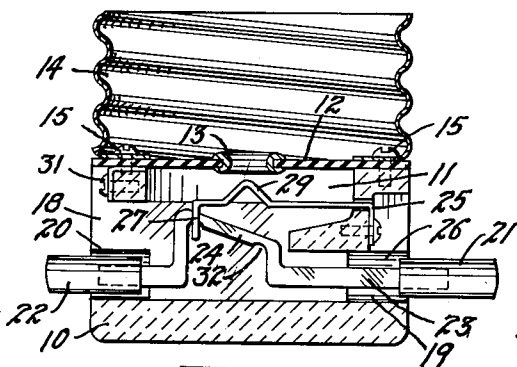


FIG 3

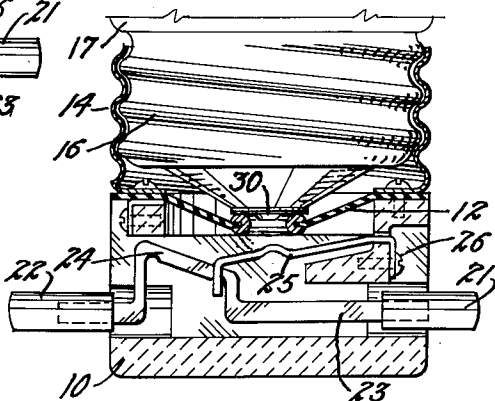


FIG 4

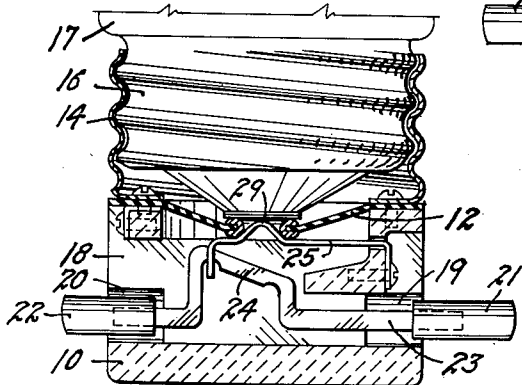


FIG 5

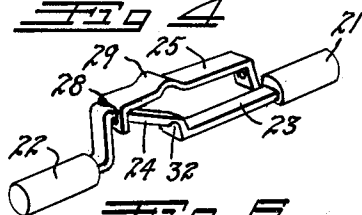


FIG 6

INVENTOR.
JOHN D. DOLPH
BY

ATTORNEY

1

3,020,366

SAFETY LAMP SOCKET

John Donald Dolph, 9251 Ellen Court, Denver, Colo.

Filed Feb. 15, 1960, Ser. No. 8,680

1 Claim. (Cl. 200—51.16)

This invention relates to a socket for receiving the screw base of a conventional electric lamp bulb. Accidents are frequently caused by the use of conventional lamp sockets, for instance, children will occasionally unscrew the lamp bulb and insert a curious finger into the socket resulting in severe electric shock or a metallic object such as a screw driver or knife will be accidentally or erroneously inserted into a socket resulting in a serious short circuit of the electrical system.

The principal object of this invention is to provide a safety electric lamp socket which will automatically disconnect its bulb contact from the live side of electric circuit when the lamp bulb is removed so that electric shocks and accidental short circuits will be entirely eliminated.

Another object of the invention is to incorporate a simple and highly efficient switch mechanism with the safety socket which will close a circuit to the latter only when a lamp bulb is in place in the socket so that current cannot be turned into the socket when there is a possibility of shock or electrical damage therefrom.

Other objects and advantages reside in the detail construction of the invention, which is designed for simplicity, economy, and efficiency. These will become more apparent from the following description.

In the following detailed description of the invention, reference is had to the accompanying drawing which forms a part hereof. Like numerals refer to like parts in all views of the drawing and throughout the description.

In the drawing:

FIG. 1 is a side view of the improved safety electric socket and switch as it would appear when removed from a conventional inclosing socket shell;

FIG. 2 is an enlarged diametric cross section through the socket, without a lamp bulb in place therein, illustrating the switch in the "off" position;

FIG. 3 is a similar enlarged cross section of the bulbless socket of FIG. 2 with the switch in "on" position;

FIG. 4 is a similar view illustrating a lamp bulb in place in the improved safety socket and with the switch in the "off" position;

FIG. 5 is a view similar to FIG. 4 with the switch illustrated in the "on" position; and

FIG. 6 is a detail perspective view of a switch assembly employed in the improved electric socket.

In the drawing, the neck portion of a conventional electric lamp bulb 17 is indicated in FIGS. 4 and 5 with the standard threaded lamp base 16 and center tip contact 30 therein.

The improved socket employs a cylindrical base block 10 of porcelain, plastic, Bakelite or similar electrical insulating material. The block 10 is formed with a circular opening or cavity 11 in its top which is covered by a circular diaphragm disc 12 of mica, plastic or other suitable similar semi-flexible, resilient electrical insulating material. A bulb tip contact element such as a grommet 13 is mounted in and through the center of the diaphragm disc 12.

A metallic socket shell 14 having the conventional thread corrugations is mounted on the block 10 concentrically over the diaphragm disc 12 in any desired manner. As illustrated, the socket shell 14 is internally flanged and attachment screws 15 pass through the flange thereof and through the diaphragm disc into the block

2

10 to rigidly secure the three elements together. The thread corrugations in the socket shell 14 are designed to receive the conventional threads on the lamp base 16 of the lamp bulb 17.

5 A diametrically-extending switch chamber 18 is formed in the block 10 from which two button guide channels 19 and 20 oppositely extend. An "off" switch button 21 is slidably mounted in the button guide channel 19 and an "on" switch button 22 is slidably mounted in the button guide channel 20 in alignment with the button 21. The buttons 21 and 22 are mounted on the opposite extremities of a reciprocal switch bar 23. The switch bar 23 is offset intermediate its extremities to form an inclined cam portion 24.

15 A flexible metallic switch blade 25 is mounted in the block 10 in any desired manner, such as by means of a suitable attachment screw 26 threaded into the block 10. The attachment screw 26 attaches one extremity of the blade 25 to the block. The other extremity thereof is turned downwardly as shown at 27 and this downwardly turned extremity is perforated to provide a switch bar passage 28, through which, the inclined cam portion 24 of the switch bar 23 passes, as shown in FIG. 6. The switch blade 25 is formed so as to provide an upwardly extending contact bend 29 immediately below the contact grommet 13.

A ground circuit wire can be connected to the socket shell 14 and a live circuit wire can be connected to the switch blade 25 in any of the customary manners. As illustrated, the ground connection can be made through a ground terminal screw 31 and the live circuit connection can be made through the attachment screw 26.

It can be seen that when the "off" switch button 21 is pressed into the block 10, the inclined cam portion 24 of the switch bar 23 will be forced through the bar passage 28 in the switch blade 25 to flex the latter downwardly, as shown in FIG. 2, so as to move the contact bend 29 away from the contact grommet 13. When the "on" switch button 22 is pressed into the block 10, the rising incline of the cam portion 24 will allow or cause the switch blade to flex upwardly so that the contact bend will approach the contact grommet 13, as shown in FIG. 3. The normal spacing between the grommet 13 and the switch blade 25 is such, however, that even in the "on" position of FIG. 3, the contact bend 29 will be spaced from, and out of contact with, the contact grommet 13 so that no current can pass from the switch blade 25 to the contact grommet 13 and a short circuit between the grommet and the socket shell 14 is impossible.

50 If, however, the lamp base 16 be threaded into the socket shell 14, the contact tip 30 on the lamp base will contact the grommet 13 and act to flex the diaphragm disc 12 downwardly, as shown in FIG. 4, to decrease the spacing between the grommet and the switch blade 25. The flexing of the diaphragm, however, is not sufficient to close a contact between the grommet and the blade when the switch bar 23 is in the "off" position of FIG. 4. If, however, the switch bar be moved to the "on" position with the lamp in place, the switch blade will contact the grommet to close the circuit to the lamp, as shown in FIG. 5.

Thus, it can be seen that the socket, when lampless, is rendered safe against shocks and shorts regardless of the position of the switch blade.

65 The switch blade is preferably formed from spring metal and is so conformed that when in place, its inherent resiliency tends to constantly urge it toward the grommet or tip contact. The spring action is employed to latch the switch bar in both the "on" and "off" positions by providing terminal notches 32 below the inclined cam portion of the switch bar. The switch blade will

3

snap into these notches to retain the switch bar in its terminal positions until manually actuated.

While a specific form of the improvement has been described and illustrated herein, it is to be understood that the same may be varied within the scope of the appended claim, without departing from the spirit of the invention.

Having thus described the invention what is claimed and desired secured by Letters Patent is:

An electric lamp socket comprising: a vertical cylindrical base block of electrical insulating material; a circular concentric cavity in the top of said block; a horizontal diametrically extending switch chamber formed in said block below and opening to said cavity; a reciprocal switch bar mounted in said chamber; buttons on the extremities of said switch bar for shifting the latter diametrically; an inclined offset cam portion on the top of said switch bar; a flexible metallic switch blade fixedly mounted in said block at one side of said cavity and extending over said switch bar into engagement with the offset cam portion of the latter, so that when said switch bar is moved in one direction it will flex said switch

4

blade downwardly a predetermined distance and when moved in the other direction, it will flex said switch bar upwardly a predetermined distance; a flexible diaphragm positioned over said switch blade and covering said cavity; an electrical contact carried by and extending through said diaphragm over said switch blade, said contact being positioned above and in spaced relation to the uppermost position of said switch blade; a lamp-receiving shell concentrically mounted on said block over said diaphragm and adapted to receive the base of a conventional electric lamp which when threaded into said shell will act to flex said diaphragm downwardly to a position to be contacted by said switch blade when the latter is in its uppermost position; and means for placing said shell and said switch blade in an electric circuit.

References Cited in the file of this patent

UNITED STATES PATENTS

20	2,158,862	Phelps	May 16, 1939
	2,179,797	Nemeth	Nov. 14, 1939
	2,454,069	Lefler	Nov. 16, 1948