Sept. 18, 1928. 1,684,982

T. A. BOTH

ELECTRIC SWITCH

Filed Dec. 19, 1924

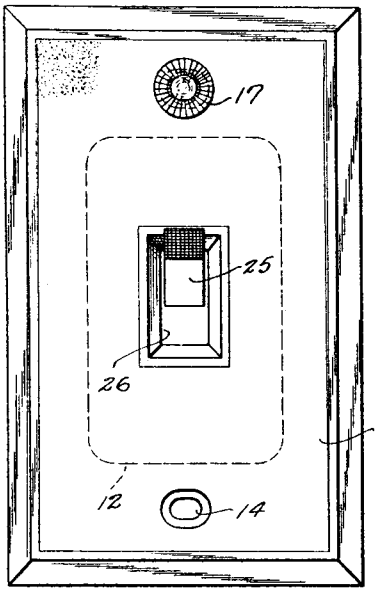


Fig. 1.

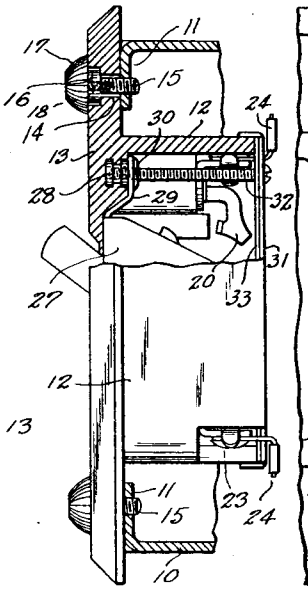


Fig. 2.

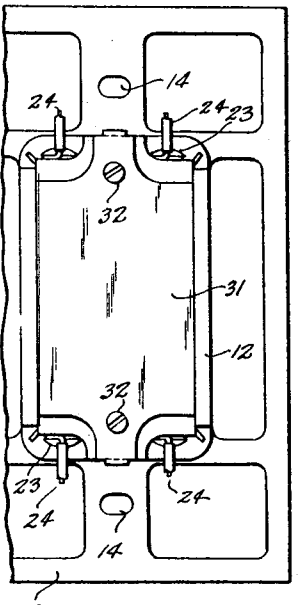


Fig. 3.

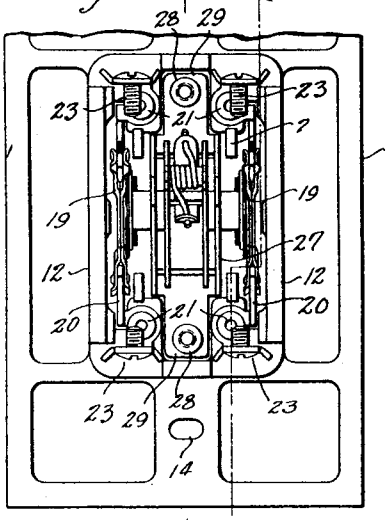


Fig. 4.

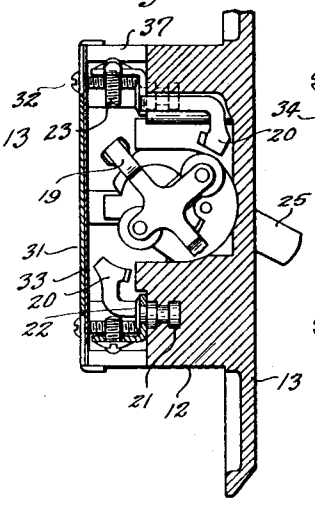


Fig. 5.

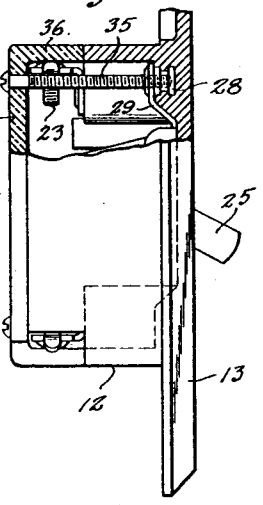


Fig. 6.

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UNITED STATES PATENT OFFICE.

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ELECTRIC SWITCH.

Application filed December 19, 1924. Serial No. 756,902.

This invention relates to mountings for wall switches, and has for an object to provide an improved mounting for these switches which will be thoroughly insulated at the front so that there will be no danger of the operator coming in contact with any live element and receiving a shock, in which the means for securing the switch in the outlet box is greatly simplified, and in which the switch and cover plate are mounted in position in one operation so no separate adjustment of the switch support is required.

With the foregoing and other objects in view, I have devised the construction illustrated in the accompanying drawing forming a part of this specification, similar reference characters being employed throughout the various figures to indicate corresponding elements. In this drawing,

Fig. 1 is a front elevation of one form of my improved switch mounting.

Fig. 2 is a side view showing the position of a wall outlet box, the upper half of the device being shown in section, the section being substantially on line 2—2 of Fig. 4.

Fig. 3 is a rear elevation of the device.

Fig. 4 is a rear elevation with the cover for the rear open side of the switch box removed.

Fig. 5 is a longitudinal section substantially on line 5—5 of Fig. 4, and

Fig. 6 is a partial side elevation and partial section of a slightly different construction.

A portion of a wall outlet box is indicated at 10 having the usual ears 11 to which the supporting yoke for the switch in the ordinary construction is mounted. In the present case, however, instead of using a separate yoke for carrying the switch and the insulating block in which it is mounted, the insulating switch box or block is molded in one piece with the cover plate of insulating material, and the cover plate and switch box are mounted on the wall and secured to the outlet box 10 by screws extending through the cover plate and threaded into the ears 11.

In the drawing the insulating box or block for the switch mechanism is indicated at 12 and it is molded in one piece with the cover plate 13 and of insulating material. This cover plate is provided with counterbored, slightly elongated openings 14 for passage of the securing elements comprising screws 15 threaded into the ears 11, the heads 16 of the screws seating in the counterbores of these openings. A separate insulating element comprising a head 17 of insulating material has a shank 18 threaded into a tapped opening in the head of the screw 16 so that there is no possibility of the hands of the operator coming in contact with the screw. Thus the device is an entirely dead front device.

The box 12 is open at its rear side to facilitate mounting of the switch mechanism within this box and also to allow easy access to the switch elements for inspection, adjustment and repair purposes. Such mechanism may be of any desirable type. In the present case it is a toggle switch comprising a pair of swinging contact blades 19 adapted to bridge stationary contacts 20 mounted in the block by any suitable means, such as bushings 21 molded in the block and having a head 22 projecting through openings in the contacts and riveted over. These contacts also carry the usual binding screws 23 connected with suitable lead wires 24 in the usual manner, and these binding screws in the present construction may be located adjacent the back of the box, as shown, where they are easily accessible for making the required connections. The swinging contacts 19 are operated by a suitable toggle lever 25 projecting through an elongated opening 26 in the cover plate 13, and it projects to the front of this plate where it is easily accessible for manipulation. The movable switch mechanism is mounted in a suitable support 27 which is secured in the box by bushings 28 molded in the box or plate and having their free ends extending through openings in ears 29 of the support and riveted over as shown at 30. After the switch mechanism has been mounted in the box the open rear end may be closed by a cover plate 31. In Figs. 2, 3 and 5 this plate is a metallic plate secured over the open end of the box by means of screws 32 threaded into the bushings 28, and a suitable insulating lining 33, such as a fibre plate, is provided for the inside of this cover plate to prevent any of the electrically live elements coming in contact with the plate, and when in position the plate will rest between the edges of the sides, and against the ends of the box.

In Fig. 6 the closure or cover plate for the

open rear end of the box, instead of being a metal plate with an insulating lining as shown in Figs. 2, 3 and 5, is closed by the plate 34 of insulating material secured to the box by screws 35 in the same manner as is the metal plate. In this form however, it is preferred to form integral ears 36 on the ends of the plate to extend into engagement with the body of the box 12, doing away with the relatively narrow end walls 37 on the box as shown in Figs. 2, 4 and 5, which may be liable to be easily broken off.

It is believed the advantages of this construction will be obvious. The switch box and the cover plate being molded in one piece of insulating material are made at a single operation, and give a unitary rigid construction which is mounted in the wall outlet box at a single operation and as a unitary structure. Another important feature is that the switch is always in proper relation to the cover plate. In the old construction where the switch block and cover plate were made as separate elements, more parts were required, which required a number of different mounting operations, and the switch block had to be adjusted on its support to lie in proper relation to the cover plate. In actual operation however, it is difficult to secure the proper adjustment to bring the switch mounting in proper alignment with the cover plate, giving an unsightly appearance and interfering more or less with the proper operation of the switch. The present construction also gives an entirely dead front installation, and the whole installation including the cover plate and switch may be removed from the wall box by merely removing the pair of screws 15.

Having thus set forth the nature of my invention, what I claim is:

1. In combination, a cover plate of molded insulating material adapted to cover the open side of a wall outlet box, a box portion comprising walls of insulating material extending rearwardly from the back of said plate and molded in one piece with said cover plate on the rear side thereof, switch mechanism mounted in said box, and switch operating means projecting through said plate to the front thereof.

2. In combination, a cover plate of molded insulating material adapted to cover the open side of a wall outlet box, a box portion comprising walls of insulating material extending rearwardly from the back of said plate and molded in one piece with said cover plate on the rear side thereof, said box being open at its rear side, switch mechanism mounted in the box, a removable closure plate for the open rear side of the box, and switch operating means projecting through the first plate to the front thereof.

3. In combination, an outlet box, a cover plate for the open side of said box molded of insulating material, means carried by the plate and engaging the box for securing the plate to the box, a switch box molded integral with said plate on the back wall thereof, switch mechanism mounted in said latter box, and means at the front of the plate for operating the switch.

4. In combination, an outlet box, a cover plate for the open side of said box molded of insulating material, means carried by the plate for securing the plate directly to the box, a switch box molded integral with said plate on the back wall thereof and open at its rear side, switch mechanism mounted in said latter box, a removable closure for the open rear side of said box, and means at the front of the plate for operating the switch.

5. In combination, a cover plate of molded insulating material adapted to cover the open side of a wall outlet box, a switch box molded integral with the plate and open at its rear side, a closure plate for said open side, threaded bushings in the box and first mentioned plate, screws passing through the second plate and threaded into said bushings to removably secure the closure to the box, switch mechanism mounted in the box and means projecting through the first plate for operating the switch.

6. A mounting for electrical switches comprising a cover plate adapted to cover the open side of a wall outlet box and a switch box comprising rearwardly extending walls on the back of the plate molded in one piece therewith of insulating material.

7. A mounting for electrical switches comprising a cover plate adapted to cover the open side of a wall outlet box and a switch box comprising rearwardly extending walls on the back of the plate molded in one piece therewith of insulating material and forming a compartment for switch mechanism, said compartment being open at its rear side, and the plate being provided with an opening leading to said compartment for the passage of a switch operating means.

8. A device of the character described comprising a cover plate and a switch box molded in one piece of insulating material with the box comprising walls projecting from the rear side of the plate, said plate being of a size to cover the open side of a wall outlet box, switch mechanism mounted in the switch box including binding posts accessible through openings in said walls, and switch operating means projecting through the plate to the front thereof.

9. A device of the character described comprising a cover plate and a switch box comprising walls molded in one piece with the plate of insulating material and projecting from the rear side of the plate, said plate being of a size to cover the open side of a wall outlet box and the switch box being open through its rear wall, switch mechanism mounted in the switch box, a closure plate for

said open rear side of the switch box, and switch operating means extending through the cover plate to the front side thereof.

10. An electrical switch device comprising an integral mounting of molded insulating material including a face plate adapted to cover the open side of a wall outlet box and walls extending rearwardly from the back of said plate molded in one piece with it, said walls forming a compartment open at the rear, said plate portion being provided with an opening leading to said compartment, switch mechanism mounted in said compartment, switch operating means extending through said opening to the front of the plate, and a cover for the open rear side of said compartment.

11. In combination, a wall outlet box, an electrical switch device comprising an integral mounting of molded insulating material including a cover plate for the open side of said box and walls extending rearwardly from the back of said plate molded in one piece with it and forming a compartment, said plate portion having an opening leading to said compartment, switch mechanism in said compartment, switch operating means of insulating material projecting through said opening to the front of the plate, screws extending through the plate for securing the device to the box, and heads of insulating material for said screws forming with the plate and switch operating means an entirely electrical dead front device.

In testimony whereof I affix my signature.

TONJES A. BOTH.