March 22, 1949. G. E. FITZGERALD 2,465,079

ENCLOSED FUSE AND SWITCH

Filed Dec. 17, 1946

Fig. 1.

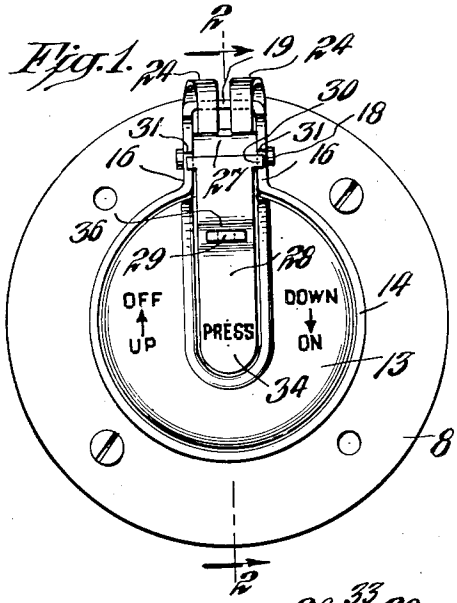


Fig. 2.

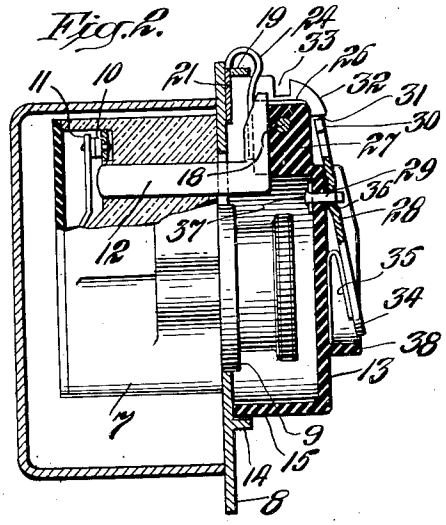


Fig. 3.

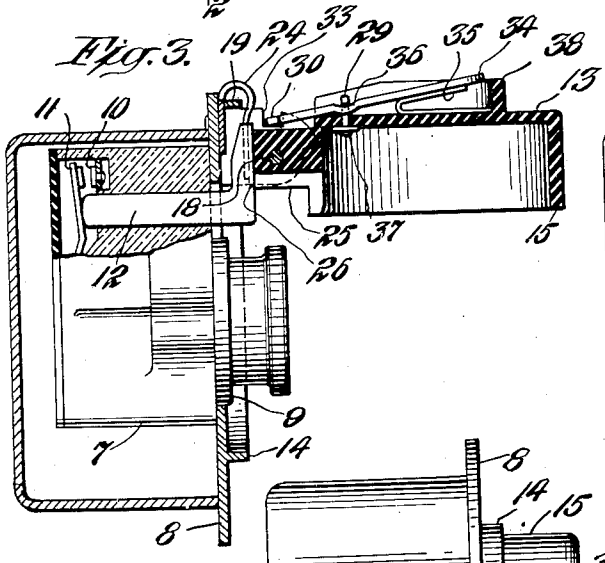


Fig. 4.

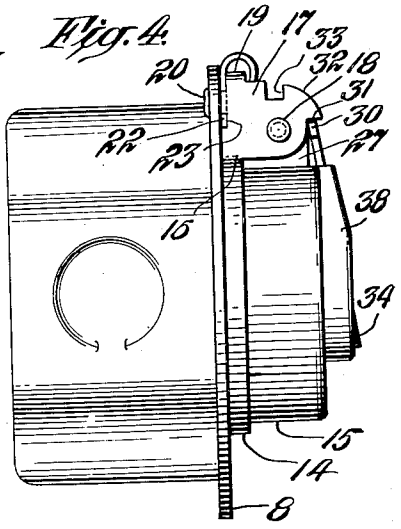
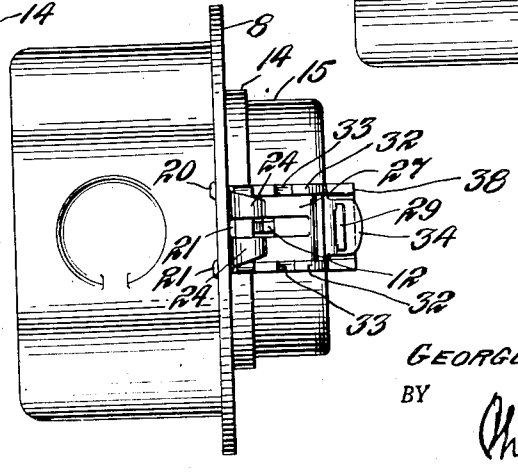


Fig. 5.



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ENCLOSED FUSE AND SWITCH

George E. Fitzgerald, Stratford, Conn.

Application December 17, 1946, Serial No. 716,737

1 Claim. (Cl. 200—50)

1

The invention disclosed in this patent application relates to combined fuse and switch units of the type covered in United States patent application Serial No. 680,892, filed July 2, 1946, in which these elements are so compactly related that they may be mounted as a unit on an outlet box cover and be enclosed within an ordinary outlet box.

A special feature of the units mentioned is that the device is protected by a cover and that the opening and closing of this cover serves to cut the fuse out of and into circuit.

The objects of the present invention are to improve the structure and operation of the fuse and switch constructions described, particularly to effect a locking of the switch cover in the open and closed switch positions; to guard against accidental release or closure of the switch operating fuse cover; to attain a more positive movement and action of the fuse cover; to confine gases that may be released on blowing of the fuse to the outlet box in which the device is mounted and to provide positive means and to afford definite indication of the switch throwing operations effected by the movement of the cover.

Other desirable objects attained by the invention will appear in the course of the following specification.

The drawing accompanying and forming part of the specification illustrates a present commercial embodiment of the invention. Structure, however, may be modified and changed as regards the immediate illustration, all within the true intent and broad scope of the invention as hereinafter defined and claimed.

Fig. 1 in the drawing is a front elevation of the combination fuse and switch unit as mounted on and combined with an ordinary outlet box;

Fig. 2 is a broken part sectional view on substantially the plane of line 2—2 of Fig. 1, with the fuse cover closed and the switch in closed circuit condition;

Fig. 3 is a similar view showing the cover open and the switch in open circuit condition;

Fig. 4 is a side elevation of the complete device, in the closed condition indicated in Fig. 2;

Fig. 5 is a top plan view of the complete unit in closed condition.

The construction shown is like that disclosed in the patent application referred to and copending herewith, embodying an insulating base 7 secured on the back of an outlet box cover 8 and carrying a fuse receptacle 9 accessible at the front of the box cover and a switch at the back for cutting the fuse receptacle into and out of circuit, this switch made up of relatively stationary and movable contacts 10, 11, the latter operably engaged by an insulating plunger 12 actuated by the pivoted fuse cover 13.

2

In the present invention the fuse cover and the box cover are made with companion portions overlapping to form an enclosure which will confine gases within the outlet box.

In the illustration the box cover 8 carries an outstanding annular flange 14 which in the closed position surrounds the circular rim portion 15 of the hollow fuse cover.

The enclosing flange 14 is shown as extending back into complemental engagement at 16, Figs. 1 and 4, with the inner edges of the spaced hinge lugs 17 carrying the pivot pin 18 for the fuse cover.

The hinge lugs 17 are shown connected together across the back by an integral bridging and spacing portion 19 and these connected lugs forming the hinge bracket are shown as having portions 20 riveted through the back of the cover plate 8.

A doubled spring is shown provided to assist in throwing and holding the fuse cover in different positions, said spring having a base portion 21 positioned and held against the face of the box cover by the connecting strap portion 19 of the hinge bracket and by lugs 22 at opposite edges extending out through notches 23 in the sides of the hinge bracket, Fig. 4. The doubled over portion of the fuse cover spring is shown in Figs. 1 and 5 as bifurcated to provide separate springs 24 for engagement with the angularly related cam portions 25, 26, of the hinge lug extension 27 of the fuse cover, at opposite sides of the switch actuating plunger 12.

The separate spring arms 24, by their independent, firm engagement with the hinge lug of the fuse cover at opposite sides of the switch plunger, tend to snap the fuse cover into the open and closed positions and to hold it firmly in such relations. This is particularly important in the closed position, confining the fuse cover tightly against the face of the box cover.

To prevent accidental or unintended operation of the fuse cover and hence the switch, special locking means are provided, consisting in the illustration of a latch lever 28 pivotally confined on the fuse cover at 29 and having laterally projecting lugs 30 at the outer end of the same to engage with the shoulders 31 to lock the cover closed and to ride over arcuate portions 32 into notches 33 to lock the cover in open position.

The inner end of the latch lever 28 is shown as

having a finger depressible handle portion 34 and beneath this portion there is shown confined a V-bent spring 35 for rocking the lever in the latching direction.

The pivot for the latch lever is indicated as a T-shaped lug extended loosely through an opening in the transversely grooved portion 36 of the lever and riveted at 37 at the under side of the cover, as shown in Fig. 3.

The latch lugs 30, in riding over the arcuate portions and snapping into engagement with the locking shoulders 31, 33, at opposite ends of the same, afford definite indication of the "On" and "Off" positions of the switch and show that the switch is locked in either the "Off" or the "On" position and that the fuse, accordingly, is either out of or in circuit.

In the open circuit position the cover is locked up out of the way, leaving the fuse fully accessible for easy, safe removal.

To guard against accidental or unintentional release of the latch, the finger pressure portion of the latch cover is shown surrounded by a U-shaped guard wall or flange 38, which may be as high or higher than this releasing portion of the latch. Also, the releasing handle portion of the latch lever may be relatively narrow, as appears particularly in Fig. 1, so as to require purposeful finger operation to effect release of the same. Disposed as it is, over the center portion of the cover, the latch lever is in convenient position for operation by one finger while the cover is gripped between other fingers of the same hand to shift the cover as a handle for throwing the switch one way or the other.

What is claimed is:

A safety lock for a fused switch of the type in which a fuse cover hinged on the front of a switch and fuse enclosure can be opened and closed to effect opening and closing of the switch within the enclosure and in which the fuse cover is mounted for such hinging movement by having a hinge extension pivotally engaged between a pair of spaced hinge lugs, said safety lock being operative to automatically secure said cover and switch in either closed or open condition and

comprising a latch lever pivoted intermediate its ends on top of said fuse cover in exposed position for release by an intermediate finger of a hand operating said fuse cover and having a finger depressible end portion extending over the central portion of the fuse cover and the opposite end projecting between the spaced hinge lugs, said lugs having notches in the edges thereof positioned to receive said projecting end of the latch lever in the closed and open positions of the fuse cover, a guard flange upstanding on the front of the fuse cover extending from the hinge portion of the fuse cover about and surrounding the finger depressible end portion of the latch lever and projecting to a height substantially as great as the extent of projection of said finger depressible portion for preventing accidental releasing operation of the latter and a spring disposed beneath the finger depressible end portion of the latch lever and located within the confines of said surrounding guard flange.

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