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H. J. HAMMERLY

1,928,487

SAFETY SWITCH

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Fig. 1.

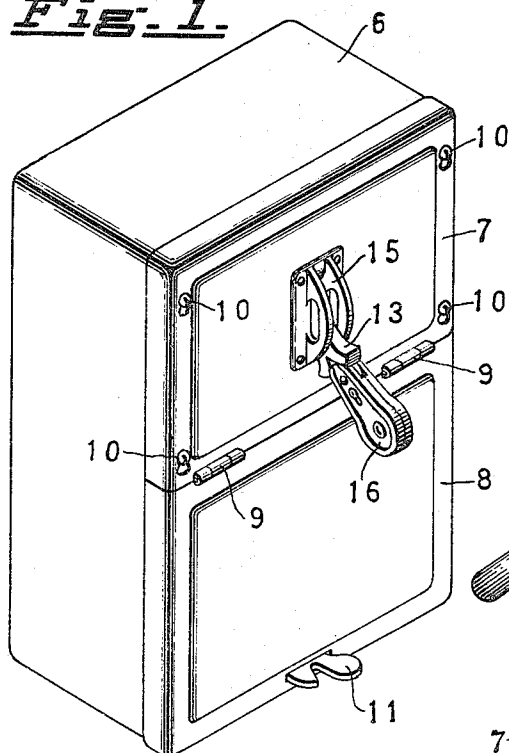


Fig. 3.

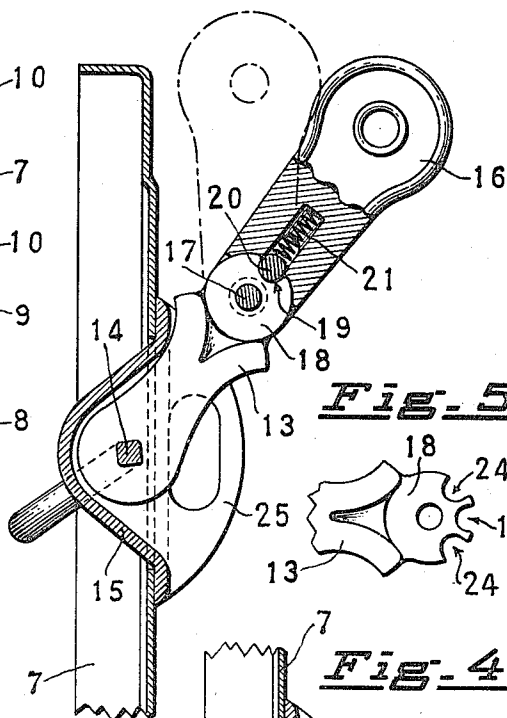


Fig. 5.

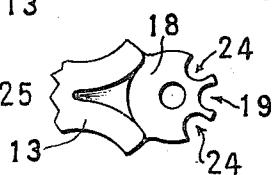


Fig. 4.

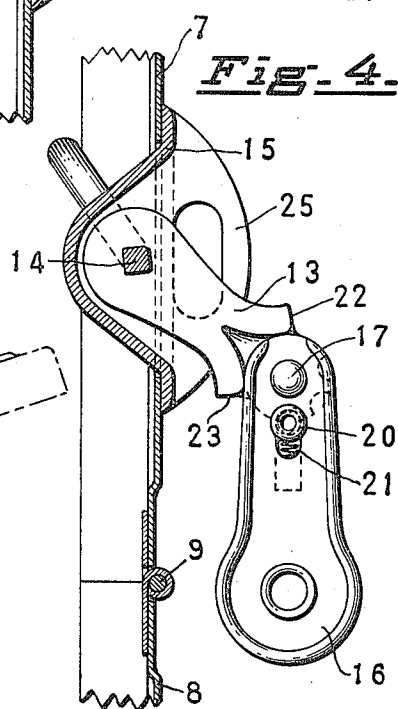
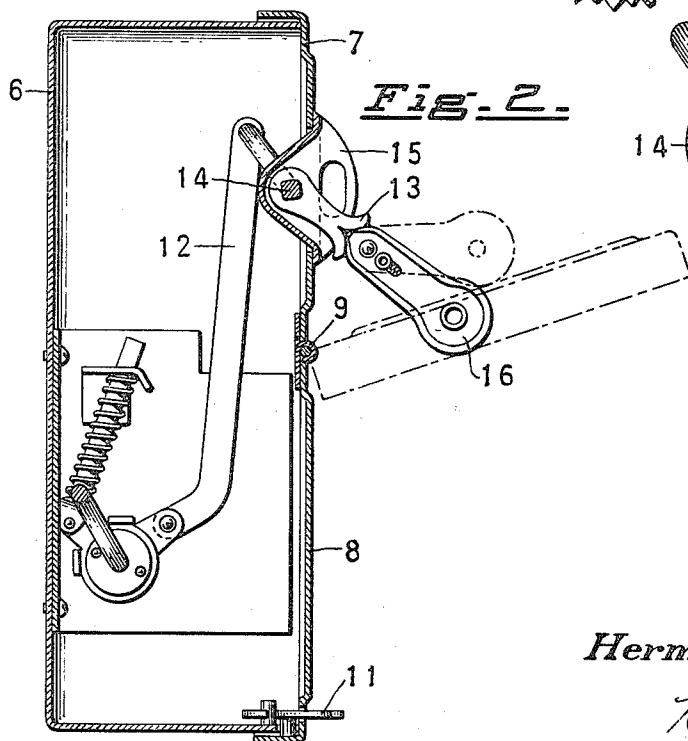


Fig. 2.



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UNITED STATES PATENT OFFICE

1,928,487

SAFETY SWITCH

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5 Claims. (Cl. 200—172)

My invention relates to operating means for electric switches and the principal object is to provide an operating handle so arranged that it may be operated in the same manner as a rigid, one-piece handle in throwing the switch to either the "on" or "off" position and then, by a simple additional manual operation, the projecting end of the handle may be disjoined in such a manner that it may continue its rotary movement until it rests comparatively close to the surface of the box cover or frame upon which it is mounted, or may be moved at right angles to the surface of the box.

In the next operating movement of the switch no special manual operation is necessary to restore the handle to its jointed position for the reason that the normal "on" or "off" movement of the projecting end of the handle automatically moves the jointing means into normally engaged position.

This construction permits each switch to be packed in a much shallower carton and thus it saves considerably in shipping space.

This construction is very useful in installations where the space in front of the switch is limited and in which the projecting handles of the present forms of switches would be objectionable.

Another object is to provide a switch construction in which the handle can be moved to give greater clearance for opening the fuse door.

Another object is to provide a switch operating member which can be set in a number of different positions.

Fig. 1 is a perspective view of one form of construction embodying my invention.

Fig. 2 is a vertical sectional view showing the switch handle in the "off" position in full lines and in dotted lines showing the outer end of the handle moved to a position at approximately right angles to the surface of the cover of the switch so as to permit the wide opening of the door.

Fig. 3 is an enlarged sectional view showing a fragment of the cover and the handle in the "on" position and showing in dotted lines the handle extension parallel to the cover of the box.

Fig. 4 is a fragmentary sectional view showing the handle in the "off" position but with its extension parallel to the front of the box.

Fig. 5 is a detail sectional view showing a fragment of the handle.

The box 6 will be usually formed of sheet steel and provided with a cover formed of two parts, the upper part 7 and the lower part 8, which are connected by hinges 9. The upper part of the cover is the normally closed portion which may

be secured to the body of the box, for instance, by screws 10. The lower part 8 constitutes the door for the fuse compartment of the switch and may be conveniently held closed by a manually releasable latch 11 which is claimed in my Patent 1,885,713, dated November 1st, 1932.

The switch proper may be of any suitable construction having an interior operating member 12 and an exterior handle member 13 which in this case is hinged on the crank shaft 14 which is supported in the socket member 15. Such a construction is claimed in my Patent 1,854,404, dated April 19, 1932.

The handle extension 16 is hinged at 17 to a bearing member 18 at the outer end of the main portion of the handle 13. This bearing member is provided with a notch 19 to receive a latch pin 20 which is held yieldingly in position by a spring 21 so that normally the handle 13 and its extensions 16 are, so to speak, locked together and move as one piece.

The ends of the locking pin 20 are exposed at the sides of the handle extension and serve as finger pieces to permit retraction of the locking member. When the locking member is retracted it will be obvious that the handle extension 16 may be swung on the pivot pin 17 from the position shown dotted in Fig. 3 to the position shown in full lines in Fig. 4, the shoulders 22 and 23 serving as stops to limit this unlocked movement of the handle extension.

In some cases it may be desirable to provide additional recesses 24 in the bearing member 18 so as to permit the handle extension to be locked in the tilted positions as well as in the central locked position above described.

It will be seen from the foregoing that the switch may be operated by the handle in the usual manner and that by providing the hinged extension with the interlocking device I have provided means which permits the handle extension to take up various other positions while the switch is "on" or "off" as the case may be. Such an arrangement not only provides for greater compactness in packing and shipping but also permits the handle to be moved upward out of the way, as shown dotted in Fig. 2 to permit the door to be fully raised when the switch is "off." It also makes it possible to move the handle extension to a position shown in Fig. 4 when the switch is "on." Such extra or supplementary positions also make it possible to use the handle extension as an indicator, for instance, for one or more switches in a group or panel arrangement.

The modification shown in Fig. 5 also makes it

possible to move the handle extension to a position which may be more convenient for operation than would the normal central position of the handle, that is, the handle may be given a normal position as shown in full lines in Fig. 3 for the operation of the switch, or the handle may be normally interlocked in the position shown in Fig. 4.

The construction as shown is also preferably provided with a perforated flange 25 by means of which the handle may be sealed or locked in position. It will be obvious that the handle extension may be moved when the main handle is locked and in this way serve as an indicator which can be seen from some distance.

There are various other possibilities of such a construction and arrangement made possible by this invention.

I claim:

1. In an electric switch, a box having a cover, a handle hinged to the cover and an extension hinged to the handle, said handle being adapted to normally stop in its "on" and "off" movements at an angle of approximately 45° with respect to the general plane of the cover and one of said handle parts being provided with an interlocking member permitting the extension to be swung substantially parallel to the outer surface of the box in its "on" and "off" positions.
2. In an electric switch, a box having a cover, a handle hinged to the cover and an extension hinged to the handle, said handle being adapted to normally stop in its "on" and "off" movements at an angle of approximately 45° with respect to the general plane of the cover and said extension being provided with an interlocking member permitting the extension to be swung substantially

parallel to the outer surface of the box in at least one of its positions of rest.

3. An electric switch box having a cover formed in two parts, the upper part being secured to the upper part of the box and the lower part constituting a door hinged to the upper part, a main switch actuating handle hinged to the upper part of the cover and movable toward the door to open the circuit and having an extension hinged to the main handle and adapted to be swung upward out of the way of the door while the circuit is open.

4. An electric switch box having a cover formed in two parts, the upper part being secured to the upper part of the box and the lower part constituting a door hinged to the upper part, a main switch actuating handle hinged to the upper part of the cover and movable toward the door to open the circuit and having an extension hinged to the main handle and adapted to be swung to a number of positions including a position parallel to the general plane of the front of the box.

5. An electric switch box having a cover formed in two parts, the upper part being secured to the upper part of the box and the lower part constituting a door hinged to the upper part, a main switch actuating handle hinged to the upper part of the cover and movable toward the door to open the circuit and having an extension hinged to the main handle and adapted to be freed from operative connection with said main switch actuating handle and to be swung into a number of different positions including a position substantially parallel to the general plane of one part of the cover without affecting the switch circuit.

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