Nov. 26, 1929. H. A. DOUGLAS 1,736,849

HANDLE AND ITS MOUNTING

Filed Nov. 17, 1927

Fig. 1.

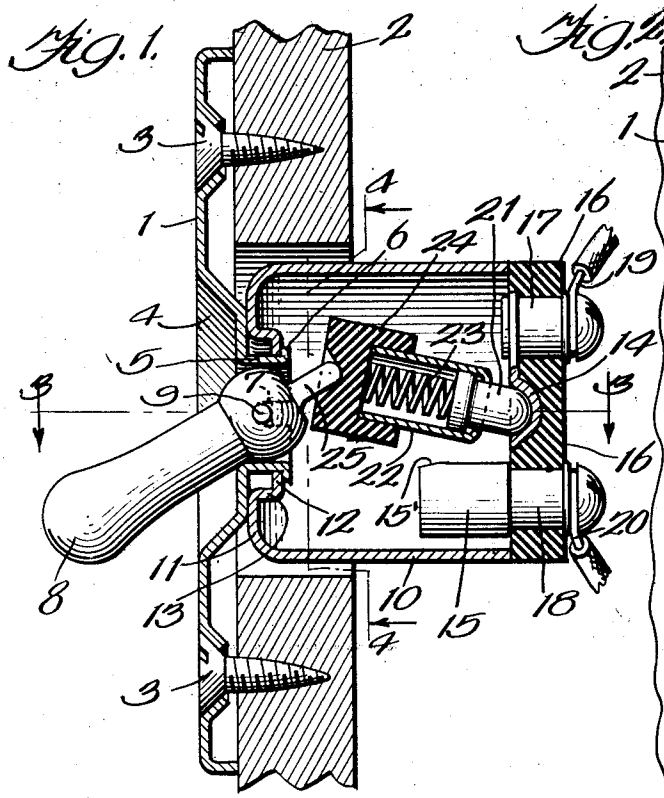


Fig. 2.

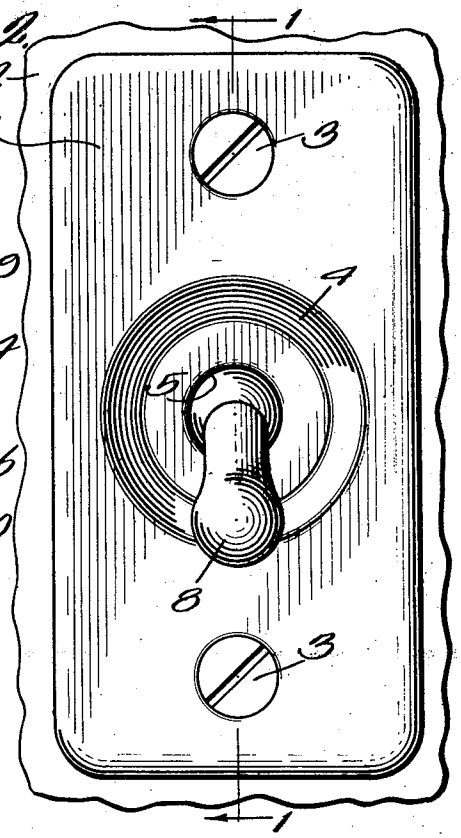


Fig. 3.

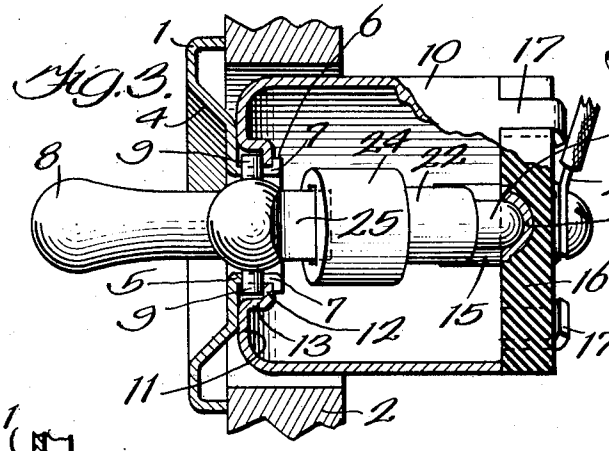


Fig. 4.

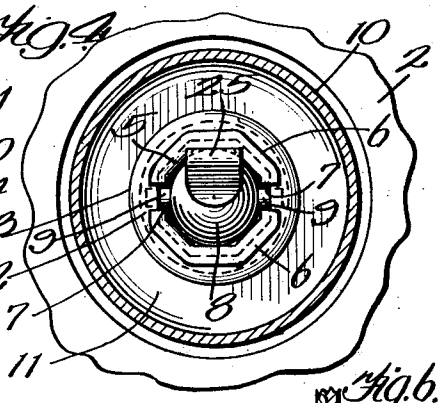


Fig. 5.

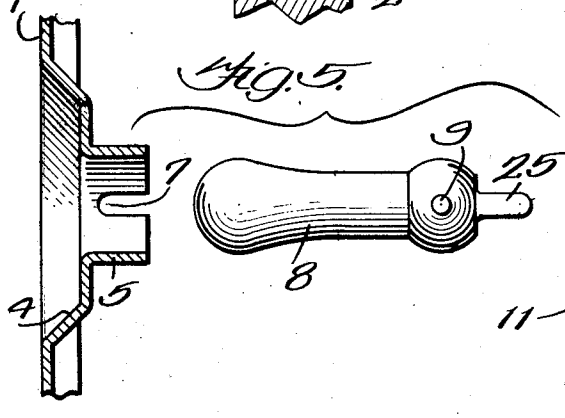
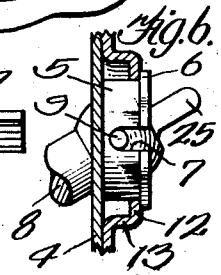


Fig. 6.



Inventor:
Harry A. Douglas
By G. L. Graff Atty.

Patented Nov. 26, 1929 1,736,849

UNITED STATES PATENT OFFICE

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN

HANDLE AND ITS MOUNTING

Application filed November 17, 1927. Serial No. 233,872.

My invention relates to handles and their mountings.

The structure of my invention is inclusive of a mounting plate having a body portion which is suitably supported and a hollow or sleeve-like portion projecting angularly from the body portion and surrounding the handle where the handle is mounted, the hollow portion that projects from the body portion of the mounting plate serving as a support or bearing for shaft portions or trunnions with which the handle is provided. Said mounting plate and the hollow portion projecting therefrom are desirably integrally formed in one piece of sheet metal and the hollow portion is provided with a flange at its unattached end. A keeper is confined between the body portion of the mounting plate and the flange and covers the holes that are provided in the hollow portion of the mounting plate to prevent separation of the handle from its mounting. In the preferred embodiment of the invention, the holes are in the form of open ended slots and the shaft portions are rigidly secured to the handle or are integral parts thereof whose displacement through the slots is prevented by an insetting shoulder which is provided upon the keeper and which engages the flange, said shaft portions projecting into the space that intervenes between the body portion of the mounting plate and said shoulder and flange, the insetting shoulder acting as a stop or keeper proper to hold the shaft portions in the slots. The keeper is preferably enlarged into a shell formation which encloses an electric switch, a contact of the switch being carried by the shell and a complemental contact being operable by the handle.

The invention will be more fully explained by reference to the accompanying drawing in which Fig. 1 is an axial sectional view of a switch structure having an operating handle mounted in accordance with my invention, taken on line 1—1 of Fig. 2; Fig. 2 is a front view of the structure shown in Fig. 1; Fig. 3 is a sectional view on line 3—3 of Fig. 1; Fig. 4 is a sectional view on line 4—4 of Fig. 1; Fig. 5 is a view of some of the component parts of the structure in separated relation; and Fig. 6 is a detailed view of a part of the structure with portions shown in elevation and in section.

A metallic mounting plate 1 may, if desired, be mounted upon a panel 2 or other support by means of screws 3. A central portion of the plate is formed with a depression portion 4 in the form of a frustrum of a cone. The plate portion 4 is a part of the body portion of the plate, there being a hollow portion 5 which projects from the body portion of the plate and which is provided with a flange 6 that is spaced apart from the body portion of the plate. Said hollow portion is desirably circular in the region of the body portion of the plate and is polygonal at its other end where the flange is located, the contours of said hollow portion gradually merging, as will be understood by reference to Fig. 6.

Holes 7 are provided in opposite sides of the hollow portion 5. These holes are preferably slots which are open ended in the region of the flange 6. A handle 8 is provided with shaft portions 9 which may be integrally formed with the handle if the handle is made of metal or which may be end portions of a single pin passed or driven, preferably tightly, through the handle. The handle is preferably so proportioned that it may be passed from the flange end of the hollow portion 5 through the hollow portion to bring the shaft portions 9 into the slots 7. After said shaft portions have been thus disposed in said slots, they are kept within the slots by means of a keeper which is preferably in the form of a switch enclosing shell 10, one of whose end walls having a portion 11 engaging the body portion of the mounting plate, this end wall of the shell also having an insetting shoulder 12 which is interposed between the flange 6 and the body portion of the mounting plate and which engages said flange, this shoulder serving as the keeper proper to prevent displacement of the shaft portions of the handle and to hold these shaft portions in the curved ends of the slots 7. The shoulder 12 preferably does not enter said slots, the shaft portions of the handle desirably projecting through

the slots into the annular space which surrounds the hollow portion 5 and intervenes between this hollow portion and the offset portion 13 of the end wall of the shell. The shoulder 12 conforms to and is in holding engagement with the polygonal part of the portion 5.

The switch structure illustrated is inclusive of two contacts 14 and 15 which are carried by a disc 16 of insulation which is assembled with the shell 10 by means of the ears 17 that are integral continuations of the shell. Said contacts are furnished with binding post extensions 17 and 18 by which the circuit wires 19 and 20 may be electrically connected with said contacts. A handle controlled contact 21 is shown as being in the form of a plunger which projects from a metallic spring barrel 22 and which is outwardly pressed by a spring 23 in said barrel. Said spring barrel is provided upon a floating block 24 of insulation. The handle is formed with a projection 25 that is received within a notch in the block 24. The common axis of the spring 23 and contact 21 is normally upon one side or the other of the pivotal axis of the handle. When the handle is turned sufficiently, the spring 23 is placed above or below the line that includes the pivotal axis of the handle and the contact 14 and when the spring is placed sufficiently upon one side or the other of this line and is released, the spring will expand and complete its own movement and the movement of the parts coupled therewith. When the spring and the contact 21 are in the position shown in Fig. 1, the circuit is open. When these parts are in their alternative position, the circuit is closed, the spring barrel 22, which is metallic, then engaging the chamfered portion 15′ of the contact 15, the circuit being established by way of the contact 21 and the spring barrel 22 in electrical connection therewith.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. The combination with a mounting plate having a body portion and a hollow portion projecting angularly from the body portion and which hollow portion has slots in its opposite sides and open ended at the end of said hollow portion that is more remote from the body portion of the plate; of a handle having shaft portions received in said slots; and a keeper in the form of a shell which has an end wall having a portion held in engagement with the body portion of said plate and a portion closely approaching the ends of the shaft portions and which end wall also has an insetting shoulder laterally spaced apart from the body portion of the plate and extending toward said hollow portion, said shaft portions projecting into the space between said plate body portion and insetting shoulder.

2. The combination with a mounting plate having a body portion and a hollow portion projecting angularly from the body portion and which hollow portion has a flange spaced apart from said body portion; of a handle having shaft portions journaled within holes provided through said hollow portion; and a keeper closely approaching and covering the ends of the shaft portions and in the form of a shell which has an end wall confined between the body portion of said plate and the aforesaid flange.

In witness whereof, I hereunto subscribe my name.

HARRY A. DOUGLAS.