June 9, 1942. J. W. SAMZELIUS 2,286,111

SWITCH STRUCTURE

Filed Feb. 26, 1941

Fig. 1.

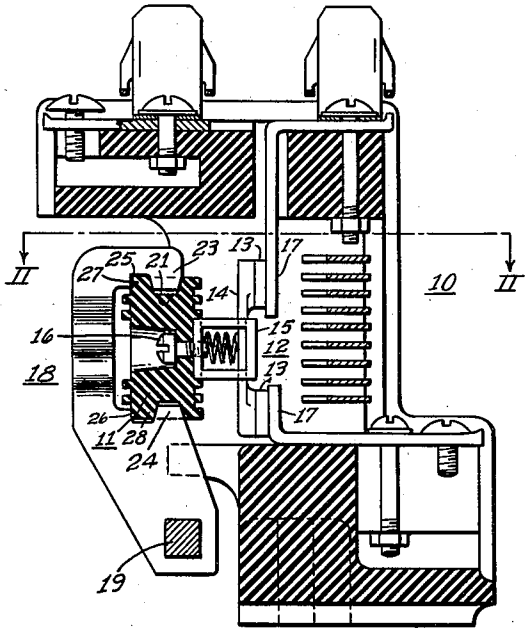


Fig. 3.

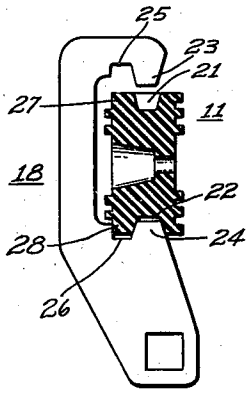


Fig. 4.

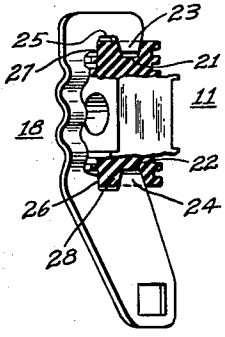
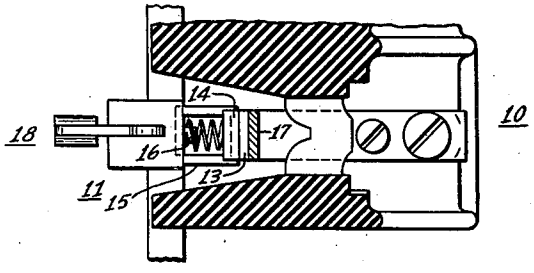


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE

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SWITCH STRUCTURE

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Application February 26, 1941, Serial No. 380,665

7 Claims. (Cl. 200—166)

My invention relates, generally, to switch structures and, more particularly, to switches of the enclosed type, commonly known as safety switches.

An object of my invention, generally stated, is to provide a switch structure which shall be simple and efficient in operation and which may be economically manufactured and installed.

A more specific object of my invention is to provide a support for the moving contact members of an electric switch.

Another object of my invention is to provide for supporting the moving contacts of an electric switch without using bolts or rivets.

Other objects of my invention will be explained fully hereinafter or will be apparent to those skilled in the art.

In accordance with my invention, the block on which the moving contact members of a switch are mounted is secured in a sheet steel bracket carried by the operating shaft of the switch. The bracket is of a hook shape and provided with projections which fit into recesses in the block when the bracket is shrunk onto the block by creasing or crimping the side of the bracket forming the closed portion of the hook.

For a fuller understanding of the nature and objects of the invention, reference may be had to the following detailed description, taken in conjunction with the accompanying drawing, in which:

Figure 1 is a view, partially in section and partially in elevation, of a switch structure embodying my invention;

Fig. 2 is a view, in section, the section being taken along the line II—II of Fig. 1;

Fig. 3 is a view, partially in elevation and partially in section, of the bracket and contact supporting block before the bracket has been shrunk onto the block, and

Fig. 4 is a view, in perspective, showing the bracket and the block after the bracket has been shrunk on the block by crimping or creasing the bracket.

Referring to the drawing, the reference character 10 designates, generally, a portion of a switch structure which may be of the enclosed type commonly known as safety switches, and having an insulating block 11 on which is mounted a contact assembly 12. The contact assembly 12 comprises a pair of butt contact members 13 secured to the ends of an arm 14 that is resiliently mounted in a carrier 15 secured to the block 11 by a screw 16.

In order that the contact members 13 be actuated into and out of engagement with their cooperating fixed contact members 17, the contact block 11 is carried by a bracket 18 that is actuated by a shaft 19 rotatably mounted in the switch housing (not shown). It will be understood that the shaft 19 may be actuated by any suitable means through a sufficient angle to open the contact members of the switch.

As shown, the bracket 18 is of a hook shape having an opening at one side to receive the block 11. At the top and bottom of the block 11 are provided recesses 21 and 22 for receiving projections 23 and 24, respectively, on the bracket 18. Additional recesses 25 and 26 are provided in the bracket 18 for receiving projections 27 and 28, respectively, on the block 11.

In order that the block 11 may be readily inserted in the bracket 18, the gap between the projections 23 and 24 in the bracket, when in its initial or blank form, as shown in Fig. 3, is slightly larger than the height of the block minus the depth of the recess 22. Thus, it is possible to insert the block 11 between said projections by engaging projection 24 with recess 22 and then rotate the block 11 until the recess 21 is just opposite projection 23. In this position, the side of the bracket 18 opposite the opening for the block 11 is subjected to a creasing or crimping operation, as shown in Fig. 4, which will shorten the gap and draw the projections 23, 24, 27 and 28 into the corresponding recesses 21, 22, 25 and 26 thereby locking the bracket 18 and the block 11 together.

The connection may be made more rigid by tapering the sides of the projections and recesses as shown, thereby wedging the block in the bracket as the two are drawn together by the creasing operation. The bracket is preferably made from sheet steel and the block can be removed from the bracket if desired, by flattening out the creases.

From the foregoing description, it is apparent that I have provided a supporting structure which is simple and inexpensive and which may be utilized in a limited space. The creasing operation will not impair the strength of the bracket as would holes for bolts or rivets. Furthermore, there is no danger of cracking or breaking the insulating block when it is made from porcelain or other brittle material. It is also evident that the structure herein disclosed is not limited to switch mechanisms but may be utilized in numerous other devices.

Since numerous changes may be made in the above-described construction, and different em-

bodiments of the invention may be made without departing from the spirit and scope thereof, it is intended that all matter contained in the foregoing description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In a switch structure, the combination with a movable contact member and a block for supporting the contact member, of a bracket for carrying the block, said block being held in the bracket by creasing the bracket to cause it to engage opposite sides of the block.

2. In a switch structure, the combination with a movable contact member and a block for supporting the contact member, of a hook-shaped bracket for carrying the block, said bracket being shrunk to engage opposite sides of the block by creasing one side of said bracket.

3. In a switch structure, the combination with a movable contact member and a block for supporting the contact member, of a hook-shaped bracket for carrying the block, said bracket being shrunk to engage opposite sides of the block by creasing the side of the bracket forming the closed portion of the hook.

4. Means for supporting a switch contact member comprising a contact supporting block having recesses in opposite sides thereof, and a hook-shaped bracket for carrying said block, said bracket having oppositely disposed projections thereon drawn into said recesses by creasing one side of the bracket.

5. Means for supporting a switch contact member comprising a contact supporting block having recesses in opposite sides thereof, and a hook-shaped bracket for carrying said block, said bracket having oppositely disposed projections thereon drawn into said recesses by creasing the closed side of the hook.

6. Means for supporting a switch contact member comprising a contact supporting block having tapered recesses in opposite sides thereof and a hook-shaped bracket for carrying said block, said bracket having oppositely disposed tapered projections thereon drawn into said recesses by creasing the closed side of the hook.

7. Means for supporting a switch contact member comprising a contact supporting block having recesses in opposite sides thereof, and a hook-shaped bracket for carrying said block, said bracket having oppositely disposed projections thereon cooperating with said recesses, additional recesses in said bracket and additional projections on said block, said projections being held in said recesses by creasing one side of said bracket.

JOHN W. SAMZELIUS.