

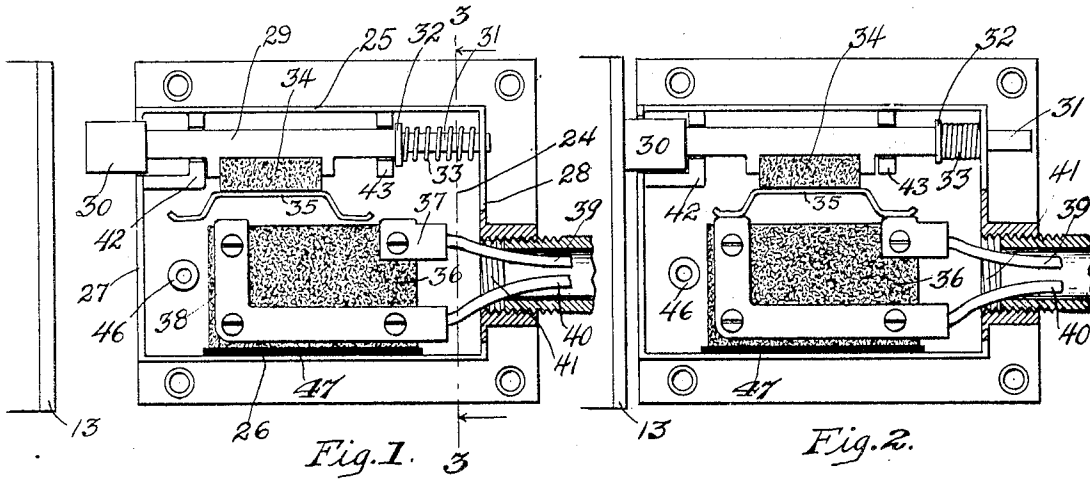
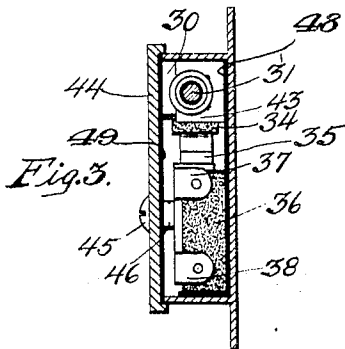
H. B. SHREVE.

SAFETY SWITCH.

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1,039,600.

Patented Sept. 24, 1912.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY B. SHREVE, OF CHICAGO, ILLINOIS, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO LEWIS B. JENKS, OF CHICAGO, ILLINOIS.

SAFETY-SWITCH.

1,039,600.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed May 26, 1910. Serial No. 563,593.

To all whom it may concern:

Be it known that I, HARRY B. SHREVE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Safety-Switches, of which the following is a specification.

This invention relates to a form of safety switch particularly intended for use in conjunction with elevator systems, and in which the circuit is opened and closed by depressing a finger which normally protrudes from the switch casing, the circuit being closed as long as said finger is depressed and being opened automatically when the finger is allowed to move out.

As before stated, the switch is intended particularly for use in elevator systems where it is desired to interlock the opening and closing of the several gates with the brake mechanism of the elevator, but it will be apparent that the switch is in no wise limited to such use.

The main objects of the invention are, to provide a switch of extremely simple design and construction; one which is normally open and will only remain closed while pressure is applied to the actuating finger; one which is completely inclosed within a fire-proof casing, and one which is of such design and construction that it may be insulated in a most efficient manner with the least amount of insulating material.

Other objects and uses of the invention will appear from a detailed description of the same, which consists in the features of construction and combination of parts hereinafter described and claimed.

Referring now to the drawing,—Figure 1 shows a plan view of the switch, the cover being removed and the finger being in extended position so that the circuit is broken; Fig. 2 is a view similar to that of Fig. 1, the finger being depressed, however, to close the circuit; and Fig. 3 is a cross-section taken on the line 3—3 of Fig. 1 looking in the direction of the arrows.

Referring now to the drawing, the switch mechanism is inclosed within a housing 24, having side walls 25 and 26 and end walls 27 and 28. A cover 44, which is provided around its periphery with a beading as illustrated in Fig. 3, may be held in position against the side and end walls by means of a screw 45 threaded into a boss 46.

The bottom of the interior of the box is properly lined with insulating material 48 and a block 36 of insulating material is suitably attached to the bottom of the interior at approximately its central portion. The electrical contacts 37 and 38 are secured to the insulating block 36 and have their contact faces bent down over the edge of the insulating block. The electrical leads 39 and 40 are connected to the contacts 37 and 38, respectively, and pass out of the box through a threaded neck 41, which is adapted to receive the end of an electric conduit pipe.

Finger 29 is slidably mounted within the box and has its direction of movement determined by its end portion 31, which passes through the rear wall of the box, and by its contact head 30, which extends through the forward end of the box. A lug 43 is secured to the bottom of the box and limits the amount of outward movement of the finger by contacting with a collar 32 on the finger. A spring 33, surrounding the end portion 31, contacts the interior of the rear wall of the box and the collar and tends to maintain the finger in projected position as shown in Fig. 1. It is preferred that a partition 42 should be provided adjacent the front wall, said partition serving to form a receptacle into which the contacting head 30 may enter when the finger is thrown back into the position shown in Fig. 2.

An insulating block 34 is mounted on the finger and carries a leaf spring 35, the ends of which are adapted to simultaneously engage the down-turned faces of the contacts 37 and 38 when the finger is pushed back into the position shown in Fig. 2. It is thus seen that when the finger is forced inward the circuit between the contacts 37 and 38 is closed, while when the finger is released it will be projected into the position shown in Fig. 1 to break the circuit.

It is preferred that the inner face of the cover should be provided with insulating material 49. By reason of the relative arrangements of the contacts with respect to the other portions of the switch, any flashing which may occur when the switch is opened will be confined to the extreme interior portion of the switch, the only metallic portions thereof to which the flash might jump being the bottom of the box and the cover. However, inasmuch as these parts

are thoroughly insulated by the layers of insulation 48 and 49, it is seen that it is practically impossible for the flash to extend to any portion of the box, and thus danger from short circuits and burn-outs is largely eliminated.

In practice the switch would ordinarily be placed with its finger extending in a horizontal position. Therefore, any moisture which might tend to enter the box and thus reduce the electrical insulation would be caught within the partition 42 and there held, thus again greatly increasing the efficiency of the insulation.

I claim:

In a self-opening safety switch the combination of a base member, a surrounding wall on the same, insulating material on that portion of the base included within such wall, a stationary insulating block within the inclosing wall, a pair of stationary contacts secured to said block and each provided with a down-turned contact finger lying on the edge of the insulating block, a plunger

arm having its ends journaled in opposite sides of the inclosing wall, a contacting head on one end of said arm and adapted to project beyond the inclosing wall, an insulating block secured to the arm, a spring contact secured to said insulating block and having a pair of spring fingers extending toward the stationary insulating block and mounted in position to engage the down-turned contact fingers when the plunger arm is forced inward for purposes of closing the circuit, a spring on the plunger arm for projecting the same in one direction to thereby move its insulating block and spring contacts sidewise for opening the circuit, a cover plate adapted to be held in position against the upper edge of the inclosing wall, and insulating material on the inner face of said cover plate, substantially as described.

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Witnesses:

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