Jan. 3, 1933. R. H. HELSEL 1,893,027

SWITCH

Filed June 7, 1930

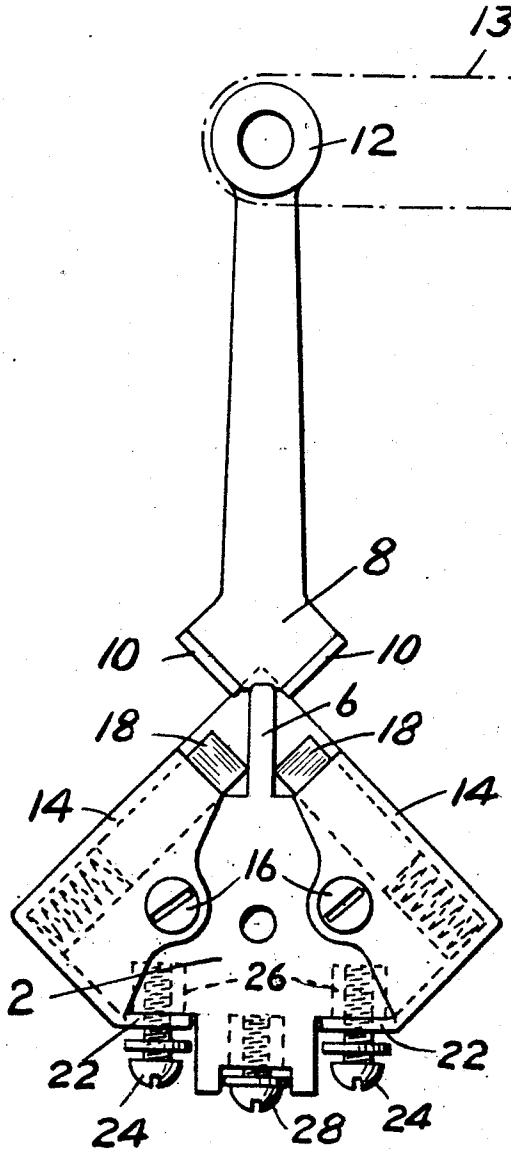


FIG. 1.

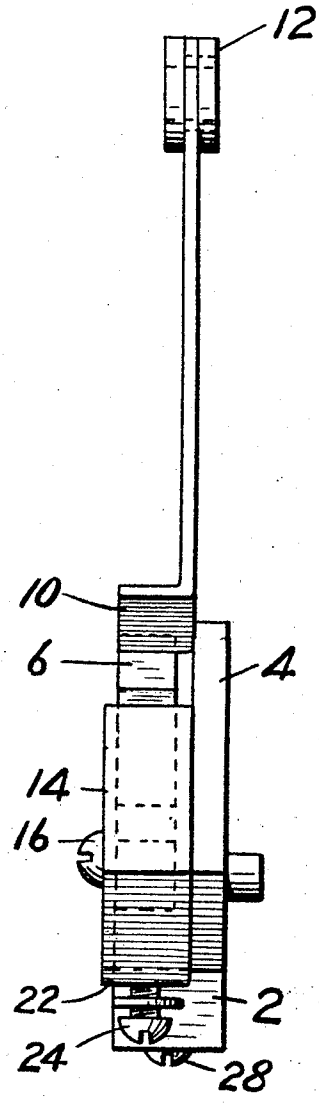


FIG. 2.

WITNESS:
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UNITED STATES PATENT OFFICE

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SWITCH

Application filed June 7, 1930. Serial No. 459,625.

This invention relates to a switch and particularly a switch adapted for use in a mechanism such as a ticket issuing mechanism, which includes an intermittently operated motor, the circuit of which must be controlled by a switch adapted to make contact upon depression of a key or the like and to open at the end of a cycle of operation.

To be satisfactory for the purposes just indicated, a switch must have a construction which adapts it for long life under hard use, since during operation periods it necessarily makes a very large number of contacts. It is the broad object of the present invention to provide a switch for the purpose defined which is constructed to withstand hard use and which will insure perfect contact at all times, this being specifically effected by the provision of a sliding action between contact elements. It is a further object to provide a switch in which arcing will be minimized due to the breaking of contact at two different points in series in the line.

The various objects of the invention will be better understood from the following description read in conjunction with the accompanying drawing, in which:

Fig. 1 is a front elevation of the switch; and

Fig. 2 is a side elevation thereof.

The various elements of the switch are supported by a carrying member 2 of suitable insulating material properly shaped to hold or guide the various elements. This carrying member is provided with a backing portion 4 adapted to be secured in a frame of the machine for which the switch is adapted. In front of this backing portion and spaced therefrom is located an upwardly extending finger 6 between which and the backing portion 4 is arranged to slide a contact element 8 provided with two outwardly extending contact making flanges 10 spaced at their inner ends so as to pass on opposite sides of the finger 6. The element 8 is provided with an insulated two-part bushing 12 adapted to receive a pin carried by an arm 13 forming part of the mechanism to which the switch is applied, arm 13, for example, being moved to lower the contact element 8 by depression of a key of a ticket issuing machine. It will be noted that by reason of the movement of the element 8 between the finger 6 and portion 4 of the carrying member and the location of the finger 6 between the flanges 10, the element 8 is properly guided for its contact making and breaking movements.

Secured to the carrying member by screws 16 are metallic housings 14, which, with the outer sloping walls of the carrying member, form rectangular channels for the reception of carbon brushes 18 which are urged outwardly and in converging paths by springs 20, their outward movement being limited by engagement with the insulating finger 6. Extensions 22 of the housings are provided with apertures arranged for the passage of binding posts 24 which are threaded into bushings 26 in the insulated carrying member 2. A further binding post 28 may be provided for special purposes.

By connecting the broken ends of a line to the binding posts 24, it will be obvious that movement of the conducting element 8 downwardly into contact with the brushes 18 will effect closure of the circuit. When contact is made, the flanges 10 force the brushes inwardly against the springs 20 and at the same time a relative sliding movement between the brushes and the flanges takes place so that positive contact is insured. Upon breaking of the circuit, since it is broken at two separate points, arcing is minimized. It is found that this switch will operate for long periods, making contacts at very short intervals such as occur during the operation of ticket issuing mechanisms.

What I claim and desire to protect by Letters Patent is:

1. A switch comprising a carrying member, a plurality of slidably mounted contact elements, springs urging the contact elements in converging paths, means for limiting the movements of the elements under the actions of the springs, and an element movable to engage both contact elements with a sliding motion.

2. A switch comprising a carrying member, a plurality of slidably mounted contact ele-

ments, springs urging the contact elements in converging paths, means for limiting the movements of the elements under the actions of the springs, an element movable to engage both contact elements with a sliding motion, and means carried by the carrying member for guiding the last named element in said movement.

3. A switch comprising a carrying member, a plurality of slidably mounted contact elements, springs urging the contact elements in converging paths, an insulating member extending between the elements and engageable by them whereby their movements under the actions of the springs are limited, and an element having portions on opposite sides of the insulating member and guided thereby to engage both contact elements with a sliding motion.

4. A switch comprising a carrying member, a plurality of slidably mounted contact elements, springs urging the contact elements in converging paths, an insulating member located between the elements, and an element having portions on opposite sides of the insulating member and guided thereby to engage both contact elements with a sliding motion.

In testimony of which invention, I have hereunto set my hand, at Brooklyn, N. Y., on this 3rd day of June, 1930.

REUBEN H. HELSEL.