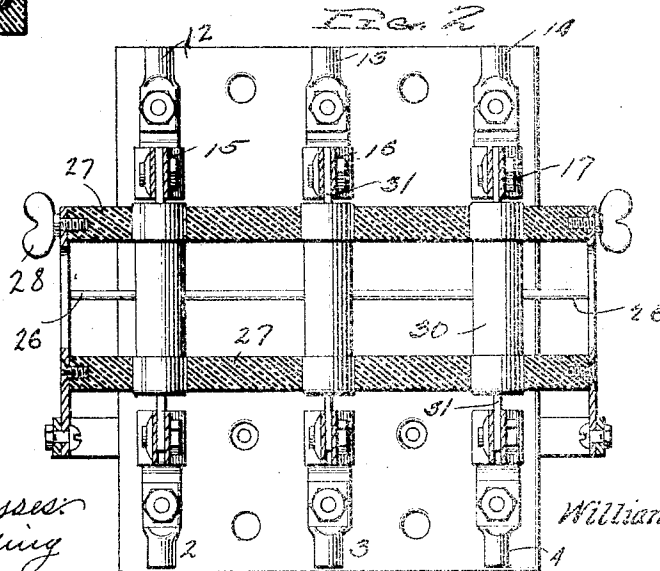
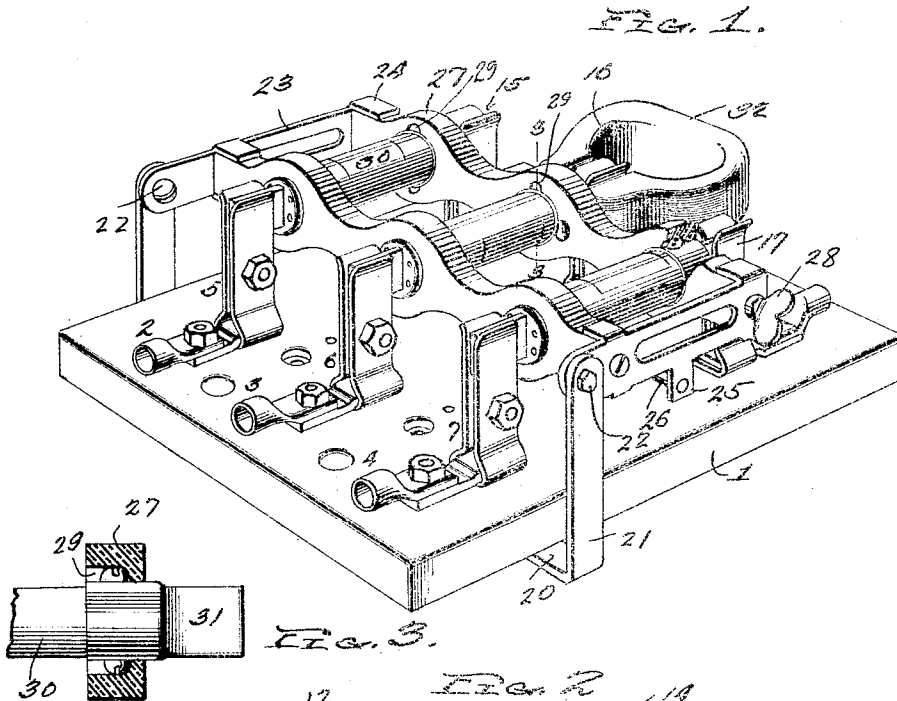


W. M. BRILLHART.
KNIFE SWITCH.
APPLICATION FILED SEPT. 15, 1919.

1,364,977.

Patented Jan. 11, 1921.



Witnesses:
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WILLIAM M. BRILLHART, OF YORK, PENNSYLVANIA.

KNIFE-SWITCH.

1,364,977.

Specification of Letters Patent.

Patented Jan. 11, 1921.

Application filed September 15, 1919. Serial No. 323,743.

To all whom it may concern:

Be it known that I, WILLIAM M. BRILLHART, a citizen of the United States, residing at York, in the county of York, State of Pennsylvania, have invented certain new and useful Improvements in Knife-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to electric switches, and more especially to those known as knife switches; and the broad purpose of the invention is to use an electric fuse instead of the blade of such a switch.

To this end the invention comprises adaptations in the movable element or frame of the switch for receiving the fuse, or the fuses if the switch have several blades as herein illustrated, and it also comprises means for permitting the replacement of any fuse which should become burned out.

The following specification sets forth one manner in which the invention may be successfully carried out, and reference is made to the drawings wherein:

Figure 1 is a perspective view of a three-line switch of this type.

Fig. 2 is a horizontal section through the cross bars of the frame and the upper ends of the several jaws, and

Fig. 3 is an enlarged detail taken in section across one of said bars.

The base 1 of the switch is usually of slate, and we may assume that three feed wires are led in at 2, 3, and 4 and are in electrical contact with upstanding pairs of jaws 5, 6, and 7, all mounted rigidly upon the base near one edge thereof. Similar jaws 15, 16, and 17 are located along the opposite edge of the base, to be electrically connected with other wires indicated at 12, 13, and 14 when the three-arm knife-switch thus typified is closed.

Secured to the base in any appropriate manner as by passing beneath it, is a yoke 20 whose arms 21 rise above the face of the base and receive pivots 22 disposed on a line which if projected would pass through the pairs of jaws 5, 6, and 7, and the frame or movable member of the switch is mounted on said pivots. As herein shown, said frame comprises two side arms 23 which may be of metal, each having a pair of inwardly extending lips 24, and the side arms

may also have depending ears 25 connected by a cross rod 26, although any other suitable means might be employed to cause these arms to swing in unison on their pivots 22. Transversely of this element is a pair of cross bars 27 of insulating material, each end of each bar being mounted between a pair of lips 24, and removably held therein by means of a set screw or thumb screw 28; and each bar is provided with as many apertures 29 as there are blades to the switch. Removably disposed within the frame and with their ends extending into said apertures, are electric fuses 30, shown herein as three in number to correspond with the three sets of jaws, and the terminals 31 of the fuses project through the bars 27 to take the place of the blades of the knife of a switch of this type. What will be the forward cross bar carries a handle 32 by means of which the frame is raised and lowered.

When the switch stands closed as seen in Fig. 1, the terminals in the foreground stand between the jaws of the several pairs 5, 6, and 7, whereas the terminals at the other extremities of the fuses stand within the jaws 15, 16, and 17, and the three-line circuit is complete. Should an overload occur on any line, it is obvious that the fuse would burn out just as it would if mounted on a fuse block. The switch is opened by raising the handle 32, when the frame swings around its pivots 22 as will be clear. The terminals in the background of Fig. 1 rise out of their jaws, whereas the terminals in the foreground turn in but yet remain clamped by and in electrical contact with their jaws because of the fact that the pivots 22 are on a line which if projected would pass through these jaws. While this is the preferred construction, yet it is obvious that if the yoke were set farther back under the base, the raising of the frame might be caused to lift both terminals of every fuse out of the jaws. If a fuse should become burned out or otherwise defective, it is only necessary to remove or loosen the screw or screws 28, and replace that fuse with a new one. Manifestly the type of fuse is immaterial, so long as it has knife terminals which will coact with the pairs of jaws the same as the blades of a knife switch, and it is also obvious that the invention is applicable to a switch for one line or of plural lines by either providing a frame adapted to

carry the proper number of fuses, or using as many fuses as may be needed. The last statement points out another possibility of this invention, which is that if it should be
 5 desired not to use any certain line of a multi-blade switch of this type, that fuse could be omitted and those remaining would still work as described.

What is claimed is:

10 1. In an electric switch, the combination with a base, and spaced terminals fixedly carried thereby; of a yoke on the base, a frame pivoted to said yoke and including cross bars having alined apertures, and a
 15 fuse removably mounted in said apertured cross bars, its terminals being in position to contact with those on the base when the frame is swung toward the latter.

2. In an electric switch, the combination
 20 with a base, and spaced terminals fixedly carried thereby; of a yoke on the base, a frame pivoted to said yoke and including cross bars having alined apertures and side arms removably engaging said cross bars,
 25 and a fuse mounted in said apertured cross bars with its terminals projecting beyond the cross bars into position to contact with

those on the base when the frame is swung toward the latter.

3. In an electric switch, the combination 30 with a base, pairs of jaws upstanding therefrom in rows across its rear edge and its front edge, and a yoke carried by the base with its arms rising therefrom in line with said rear jaws; of side arms pivoted to the 35 yoke arms on a line which if projected would pass through said rear jaws, two pairs of inturned lips on each side arm, two cross bars between said arms with their ends removably engaged by said lips, each cross 40 bar having apertures in line with the respective jaws, and fuses mounted in said apertured cross bars with their terminals extending beyond the cross bars, the rear ter- 45 minals standing between the jaws in the rear row and the front terminals adapted to be forced between the jaws in the front row or removed therefrom at will.

In testimony whereof, I affix my signature, in the presence of two witnesses.

WILLIAM M. BRILLHART.

Witnesses:

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 R. P. DE HUFF.