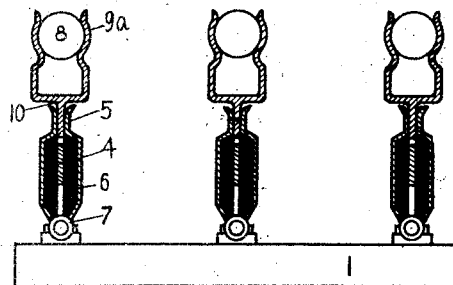
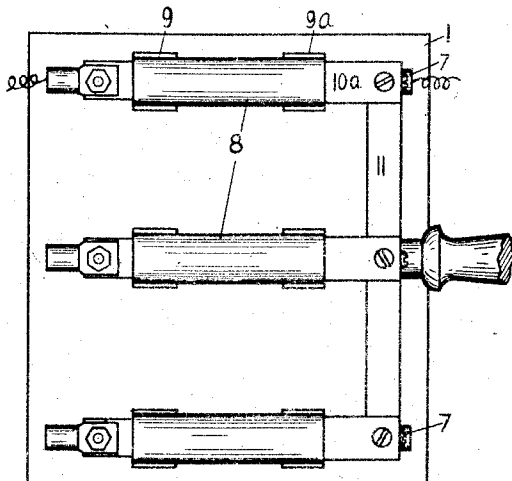
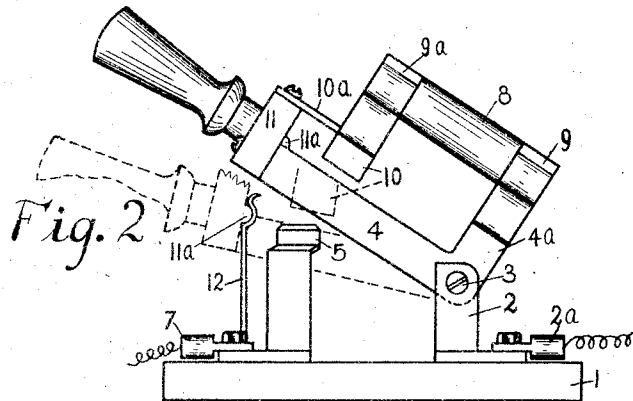
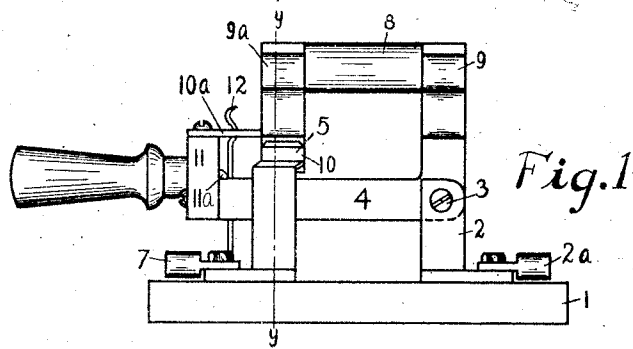


O. B. WHIPPLE.
ELECTRIC SWITCH.
APPLICATION FILED NOV. 22, 1910.

987,200.

Patented Mar. 21, 1911.



WITNESSES: *Fig. 3*

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Fig. 4
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UNITED STATES PATENT OFFICE.

OLIVER B. WHIPPLE, OF SAGINAW, MICHIGAN.

ELECTRIC SWITCH.

987,200.

Specification of Letters Patent. Patented Mar. 21, 1911.

Application filed November 22, 1910. Serial No. 593,637.

To all whom it may concern:

Be it known that I, OLIVER B. WHIPPLE, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Electric 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 pertains to electric switches and relates more especially to electric switches used in connection with motors, where a heavy starting current is required, followed by a lighter current for continuous running. In installations of this kind it is customary to provide a fuse of large capacity to take care of the heavy starting current and after the motor has started, to then switch the current through a fuse of less capacity during the regular running of the motor.

The object of this arrangement is to protect the motor by a fuse of large capacity during the short interval of time required for starting, and following that interval, and while the motor is running at its normal rate, to protect the motor by a fuse of smaller capacity.

It is the purpose of my invention to provide a simple, compact and durable switch adapted by the movement of one handle to throw in, first, a fuse of large capacity, then to cut out that fuse and throw in the fuse of smaller capacity. The construction of my improved switch is such that no extra wiring is required beyond that used in installations where no small fuse is employed. Ordinarily a cut-out switch and a fuse of proper capacity to take care of the starting current is installed at the inlet to the building, and an additional starting switch is installed near the motor. My improved switch is adapted to be used in place of the usual starting switch.

In a three-phase installation, three wires are required and my invention will be illustrated as applied to such an installation, although it will be understood that it is adaptable to other systems of wiring, in which a greater or less number of wires are used.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of a switch,

closed, with the smaller fuse in circuit; Fig. 2 is a side view showing the switch open and the circuit broken, the position of the knife when the large fuse is in circuit being indicated by dotted lines; Fig. 3 is a top plan view of the switch; and Fig. 4 is a vertical section on the line $y-y$ of Fig. 1.

As is clearly shown in the drawings, the switch consists in the ordinary base 1 carrying a post or standard 2.

3 is a pivot by which the blade 4 is secured to the standard. The blade 4 enters between two spring contacts 5, the lower parts of which are separated and protected on their inner faces by insulation 6 so that during the downward passage of the blade 4 it first contacts at 5 and then cuts out by contact with insulation 6.

It will be understood that the large fuses above referred to, having sufficient capacity for transmitting the starting current, are located at the inlet to the building or at a distribution panel. They are not shown in the drawings as they form no part of my invention. The current is received from them at the entering terminal 2^a of the switch. Thus, when the blade 4 is between the contacts 5, the current passes through the switch, entering at 2^a and leaving at terminal 7. When the blade 4 is pushed down into the position shown in Fig. 1, it lies between the insulated members 6, and the circuit through blade 4 is broken.

Upon the blade 4 I mount a fuse 8 of sufficient capacity to protect the motor during its ordinary running, but designed to blow out when any extraordinary current passes through it. Fuse 8 is mounted in a pair of spring clips 9, 9^a. Clip 9 is carried by an upward projection 4^a on the blade 4 and clip 9^a is carried by a bracket 10^a secured to the insulated bar 11 of the switch. The lower end of spring clip 9^a has a downwardly projecting contact member 10 located above and spaced apart from the blade 4 so as to enter between the spring contacts 5 when the blade 4 is in its lowest position, as shown in Fig. 4. Thus, when the blade is down, as shown in Figs. 1 and 4, blade 4 is out of circuit, but contact member 10 and fuse 8 are in circuit. To start the motor, the blade 4 is pushed down until it enters between the spring contacts 5, allowing the full starting current to pass, and after the motor has attained its regular speed, the blade is further pushed down until it cuts out and fuse 8 is thrown

in. To stop the blade 4 in its first position, that is, between spring contacts 5, I provide a projection 11^a on the bar 11, said projection engaged by a suitable spring 12 having sufficient force to arrest the downward movement of the blade 4, as shown in dotted lines in Fig. 2, but adapted to spring back and allow the blade to pass down when the handle of the switch is again pushed down to throw fuse 8 into circuit.

Having described my invention, what I claim and desire to secure by Letters Patent, is:—

1. In combination with a knife switch, a fuse removably secured to the blade of said switch, said fuse having one terminal in electrical contact with said blade, the other terminal being out of electric contact with said blade, a contact member secured to said second terminal, a spring member adapted to receive said blade when the switch is partly closed, and to receive said contact member when the switch is completely closed, for the purposes set forth.

2. In combination with a knife switch, upwardly projecting spring clips secured to the blade of said switch, one of said clips being

electrically in contact with said blade and the other clip being out of electric contact with the blade, a fuse removably received in said clips; a stationary contact member adapted to contact with first the knife, and then the second of said clips when the switch is closed, for the purposes set forth.

3. In combination with a knife switch, upwardly projecting spring clips secured to the blade of said switch, one of said clips being electrically in contact with said blade and the other clip being out of electric contact with the blade, a fuse removably received in said clips; a stationary contact member adapted to contact with first the blade and then the second of said clips when the switch is closed, together with a spring retaining member adapted to releasably hold said blade in contact with said stationary contact member.

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

OLIVER B. WHIPPLE.

Witnesses:

CHRISTINE A. BRAIDEL,
GEO. W. SMITH.