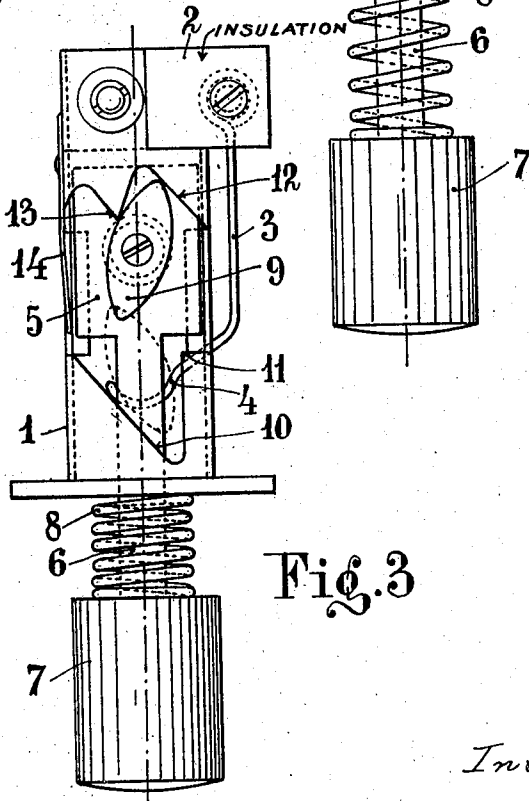
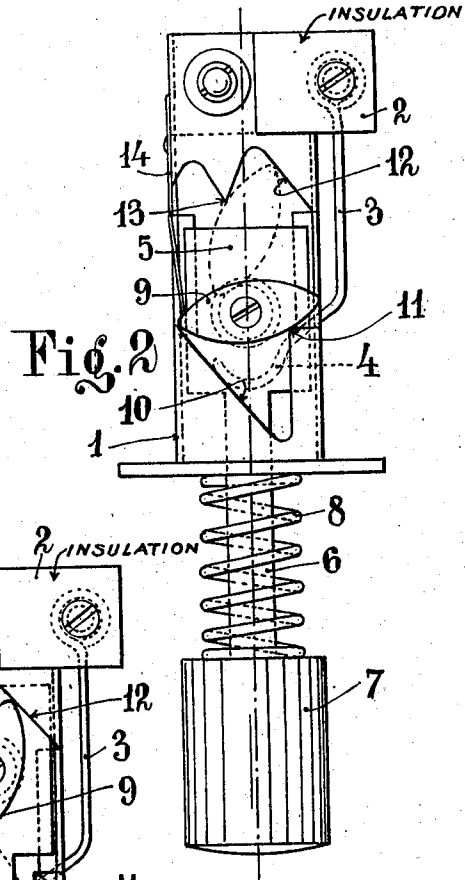
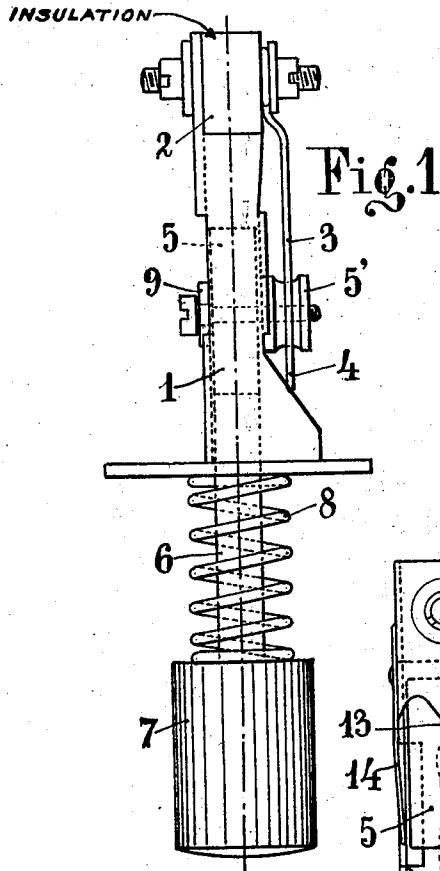


G. GALLO AND F. VILLARBOITO,
SWITCH.

APPLICATION FILED APR. 6, 1920.

1,352,889.

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Inventors:
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UNITED STATES PATENT OFFICE.

GALILEO GALLO AND FELICE VILLARBOITO, OF VERCELLI, ITALY.

SWITCH.

1,352,889.

Specification of Letters Patent. Patented Sept. 14, 1920.

Application filed April 6, 1920. Serial No. 371,624.

To all whom it may concern:

Be it known that we, GALILEO GALLO and FELICE VILLARBOITO, subjects of the King of Italy, and residents of Vercelli, Italy, have invented certain new and useful Improvements in Switches, of which the following is a specification.

This invention relates to electric switches operated by pressing in or pulling out in which a contact piece, carried by an endwise moving stem, in succession may be applied against a stationary contact at the end of its stroke or may be held spaced apart therefrom by a controlling member pivoted on said stem and adapted to take up different positions upon the reciprocation of said stem.

In the construction according to this invention said controlling member has a simple shape, is easily manufactured and mounted and is positively operated so as to avoid the faulty working of the switch.

The annexed drawing shows by way of example an embodiment of this invention; in said drawing Figure 1 is a side view of the switch mechanism; Fig. 2 is a front view of said mechanism in broken-circuit position and Fig. 3 is a similar view in closed-circuit position.

The switch comprises a stationary frame 1 secured to the switch casing and provided at its lower part with an insulating block 2 carrying the contact arm 3 the free end of which forms a hook 4 acting as a stationary contact piece. The frame 1 acts as a guide for a plunger 5 integral with stem 6 the end of which is fitted with the operating knob 7. A helical spring 8 surrounds said stem and tends to keep the stem and knob in their furthest position from the switch casing, as shown in Figs. 1 and 2.

On one of the faces of the plunger 5 is provided a contact piece 5' and on the opposite face is pivoted a lenticular contact controlling member 9. The side of the frame 1 along which the latter moves is cut out to form an opening the outline of which is shaped so as to provide a notch 10 and a stop 11 at one end, and a notch 12 and a stop 13 at the other end. The stop 11 and notch 12 are on one side of the line along which the pin of the controlling member 9 travels and the stop 13 and notch 10 are on the other side of said line. One of the edges of the said opening is fitted with a blade spring 14 the free tip of which lies a short

distance from the lower edge of the notch 10.

By assuming the switch in broken-circuit position shown by Fig. 2, the plunger 5 is held in such a position by the controlling member 9 as its contact piece 5' is held spaced apart from the hook 4. The controlling member is firmly held in this position by springs 8 and 14, this latter engaging by its free tip the right hand portion of said member 9. When the knob 7 is depressed and plunger 5 is moved up, the contact controlling member 9, one end of which rests on the spring 14, tilts in the direction shown in Fig. 2 and its left hand end strikes against the edge of the notch 12. This edge being inclined the member 9 takes up the position shown by dotted lines and when the knob is released the controlling member 9 takes up the closed circuit position shown in dotted lines in Fig. 3 the tilting of said controlling member being completed, owing to the shape of the edge of notch 10, under the thrust exerted by spring 8.

When the knob 7 is again depressed, the right-hand point of the controlling member 9 strikes the stop 13 and increases its inclination so that in its return travel under action of spring 8 said controlling member 9 strikes the stop 11 by its left-hand point and its right-hand point presses the spring 14 aside; thus said controlling member takes again the position shown by Fig. 2 and the circuit is again cut out, the contact piece 5' being held apart from hook 4.

The circuit is thus closed and broken by means of a single member 9 of simple outline, a spring preventing any undesirable movement of said member when it is in the broken circuit position.

What we claim as our invention and desire to secure by United States Letters Patent is:

1. An electric switch operated by pressing in or pulling out, comprising a stationary frame, a stationary contact piece, a member mounted to move endwise in said frame, means for operating said member, a contact piece carried by said moving member and adapted to contact with the stationary contact piece at one end of the stroke of said moving member, said stationary frame providing projections and recesses at its two ends, a lenticular member pivoted on said moving member and cooperating with said projections and recesses of the stationary

frame to be tilted at each end of its stroke so as to be stopped alternately after a full stroke and before its contact piece meets the stationary contact piece and means for holding said lenticular member in its proper positions.

2. An electric switch operated by pressing in or pulling out, comprising a stationary frame, a stationary contact piece, a member mounted to move endwise in said frame, means for operating said member, a contact piece carried by said moving member and adapted to contact with the stationary contact piece at one end of the stroke of said moving member, said stationary frame providing a projection and a recess at each end, the projections and recesses at the two ends being at opposite sides of the reciprocatory path of said movable member, a lenticular member pivoted on said moving member and cooperating with said projections and recesses of the stationary frame to be tilted at each end of its stroke so as to be stopped alternately after a full stroke and before its contact piece meets the stationary contact

piece and means for holding said lenticular member in its proper positions.

3. An electric switch operated by pressing in or pulling out, comprising a stationary frame, a stationary contact piece, a member mounted to move endwise in said frame, means for operating said member, a contact piece carried by said moving member and adapted to contact with the stationary contact piece at one end of the stroke of said moving member, said stationary frame providing projections and recesses at its two ends, a lenticular member pivoted on said moving member and cooperating with said projections and recesses of the stationary frame to be tilted at each end of its stroke so as to be stopped alternately after a full stroke and before its contact piece meets the stationary contact piece and a blade spring secured to one edge of the stationary frame to hold said lenticular member in its proper position.

Signed at Turin, Italy, this 17 Mar. 1920.
GALILEO GALLO.
FELICE VILLARBOITO.