March 13, 1934. A. G. VON NORMANN 1,951,297

ARC SNUFFER

Filed July 27, 1932

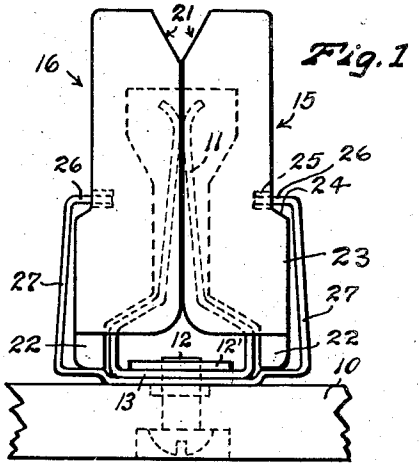


Fig. 1

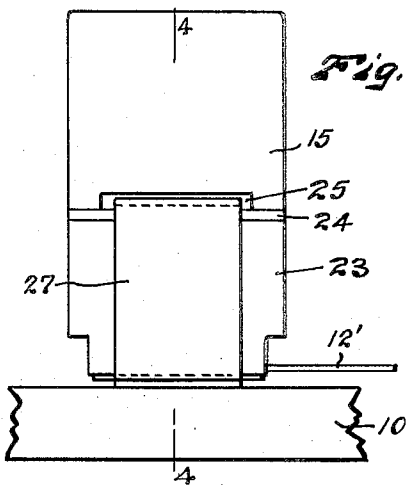


Fig. 2

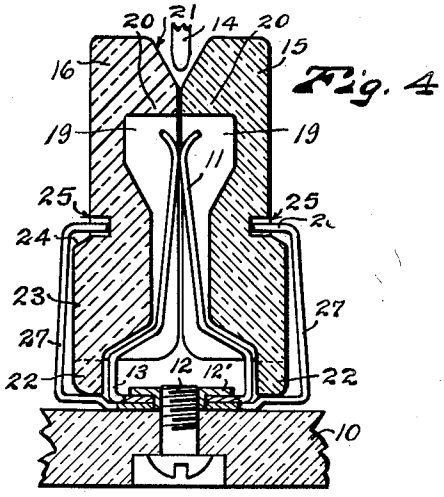


Fig. 4

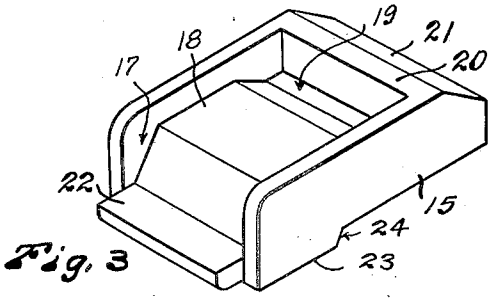


Fig. 3

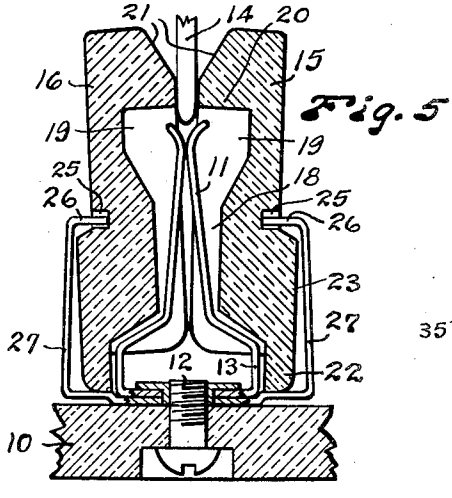


Fig. 5

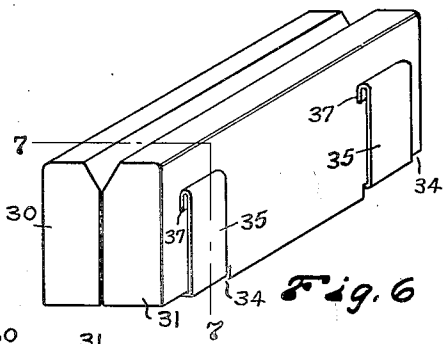


Fig. 6

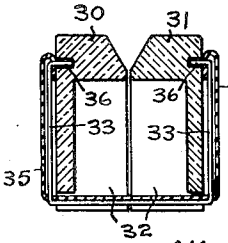


Fig. 7

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ARC SNUFFER

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5 Claims. (Cl. 200—151)

This invention relates to improvements in arc snuffers for use in connection with electric switches and the general object of this invention is to provide simple and efficient arc snuffer means which will instantly snuff out any arc occurring between the two terminals of a switch at the time said two terminals are separated for the purpose of opening the switch.

Another object is to provide arc snuffer means of this nature which is readily applicable to knife switches of the usual type without requiring any change in the construction of the switch parts.

A more specific object is to provide arc snuffer means embodying two snuffer members of insulating material recessed on their inner sides and adapted to fit over and enclose a spring switch clip, together with spring means detachably engaging said snuffer members and urging said snuffer members together.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawing.

In the drawing Figure 1 is an end elevation of an electric switch which is equipped with arc snuffer means constructed in accordance with this invention.

Fig. 2 is a side elevation of the same.

Fig. 3 is a detached perspective view of one of the arc snuffer members.

Figs. 4 and 5 are sectional views substantially on broken line 4—4 of Fig. 2, showing the arc snuffer members in two different positions respectively.

Fig. 6 is a perspective view of arc snuffer members of this type which are of greater length than the ones shown in the preceding figures.

Fig. 7 is a sectional view substantially on broken line 7—7 of Fig. 6.

Like reference numerals designate like parts throughout the several views.

Referring to Figs. 1 to 5 inclusive 10 is a body of insulating material having a spring switch clip 11 secured thereto by a screw 12. The switch clip 11 has a wider bottom portion 13 and the two side members of said switch clip converge toward the upper end and are adapted to receive and frictionally grip a switch blade 14. The switch blade 14 is arranged to be inserted into and withdrawn from the clip 11 and each time it is withdrawn from the clip 11 a circuit may be broken and arcing is liable to occur.

To snuff out this arc there is provided two arc snuffer members 15 and 16 in connection with each switch clip.

These arc snuffer members 15 and 16 are of duplicate construction and the following description applies equally well to either of the same. Each arc snuffer member is formed of an approximately rectangular piece of insulating material of greater length than width, which is recessed on its inner face to form a deeper recessed portion 17 adapted to fit over the base of the spring clip 11, a shallower recessed portion 18 for the reception of parts of the clip just above the base portion and another deeper recessed portion 19 for the reception of the upper ends of the spring clips. An over hanging portion 20 is provided beyond the deeper recessed portion 19 and an external bevel 21 is provided at the outer end. At the inner or bottom end the rear wall 22 of each arc snuffer member extends below the adjacent side walls thereby forming a foot or support and leaving an air circulation space at the sides. On the outer side and toward the lower end each arc snuffer member has a thicker portion 23 affording an inclined shoulder 24 at its upper end. Immediately above the shoulder 24 a recess 25 is provided for the reception of the inwardly bent end 26 of a U shaped spring 27. The base of the spring 27 extends between the insulating base 10 and the bottom 13 of the switch clip 11 and is securely clamped and held in place by the screw 12 which may have threaded engagement with a terminal connection.

In the operation of this arc snuffer means two of the arc snuffer members 15 and 16 are placed on opposite sides of each switch clip 11 so that the upper portion of said switch clip is completely enclosed by the arc snuffer members when no switch blade is within the switch clip. When the arc snuffer members are applied to the switch clip 11 the ends 26 of the U shaped spring 27 snap into the recesses 25 and hold the arc snuffer members in place. The springs 27 exert a yielding pressure on the sides of the arc snuffer members which tends to keep them pressed together as shown in Figs. 1 and 3 but which allows them to be spread apart as shown in Fig. 5, when a switch blade 14 is inserted. The arc snuffer members may be removed by first withdrawing the ends 26 of the springs from the recesses 25.

When the switch blade 14 is inserted it engages the inclined surfaces 21 of the arc snuffer members and holds said arc snuffer members apart a distance equal to the width of the blade as long as the blade remains in the inserted or closed circuit position. When the blade 14 is withdrawn to open or break the circuit the arc snuffer members snap together between such switch blade and the switch clip 11 and snuff out any arc which

occurs or is drawn between the switch clip 11 and the switch blade 14. This greatly lessens the danger of fire and explosions and makes a much safer switch.

In the modified form shown in Figs. 6 and 7 two relatively long arc snuffer members 30 and 31 are provided, said arc snuffer members being internally recessesd as at 32 and being long enough so that they will fit over and enclose two or more switch clips positioned alongside of each other. Obviously these arc snuffer members may be as long as desired to fit over any predetermined number of switch clips. In this form of the invention two U shaped springs 33 are used and the bottoms of the snuffer members 30 and 31 are notched as at 34 at the locations where these springs pass under them. The springs 33 are not secured to any base in this form of the device but are preferably each covered with a strip 35 of fiber or like insulating material. The top ends of the springs 33 have inwardly extending prongs 36 which project through the downwardly bent ends 37 of the insulation strips 35 and protrude into recesses 38 in the snuffer members 30 and 31. The operation of the snuffer members shown in Figs. 6 and 7 is similar to the previously described operation of the snuffer members disclosed in Figs. 1 to 5.

The foregoing description and accompanying drawings clearly disclose a preferred embodiment of my invention but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope and spirit of the following claims.

I claim:

1. Arc snuffer means for use with a switch having a clip arranged to receive a switch blade, comprising two snuffer members of insulating material disposed on opposite sides of the switch clip and having a recess enclosing said switch clip, and a U shaped spring extending under said snuffer members and upwardly along the sides of the same and urging said snuffer members toegther.

2. In arc snuffer means of the class described, a switch having a blade receiving clip, a U shaped spring extending crosswise underneath said clip, two arc snuffer blocks of insulating material mounted on opposite sides of said clip and recessed to enclose said clip and urged together by the upwardly extending arms of said U shaped spring.

3. In arc snuffer means of the class described, a switch embodying a base of insulating material, a U shaped spring of flat metal mounted on said base, the upper ends of said spring being bent inwardly, a blade receiving clip mounted within said spring and two readily detachable arc snuffer blocks of insulating material disposed between the respective arms of said spring and said clip and recessed to enclose the upper portion of said clip, said arc snuffer blocks being notched for the reception of the inwardly bent ends of said spring.

4. In arc snuffer means of the class described, a switch embodying a base of insulating material, a U shaped spring of flat metal mounted on said base, the upper ends of said spring being bent inwardly, a blade receiving clip mounted between the two upwardly extending arms of said spring and resting on the base portion of said spring, screw means securing said clip and said spring to said insulating base, and two readily detachable arc snuffer blocks of insulating material disposed between the respective arms of said spring and recessed to enclose the upper portion of said clip and yieldingly urged together by said spring arms said arc snuffer blocks being externally notched to receive the inwardly bent ends of said spring..

5. In arc snuffer means of the class described, a switch embodying a base of insulating material, a U shaped spring of flat metal mounted on said base, the upper ends of said spring being bent inwardly, a blade receiving clip mounted between the two upwardly extending arms of said spring and resting on the base portion of said spring, screw means securing said clip and said spring to said insulating base, two arc snuffer members of insulating material disposed between the respective arms of said spring, the inner sides of said snuffer members being recessed to close over said switch clip, said recesses leaving overhanging portions at the upper ends and at the sides of said snuffer members arranged to close together when the switch blade is removed from the switch clip, the upper ends of said snuffer member being beveled to form a V shaped recess for the end of the switch blade, and foot portions on the outer sides of said arc snuffer members at the bottom end thereof extending below the side portions of said arc snuffer members.

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