May 6, 1930. A. H. FLEET 1,757,709

ELECTRIC SWITCH

Filed Feb. 13, 1920

Fig. 1.

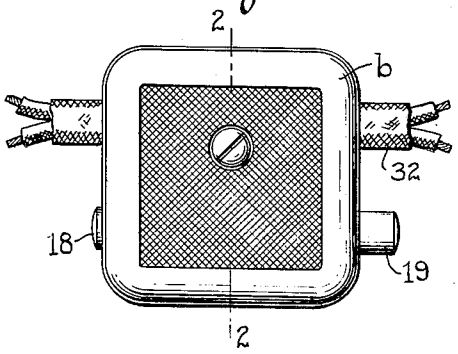


Fig. 2.

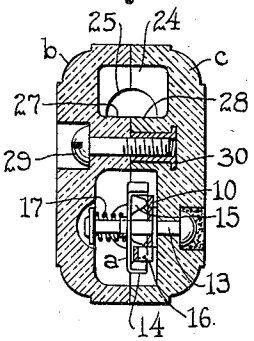


Fig. 3.

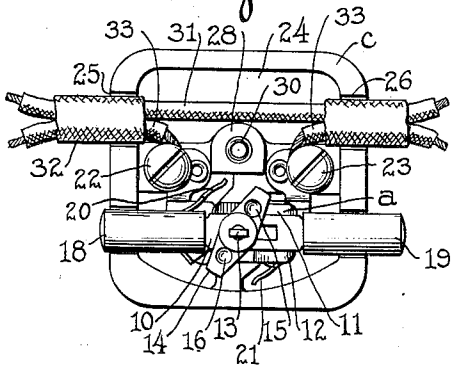


Fig. 4.

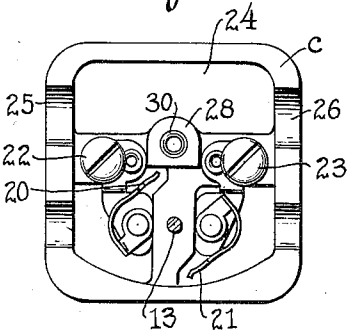


Fig. 5.

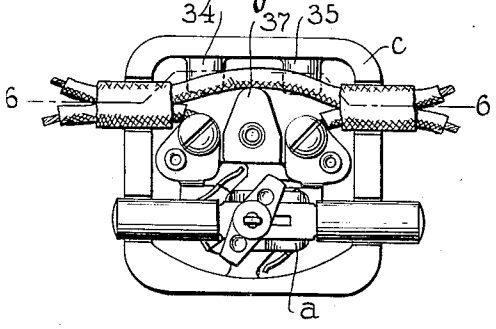
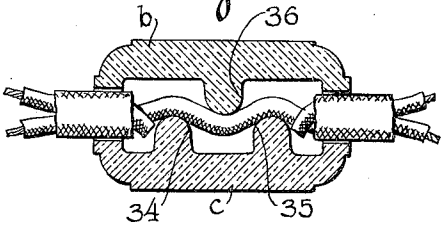


Fig. 6.



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UNITED STATES PATENT OFFICE

ARTHUR H. FLEET, OF MILWAUKEE, WISCONSIN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO CUTLER-HAMMER, INC., A CORPORATION OF DELAWARE

ELECTRIC SWITCH

Application filed February 13, 1920. Serial No. 358,418.

This invention relates to electric switches particularly adapted for attachment to connector cords of electric heating devices, portable tools, etc.

More particularly the invention relates to switches of the general type disclosed in Patent No. 1,162,864, granted Dec. 7, 1915 to C. J. Klein, wherein the switch mechanism is enclosed in a two-part insulating casing having therein a through conductor passage terminating in openings to receive a multi-wire cord and also having a conductor passage leading from each of said openings to the switch mechanism.

One object of the invention is to provide a switch of the aforesaid character wherein the switch parts and conductor passages are arranged in the casing to facilitate manufacture, assembly, inspection and wiring.

Another object is to provide a switch of the aforesaid character having its casing flattened to rest in given positions and having its operating member or members arranged for ready accessibility and convenient operation.

Other objects and advantages of the invention will hereinafter appear.

The accompanying drawing illustrates certain embodiments of the present invention which will now be described, it being understood that the invention is susceptible of embodiment in other forms without departing from the scope of the appended claims.

In the drawing,

Figure 1 is a side view of one form of switch;

Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a view similar to Fig. 1 with one section of the casing removed;

Fig. 4 is a view similar to Fig. 3 with parts of the switch mechanism removed;

Fig. 5 is a view of a modified form of switch with one section of its casing removed; and,

Fig. 6 is a sectional view taken on line 6—6 of Fig. 5 and showing both sections of the casing.

Referring to Figs. 1 to 4, there is illustrated a snap switch mechanism *a* of the push button type disclosed in Patent No. 1,184,104, granted May 23, 1916 to C. J. Klein, said mechanism being enclosed in a two-part insulating casing comprising sections *b* and *c*, said casing having a cross section of materially greater length than breadth. The casing, which is preferably formed of molded insulation, is divided along a plane extending lengthwise of its cross section and its sections are recessed to receive the switch mechanism and its push buttons therebetween, while the faces of the casing parallel to its plane of division are preferably flattened for the purpose stated.

The switch mechanism comprises a slotted reciprocating member 10 provided with "hill and valley" cams 11 and 12, a fixed stud 13 straddled by said member, a contactor 14 oscillatably and slidably mounted on said stud and provided with downwardly projecting knobs 15 and 16 engaging said cams and a helical spring 17 surrounding said stud to yieldingly hold the contactor in engagement with the cams. The contactor is thus oscillable with a snap action upon reciprocation of the member 11 which is provided with push button extremities 18 and 19, said contactor being so operable to make and break circuit between stationary contacts 20 and 21 secured to terminals 22 and 23 respectively.

The above described switch parts are all mounted on section *c* of the casing, the two sections of said casing being recessed to receive said switch parts therebetween with the terminals 22 and 23 positioned centrally of said casing. Also the sections of the casing are recessed along the plane of division thereof to provide adjacent to the terminals a chamber 24 to receive circuit wires, said chamber having at opposite ends openings 25 and 26 each to receive a multi-wire cord. Further, the casing sections have interior abutting portions 27 and 28 located between the terminals and provided with a passage to receive a screw 29 adapted to be threaded into a socket 30 in section *c* to secure the sections together.

The arrangement is such that one wire 31 of a two-wire cord 32 may be passed through

the casing parallel to the axis of the push buttons while another wire 33 of the cord may be severed and its severed ends respectively connected to terminals 22 and 23 to include the switch *a* in series in one side of the circuit. Also the arrangement and dimensions are such that said connections may be made between wire 33 and the switch terminals without slack in the wire 31. The wire 31 will thus tend to relieve strain on said connections.

Referring to Figs. 5 and 6, the switch shown therein is in all essential respects identical with the switch above described except that the parts are arranged and proportioned to provide slack in the through wire while the casing sections are provided with lugs for reflexing the through wire to take up the slack therein and afford strain relief for the switch connections. In this instance the casing section *c* is provided with two interior lugs 34 and 35 over which the wire is passed while the casing section *b* is provided with an interior lug 36 disposed between the lugs 34 and 35 to bear upon and deflect the wire between the latter lugs, as best shown in Fig. 6. Also, the casing section *c* is in this instance provided with a lug 37 to deflect the through wire to pass over the lugs 34 and 35.

What I claim as new and desire to secure by Letters Patent is:

1. A feed through switch for attachment to connector cords, comprising an insulating casing medially divided in the plane of its greatest dimensions, a plurality of spaced semicircular grooves in opposite sides of each of the casing sections, said sections having recesses extending between each pair of opposed grooves to provide chambers at opposite ends of the assembled casing, said grooves forming pairs of openings in direct alinement with each other, one of said chambers and its alined openings permitting passage of an electrically continuous conductor through said casing in a straight line and of another wire the severed ends of which are respectively connected to terminals located intermediate said chambers, a snap switch mechanism positioned within the other of said chambers, push-buttons extending through said other pair of alined openings for operating said mechanism, and abutting portions located intermediate said terminals to provide for securement of said sections by a single fastening means.

2. An electric switch for attachment to cord connectors comprising a two-part insulating casing of substantially rectangular contour provided with a passage for an electrically continuous conductor, said passage terminating in openings adjacent to one edge of said casing, each to receive a plurality of wire conductors, and a snap switch mechanism enclosed within and supported by said casing, and having push buttons movable in a direction parallel to said passage, said switch mechanism having terminals mounted at one side of the movable parts thereof and between the latter and said passage at points adjacent to said conductor openings.

In witness whereof, I have hereunto subscribed my name.

ARTHUR H. FLEET.