May 18, 1948. H. D. STEINBACK 2,441,924

SNAP SWITCH

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Fig. 1.

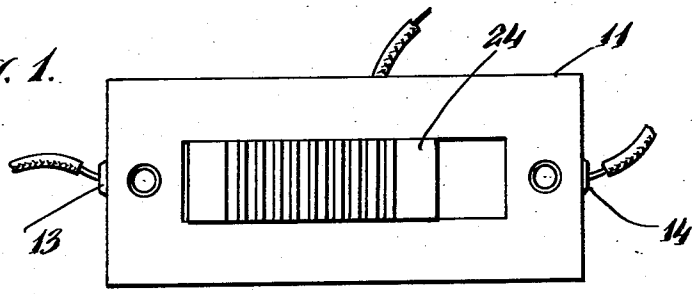


Fig. 2.

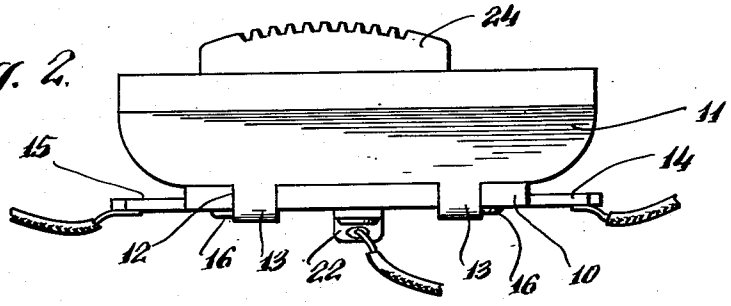


Fig. 3.

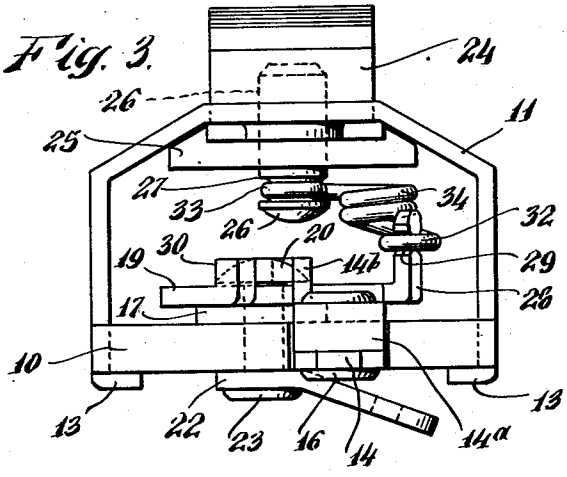
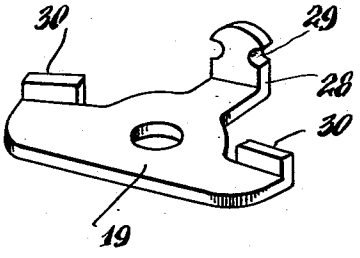


Fig. 4.



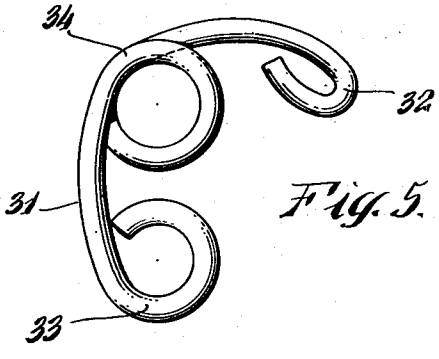


Fig. 5.

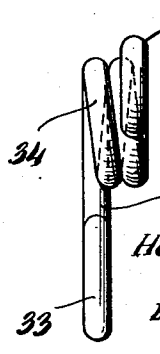


Fig. 6.

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Fig. 7.

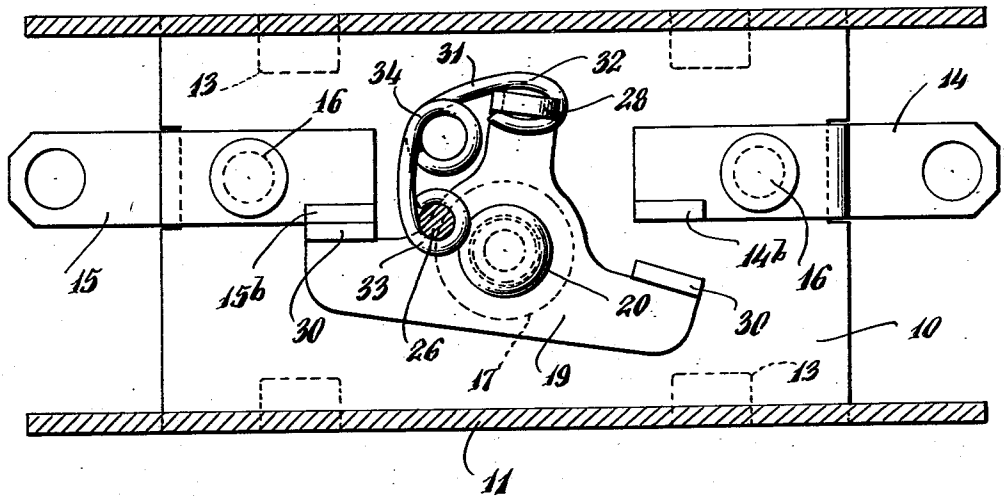
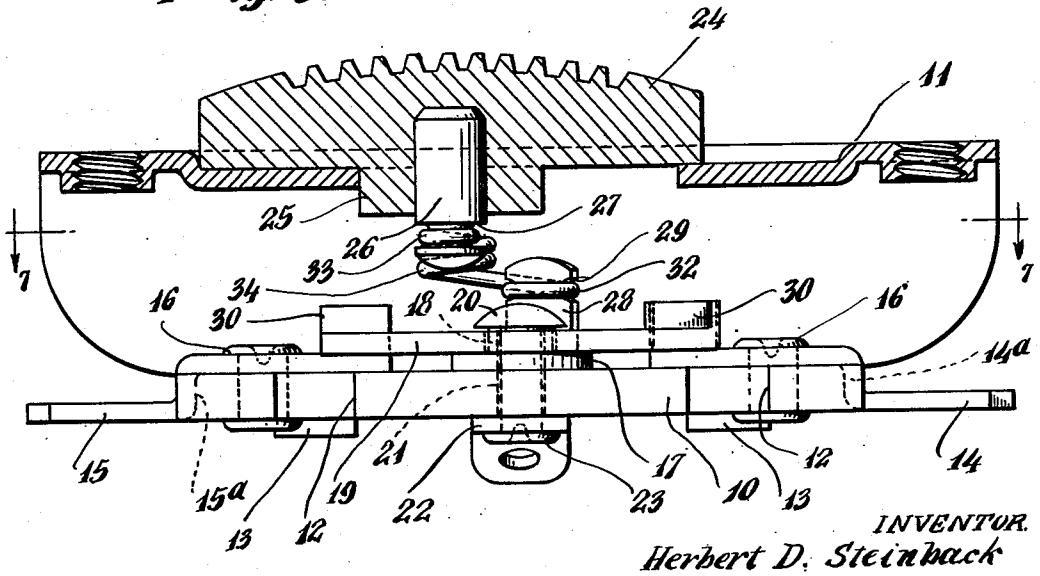


Fig. 8.



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2,441,924

SNAP SWITCH

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Application April 30, 1946, Serial No. 665,952

1 Claim. (Cl. 200—67)

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This invention relates to snap switches.

An object of this invention is an improved snap switch which is of simple structure and inexpensive to manufacture, will give long and efficient service and is equipped with a reciprocating operating button.

Other objects, novel features and advantages of this invention will become apparent from the following specification and accompanying drawings, wherein:

Fig. 1 is a plan view of a snap switch embodying the invention;

Fig. 2 is a side elevation of Fig. 1;

Fig. 3 is an end view of Fig. 2 on an enlarged scale;

Figs. 4, 5 and 6 illustrate various parts of the switch;

Figure 7 is an enlarged section on the line 7—7 of Fig. 2, and

Fig. 8 is an enlarged section on the line 8—8 of Fig. 1.

A plate 10 of suitable insulating material such, for example, as Bakelite constitutes a base to which are attached the edges of the side members of a channel-shaped sheet metal case 11. Preferably, the base 10 has side notches 12 in which are received prongs 13 projecting from the case 11 and being turned over into contact with the outer face of the plate 10. At opposite ends of the base 10 are located terminals 14 and 15 respectively which are arranged in substantial alinement and held in place by rivets 16. The terminals are offset as at 14*a* and 15*a* respectively so that while the inner portions of the terminals rest on the inner face of the base 10, the outer portions of the terminal are flush with the outer face of the base 10. At their inner ends, the terminals are provided with upstanding ears 14*b* and 15*b* respectively.

A washer 17 rests on the inner face of the base 10 midway its ends and is provided with a hub 18 on which is arranged a rotor 19. The rotor 19 is retained on the hub 18 and the washer 17 is clamped to the base 10 by a rivet 20, the head of which engages the top surface of the hub 18. The stem of the rivet extends through an opening 21 in the base 10 and an eyelet in a contact lug 22 engaging the outer surface of the base 10, the rivet stem being headed as at 23 to complete the assembly. The hub 18 is of such dimensions that the rotor 19 is capable of free rotary movement on the hub.

The case 11 slidably supports a button 24 of suitable insulating material such, for example, as Bakelite and has a slit through which extends

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a projection 25 from the button, the projection being of greater width than the slit to retain the button in assembled relation to the case. A pin 26 is fixed to the button 24 with one end extending from the projection 25 toward the rotor 19. The pin 26 is provided with a peripheral groove 27 and the rotor 19 is provided with an upstanding lug 28 in the edges of which are provided alined grooves 29.

The rotor is provided with three radial arms arranged substantially in the form of a symmetrical T. A projection 28 is provided at the free end of the central arm of the T while upstanding ears 30 are provided at the ends of the other arms for alternate engagement with ears 14*b* and 15*b* upon to and fro movement of the rotor 19. The path of movement of the axis of the pin 26 lies in a plane intersecting the plate 10 between the axis of the rivet 23 and the arc traversed by the projection 28 upon movement of the rotor 19 between the position in which an ear 30 engages a contact 14*b* and the position in which an ear 30 engages the contact 15*b*.

The pin 26 and the projection 28 are interconnected by a wire spring 31 having a loop 32 at one end encircling the projection 28 and a loop 33 at its other end encircling the pin 26. Intermediate its ends the spring 31 has a multiple turn coil 34 from which the two end portions of the spring extend in such manner as to give substantially V-shape to the spring. The arrangement of the spring is such that in one position of the slide 24 the spring biases the rotor 19 to locate an ear 30 in contact with the ear 15*b* while with the slide 24 in its other position, the spring biases the rotor 19 to engage the remaining ear 30 with the ear 14*b*. During movement of the slide 24 from one extreme position to the other, the coil 34 of the spring 31 is additionally tensioned until the pin 26 passes the dead-center position, after which the coil 34 unwinds to reverse the position of the rotor 19 with the well-known snap action.

At each end, the casing 11 is provided with a threaded aperture 35. The switch may be mounted on any suitable support by passing bolts through the threaded apertures 35 to attach the casing to a support.

The above-described switch can be made in three different combinations as follows:

(1) Single pole, single throw, normally open

(2) Single pole, single throw, normally closed

(3) Single pole, double throw

Also, it is to be understood that various modifications may be made in the structure above de-

scribed without in any way departing from the spirit of the invention as defined in the appended claims.

I claim:

A snap switch comprising a base of insulating material, a metallic channel member having its side edges fixed to said base and a portion lying spaced from and parallel to said base, an electrically conductive rotor supported by said base for rotation in a plane substantially parallel therewith and having three arms arranged substantially in symmetrical T-form, a lateral projection on the central arm, a button of insulating material slidably carried by said portion of said channel member for movement parallel with said base, a pin carried by said button and projecting toward said base for reciprocation along the path which when projected to the base is offset from the rotor axis and lies between the latter and the lateral projection on the free end of the central arm of the rotor, a substantially

V-shaped resilient member formed with a coil at its apex and a loop at each end, one loop connected to said pin and the other loop engaging the projection on the free end of the central arm of the rotor, and contacts arranged in substantial alignment, one at each end of the base for engagement by one of the two remaining rotor arms with the third arm disengaged from the remaining contact.

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