C. BRAMMING.

ELECTRIC SWITCH.

APPLICATION FILED OCT. 20, 1916.

1,283,645.

Patented Nov. 5, 1918.

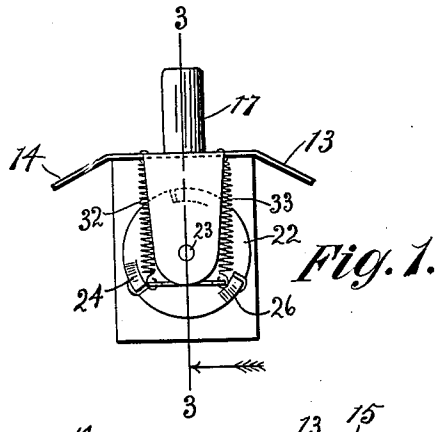


Fig. 1.

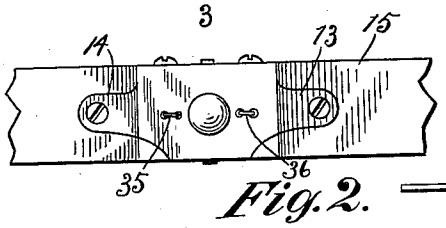


Fig. 2.

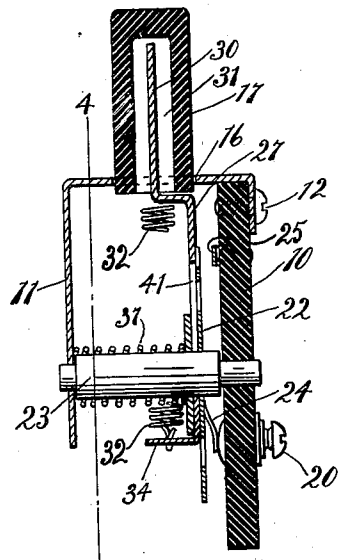


Fig. 3.

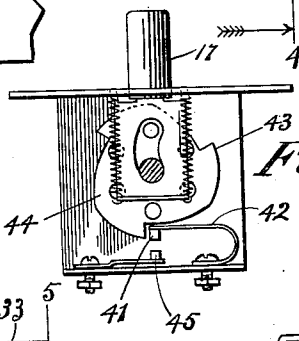


Fig. 6.

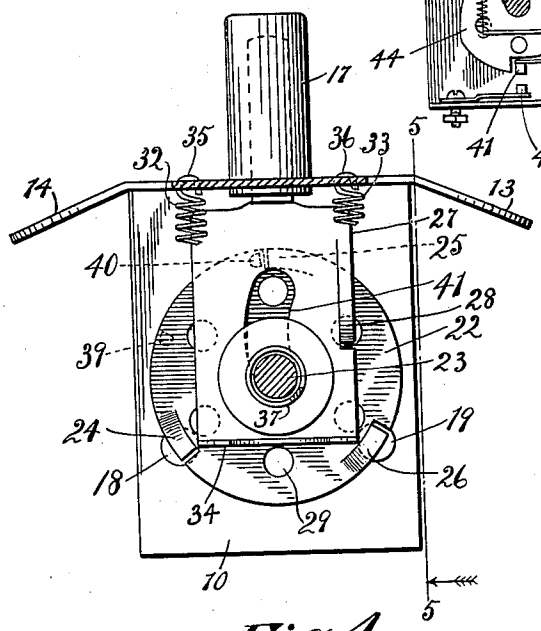


Fig. 4.

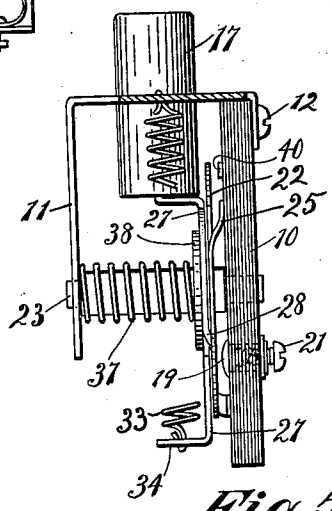


Fig. 5.

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UNITED STATES PATENT OFFICE.

CARL BRAMMING, OF CHICAGO, ILLINOIS, ASSIGNOR TO ACCESSORIES MANUFACTURING COMPANY, A CORPORATION OF ILLINOIS.

ELECTRIC SWITCH.

1,283,645. Specification of Letters Patent. Patented Nov. 5, 1918.

Application filed October 20, 1916. Serial No. 126,689.

To all whom it may concern:

Be it known that I, CARL BRAMMING, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Electric Switches, of which the following is a specification and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to electric switches of the push button type, and is primarily intended for, but is not limited to, automobile service.

The object of the invention is to provide a simple and efficient switch having a single push button, the impulse of which alternately closes and opens the circuit.

The invention consists in the structure as hereinafter described, and as illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the switch;

Fig. 2 is a plan view thereof as applied to a support;

Fig. 3 is a sectional view on the line 3—3 of Fig. 1;

Fig. 4 is a sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a sectional view, partly in elevation, on the line 5—5 of Fig. 4; and

Fig. 6 is a view similar to Fig. 4, showing a modified form of construction.

The switch comprises a base plate 10 preferably of an insulating material and a metallic casing 11 attached, as shown at 12, to the base and forming a housing for the switch mechanism. The casing 11 is provided with apertured wings 13, 14, by which it may be conveniently secured by means of screws within a pocket in a wall, as 15. The casing 11 is apertured at 16 to receive an elongated reciprocable push button 17.

The base plate 10 is provided with a pair of terminals 18, 19, adapted to coöperate with the movable element of the switch, binding posts 20, 21, being connected, respectively, therewith. A revoluble disk 22 is mounted upon a post 23 set in the base plate 10 and the casing 11. Preferably, though not necessarily, the disk turns freely on the post, the latter being fixed. The disk 22 is provided with a plurality of spring contact elements which successively engage the terminals 18, 19. As shown, these contact elements take the form of spring fingers 24, 25 and 26, formed integrally with the disk and inclined away from a radial face thereof. These fingers are spaced apart a distance equal to the spacing of the terminals 18, 19, the circuit being closed through the disk by the engagement of a pair of fingers simultaneously with the two terminals.

An actuator plate 27 reciprocates over one face of the disk 22, and is engageable therewith to cause its rotation by a step by step movement. In the construction as disclosed in the drawings, this engagement is by means of a finger 28 struck outwardly from the plate 27 and adapted to enter any one of six apertures, as 29, formed in the disk 22 and arranged in a circle. The plate 27 is provided with a stem 30 which enters a socket 31 in the button 17. The actuating plate is retracted by means of springs 32, 33, shown as attached at one end to an upturned lip 34 at the lower end of plate, and at the other end to the casing 11, as shown at 35, 36. The plate 27 is yieldably held against the face of the disk 22 by means of a spring 37 coiled about the post 23, a washer 38 being interposed between the end of the spring and the plate.

Upon the recession of the plate 27 its finger 28 enters one of the apertures 29. Upon the advance of the actuating plate due to pressure on the button 17, the disk is carried forward one step, thereby bringing two of the contact fingers 24, 25, 26, into engagement with the terminals 18, 19, or moving them out of contact therewith, according to the previous position of the disk. A pair of detents 39, 40, are fixed in the base plate 10 and so positioned that at the end of each movement of the disk 22 one of its contact fingers will engage one of them, thereby preventing the recession of the disk as the actuating plate is retracted. After a forward impulse of the actuating plate it is retracted by the springs 32, 33, the spring 37 yielding to permit the finger 28 to slide over the face of the disk, this finger falling into the next aperture 29 at the end of the retracting movement.

The loose fit of the button 17 within the aperture through which it reciprocates permits the actuating plate to swing laterally and the finger 28 to advance in the curved path followed by the aperture 29 with which it chances to be in coöperation. The plate 27 is provided with a slot 41 to receive the post 23, this slot being curved, as shown in Fig.

4, to permit the lateral swinging movement just referred to, this slot defining the range of the reciprocating movement of the actuating plate.

In operation, assuming that the parts are positioned as shown in Fig. 4, the circuit being closed by reason of the engagement of the contact fingers 24 and 26 with the terminals 18, 19, and the disk being held against retrograde movement by the engagement of the spring finger 25 with the detent 40, the circuit may be opened by pressure upon the button 17, thereby advancing the disk one step, disengaging the spring fingers from the contact elements and engaging the finger 24 with the detent 39, the actuating plate being withdrawn by the action of the springs 32, 33, when the pressure upon the button is relieved. The next inthrust of the button will advance the disk 22 a single step, bringing its contact fingers 26, 25, into engagement, respectively, with the terminals 18, 19, and its finger 24 into engagement with the detent 40.

In Fig. 6 the switch is shown as of the snap type, being adapted for use in circuits carrying a current of high potential. In this instance the current is not carried through the disk. One of the terminals 41 is carried by a spring arm 42 attached to the casing and engaged successively by a plurality of cams, as 43, formed on the periphery of the disk 44, which corresponds in mounting and movement to the disk 22. The swell of each cam will force the movable terminal into engagement with the fixed terminal 45. The next movement of the disk carries the cam beyond the end of the arm and permits the latter to cause the separation of the terminals.

While there is shown and described a preferred form of construction, various changes of detail may be made without departing from the scope of the invention as defined in the appended claims.

I claim as my invention:—

1. In an electric switch, in combination, a pair of spaced terminals, a revoluble disk having a plurality of spring fingers projecting from its side face and engageable with the terminals in pairs and an annular series of abutments spaced apart one-half the distance of the spacing of the fingers, and a spring-retracted push member engageable with the abutments successively.

2. In an electric switch, in combination, a pair of spaced terminals, a revoluble disk having a plurality of spring fingers projecting from its side face and engageable with the terminals in pairs and an annular series of apertures spaced apart one-half the distance of the spacing of the fingers, and a spring-retracted push plate having a forwardly projecting laterally inclined spring finger engageable with the apertures successively.

CARL BRAMMING.