No. 889,760. PATENTED JUNE 2, 1908.

C. A. CLARK.

SWITCH BUTTON.

APPLICATION FILED OCT. 24, 1907.

Fig. 1.

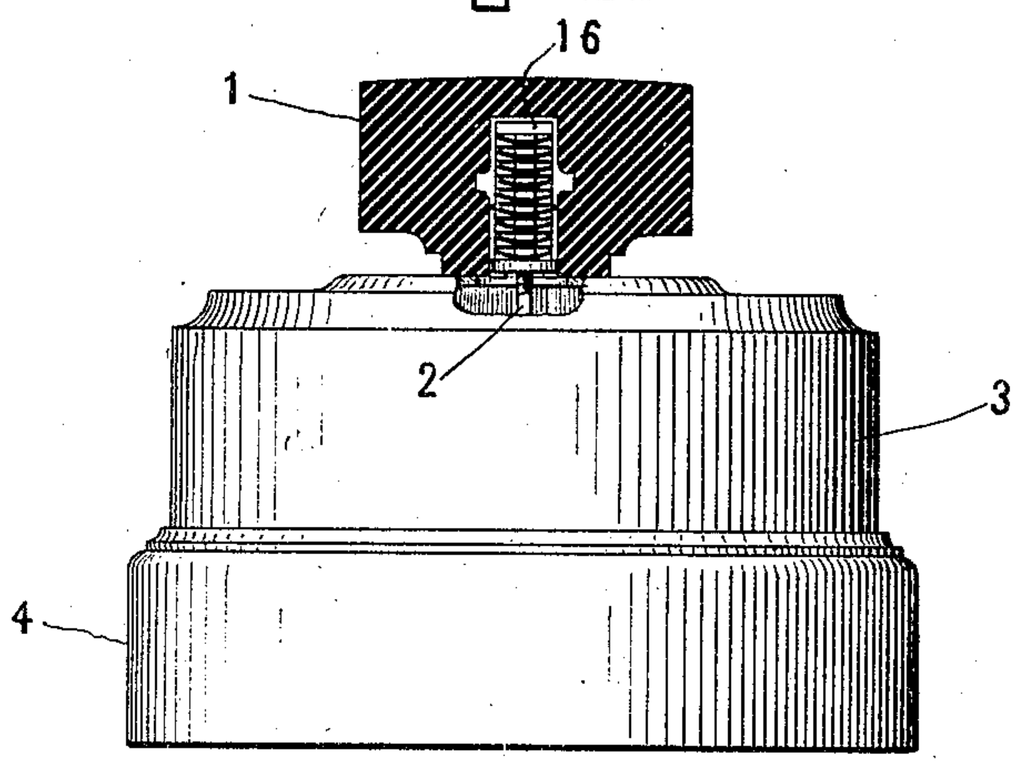


Fig. 3.

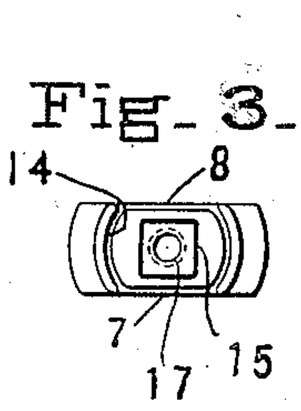


Fig. 2.

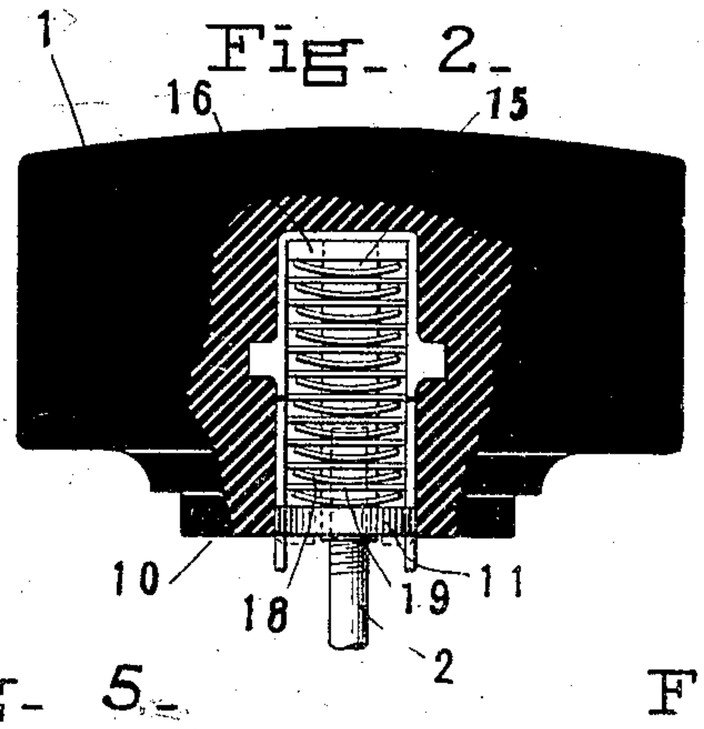


Fig. 6.

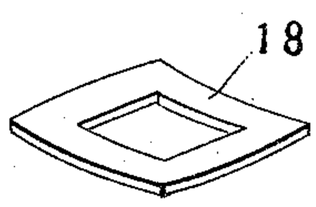


Fig. 5.

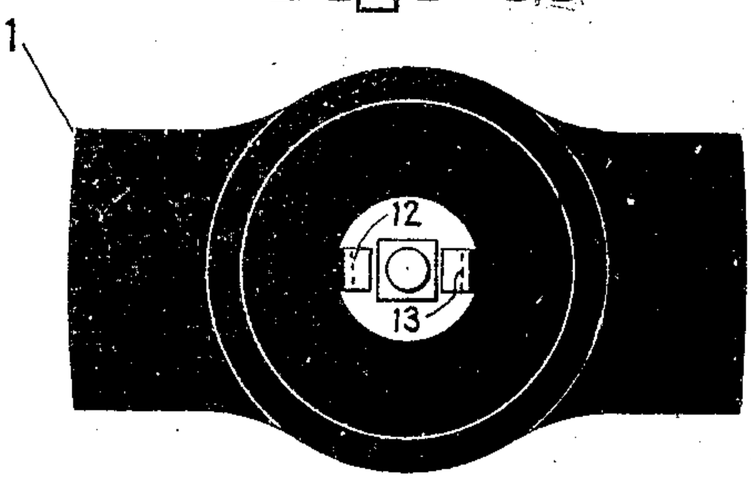
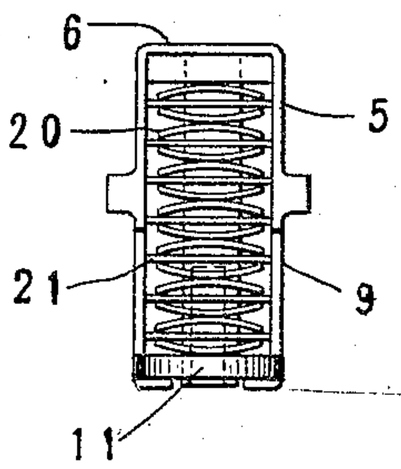


Fig. 4.



WITNESSES

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CHARLES A. CLARK, OF HARTFORD, CONNECTICUT.

SWITCH-BUTTON.

No. 889,760. Specification of Letters Patent. Patented June 2, 1908.

Application filed October 24, 1907. Serial No. 398,887.

To all whom it may concern:

Be it known that I, CHARLES A. CLARK, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, (whose post-office address is 62 Maple avenue, Hartford, Connecticut,) have invented certain new and useful Improvements in Switch-Buttons, of which the following is a full, clear, and exact description, whereby any one skilled in the art may make and use the same.

The invention relates to switch buttons, and more particularly to such a device having special features of automatic adjustment.

The objects of the invention are to provide a simple and efficient means for securing a proper adjustment between the button of the switch and the face plate or cover and spindle thereof.

A further object is to produce a button so constructed that there will be practically no liability of relative rotation between the button and its contained parts arranged for attachment to a spindle or the like.

A still further object is to provide an automatically adjustable button employing a cushion or resilient connection which is not liable to lose its tension in use.

Referring to the drawings: Figure 1 is a view illustrating the button applied to a rotary snap switch, with parts broken away to better illustrate the construction. Fig. 2 is an enlarged vertical section of the button illustrating in dotted lines the method of securing the retainer and appurtenant parts. Fig. 3 is a bottom plan view of the retainer with the spring stud in place. Fig. 4 is a detail view of a modified form of cushion. Fig. 5 is a bottom plan view of the parts shown in Fig. 2. Fig. 6 is a perspective view of one of the spring leaves.

In the manufacture of switches it is customary to employ, as in the rotary snap switch herein illustrated, a cover for the working parts. Where flush switches are used, a plate covers the working parts. In either instance, a spindle for actuating the switch mechanism extends through or adjacent to an opening in the plate or cover, and is surmounted by a suitable button or handle, by which the spindle may be rotated. In devices of this class there are certain inequalities with reference to the base and cover, and consequently, with reference to the spindle, which makes it desirable and necessary to provide a means appurtenant to the button for permitting a close fit of said button with reference to the plate or cover, without the liability of undue cramping. For instance, if the thread of the spindle and the engaging thread of the button are not accurately designed to bring the button into an exact predetermined position, with reference to the cover or plate, the cover will either rattle and be loose upon its base, or will be cramped by the button.

It is the primary object of the present invention to provide a button having a resilient cushion interposed between the button and its means for attachment to the spindle.

In the accompanying drawings, numeral 1 denotes a button applied to a spindle 2 which, as shown herein, extends through a cover 3 of the switch 4. As the switch *per se* forms no material part of the present invention, its details have not been illustrated, although it is to be understood that the spindle 2 upon rotation actuates the switch mechanism.

The button 1 is preferably composed of a material which may be molded, vulcanized, or otherwise employed to surround and hold a retainer 5. This retainer 5 is semi-cylindrical in form having a header 6, open sides 7—8, and side frame pieces 9. The side frame pieces 9 normally extend beyond the lower edge 10 of the button 1, and are arranged to be bent inward as illustrated in the dotted lines in Fig. 2, thereby securing a washer 11. This washer 11 is scarfed or notched on opposite sides as at 12—13 to permit passage of the ends of the side frames.

Located within the recess 14 of the retainer is a spring plug 15 having a head 16 corresponding in form to the inner walls of the retainer and provided at its lower end with a screw threaded socket 17 adapted to engage the thread of the spindle 2. The body part of the spring plug 15 is preferably of angular cross section and upon this are arranged a series of members 18 having perforations corresponding in shape to the said body part.

As shown in Figs. 1–3 the spring members 18 consist of plates of a suitable size to fit within the opening or recess in the retainer 5, and these plates are curved to form leaves. Intermediate the adjacent curved leaves are straight plates 19 to form a bearing upon which the ends of the curved springs rest and ride as they are compressed. As shown in these figures the alternate plates are straight and the curvature of the spring leaves is sub-

stantially the same throughout the entire spring cushion.

In the modified form shown in Fig. 4 the spring leaves 20 are opposed to each other, each pair forming an elliptical spring with a bearing plate 21 interposed between them. It is apparent that the bearing plate is not an essential as the ends of the spring plates might be formed to rest and bear upon each other.

In assembling the device the retainer 5 is molded or otherwise secured in the handle or button 1, the plug 15 is then inserted, the spring leaves are dropped over the plug and the washer 11 is then secured in place by bending in, or otherwise securing the retainer to the washer.

It can be readily seen from the above description that the button may be screwed onto the spindle and any inequalities may be overcome by the giving of the spring plug 15, so that said button will always serve as a retainer to hold the cover or face plate in proper position without liability of cramping and binding.

By having the spring plug and spring leaves of angular form (herein shown as substantially rectangular), there is little or no possibility of any of the parts rotating relatively to the others, and as they are held in an inclosed retainer chamber, there is practically no opportunity for cramping the parts or wearing them.

Of course it is understood that the details might be varied to a considerable extent without departing from the spirit or scope of the invention. It is also apparent that the button might be made in sections and suitably secured to the retainer, although the preferred method is to mold the button about said retainer. The whole device comprises a resilient cushion intermediate the button and the means of attachment to the spindle.

The specific form of the invention illustrated in Fig. 4 is not claimed in this application, it being made the subject of application 416,147 filed by me on the 15th day of February, 1908, as a division of this case.

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

1. A switch button having means for attachment to a switch spindle and a series of resilient leaves forming a cushion intermediate the button and its attaching means.

2. A switch button having a retainer secured therein and a resilient cushion arranged in said retainer and consisting of a plurality of spring leaves, and a spring plug passing therethrough.

3. A switch button having a retainer provided with a chamber, a spring plug located within said chamber, a series of spring plates mounted upon said plug, and means for retaining said plates.

4. A switch button having a recess, a spring plug located therein, a plurality of spring leaves mounted on said plug, and means for retaining said leaves within the recess.

5. A switch button having a recess, a spring plug located therein, a series of spring leaves appurtenant to said spring plug, bearing plates intermediate the adjacent spring leaves, and means for retaining the spring leaves and bearing plates within the recess.

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