C. E. ANDERSON.

SPRING OPERATED MECHANISM.

APPLICATION FILED SEPT. 20, 1918.

1,340,000.

Patented May 11, 1920.

Fig. 1.

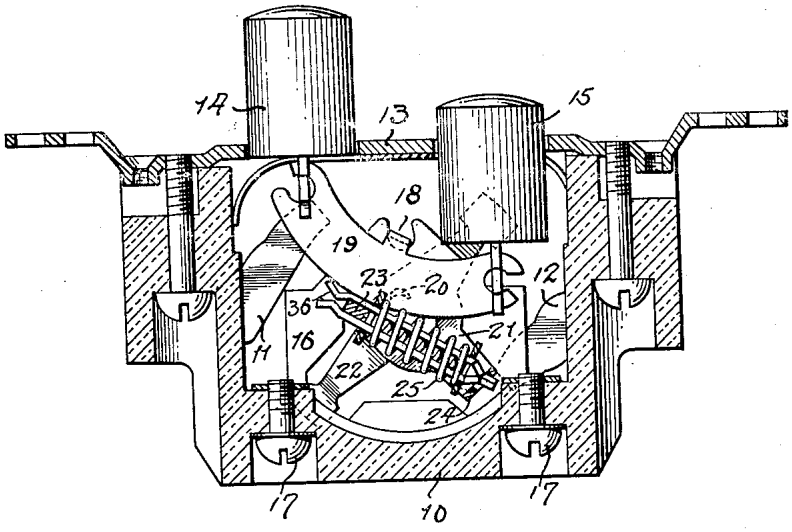

Fig. 2.

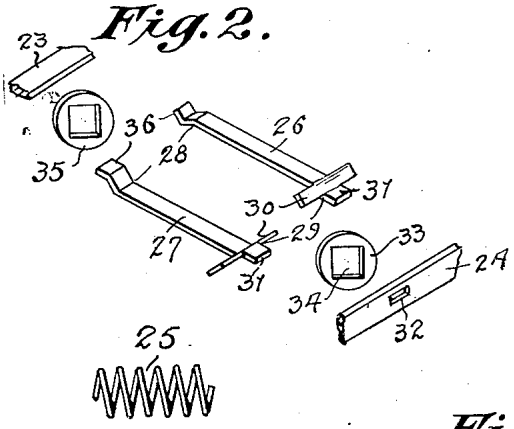

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Fig. 4.

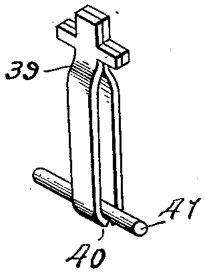
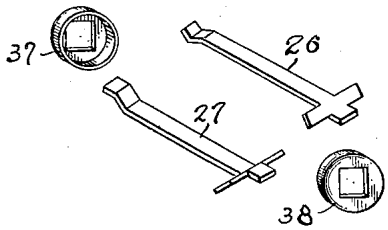


Fig. 3.



Inventor

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UNITED STATES PATENT OFFICE.

CARL ERIC ANDERSON, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE BRYANT ELECTRIC COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF CONNECTICUT.

SPRING-OPERATED MECHANISM.

1,340,000. Specification of Letters Patent. **Patented May 11, 1920.**

Application filed September 20, 1918. Serial No. 254,957.

To all whom it may concern:

Be it known that I, CARL ERIC ANDERSON, a citizen of the United States of America, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented a certain new and useful Improvement in Spring-Operated Mechanism, of which the following is a specification.

My invention relates to spring-operated mechanism and particularly to electric switch mechanisms, the object of my invention being to provide an improved spring guide and associated members, readily made and assembled and efficient in operation.

The present application is in part a division of my copending applications Serial Nos. 127,146, filed October 23, 1916, and 174,743, filed June 14, 1917, and in part a continuation thereof.

In the accompanying drawings,

Figure 1 is a vertical section through a switch in which my invention is embodied in one form;

Fig. 2 is an exploded perspective view of the switch spring and guide elements;

Fig. 3 is a similar view of a modified construction of the guide and bearing washers; and

Fig. 4 is a perspective of a modified guide.

While the present guide and associated parts may be utilized in other relationships, they are primarily designed for the operating mechanism of an electric switch and I have accordingly shown them embodied in a construction of the type set forth in my copending application Serial No. 174,743 above mentioned. The switch comprises a cup-shaped insulating body 10 into the chamber of which project the switch terminals 11 and 12. A carrying yoke 13 spans the open face of the body and guides the push buttons 14 and 15 which operate the switch mechanism.

Upstanting from the bottom of the chamber is a frame 16, secured by screws 17 and on which is pivoted at 18 the oscillating rocker 19 and at a lower point 20, the oscillating carrier 21 for the switch blade 22. Rigid with the rocker 19 is a cross bar 23 and parallel thereto is the cross bar or bridge 24 of the switch blade carrier. Between these cross bars is confined the switch operating coil spring 25, which on the shifting of its upper end from one side to the other of the pivot point 20 by the depression of one or the other of the push buttons 14 or 15, throws the blade carrier 21 across its arc of motion and makes or breaks with a snap action the contact between the blade 22 and the switch terminals 11 and 12.

In order to support and guide the switch spring 25 during the operation of the switch, I provide a guide comprising, in the form shown in Figs. 1 and 2, a pair of straps 26 and 27 struck from sheet metal and offset at the opposite ends 28 and 29 so that when juxtaposed a free way is left between them for the play of the cross bar 23. Preferably both straps are identical in shape, being struck from the same die and one reversed in position with relation to the other so that their offsets meet. At one end the straps have formed thereon integral cross heads 30 beyond which project tongues 31. The latter lie flat against each other and enter the perforation 32 in the carrier cross bar 24 while the cross heads 30 bear against the inner faces of the bar 24 and form a stop for the guide pin. A washer 33 interposed between the end of the spring 25 and the cross heads, has a square aperture 34 closely fitting the straps and serving to hold them together in assembled position as well as affording a thrust bearing for the spring end. A similar washer 35, slipped over the opposite end of the guide, affords a spring bearing interposed between the opposite end of the spring 25 and the cross bar 23 of the rocker 19. The oppositely flared ends 36 of the straps assist in springing the straps apart on the insertion of the cross bar 23, an operation which must occur of course after the spring 25 and washers 33 and 35 are in place on the guide.

The construction shown in Fig. 3 is the same in all particulars as that just described except that the washers 37—38 are of cup shape, the better to receive and confine the ends of the switch spring.

In the construction shown in Fig. 4 the straps are of slightly different shape being offset at 39 beyond the cross head instead of in advance thereof as at 29 in the constructions above described. Furthermore, the cross bar ends of the straps terminate at the point 40 at which they are offset toward each other and lack the flared ends 36 of the construction first described. This is

of no importance however when the cross bar is in the form of a pin 41 inserted between opposite members of a rocker, instead of an integral cross bar as at 23,—since the cross pin would be inserted after the parts are otherwise assembled and could not in any event be pressed into position between the straps from the end of the guide as in Figs. 1–3.

The constructions shown are economical to manufacture, efficient in operation and easily assembled. All the parts, with the exception of the spring, are struck from sheet metal and require no tooling or finishing to prepare them for use. Departures in shape and construction which fall within the scope of what I claim as my invention will readily occur to those skilled in the art.

I claim:—

1. An operating mechanism comprising a pair of rocking members, spring abutments moving therewith, and an operating coil spring interposed between said abutments, in combination with a guide surrounded by said spring and comprising a pair of spaced straps offset into free juxtaposition at one end and engaging at said end one of the spring abutments, the other of said abutments lying between the straps and working in their spaced area against the other end of the coil spring.

2. In a construction such as specified in claim 1, cross heads adjacent one end of said straps and bearing against one of said abutments.

3. In a construction such as specified in claim 1, cross heads adjacent one end of said straps and bearing against one of said abutments, the offset of the straps being located between said cross-heads and the strap ends.

4. An operating mechanism comprising a pair of rocking members, spring abutments moving therewith, and an operating coil spring interposed between said abutments, in combination with a guide surrounded by said spring and comprising a pair of spaced straps offset into free juxtaposition at one end and engaging at said end one of the spring abutments, the other of said abutments lying between the straps and working in their spaced area against the other end of the coil spring, and the corresponding end of said guide straps being offset into juxtaposition to maintain the straps spaced in the working area of said abutment.

5. A coil spring guide comprising a pair of spaced sheet metal straps of like shape offset at one end into juxtaposition and having adjacent said end laterally extending integral lugs constituting a cross head to form a thrust bearing for the end of the spring surrounding said guide.

In testimony whereof I have signed my name to this specification.

CARL ERIC ANDERSON.