

G. B. THOMAS.
 ROTARY SNAP SWITCH.
 APPLICATION FILED FEB. 14, 1908.

966,368.

Patented Aug. 2, 1910.

Fig. 1.

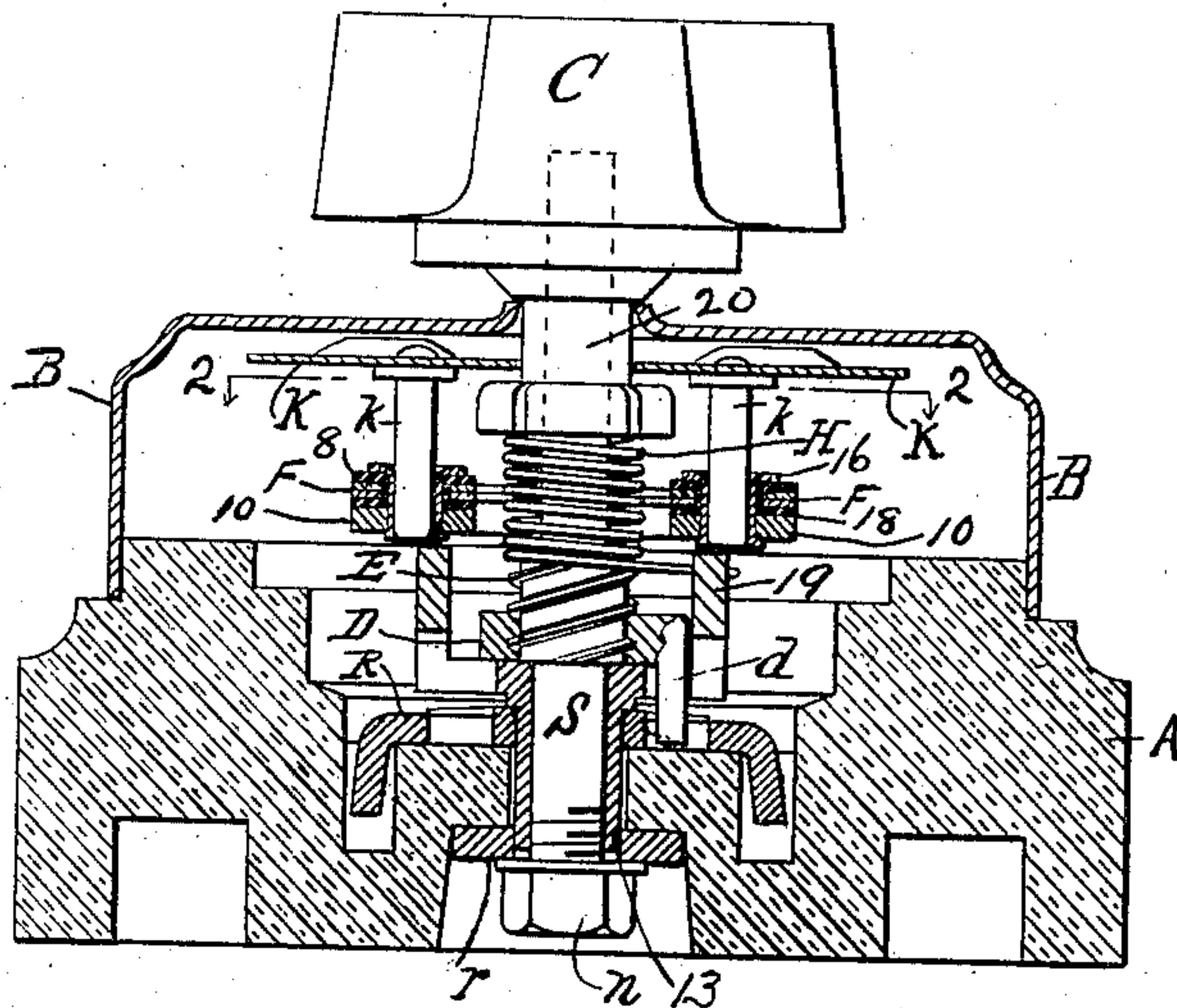


Fig. 3.

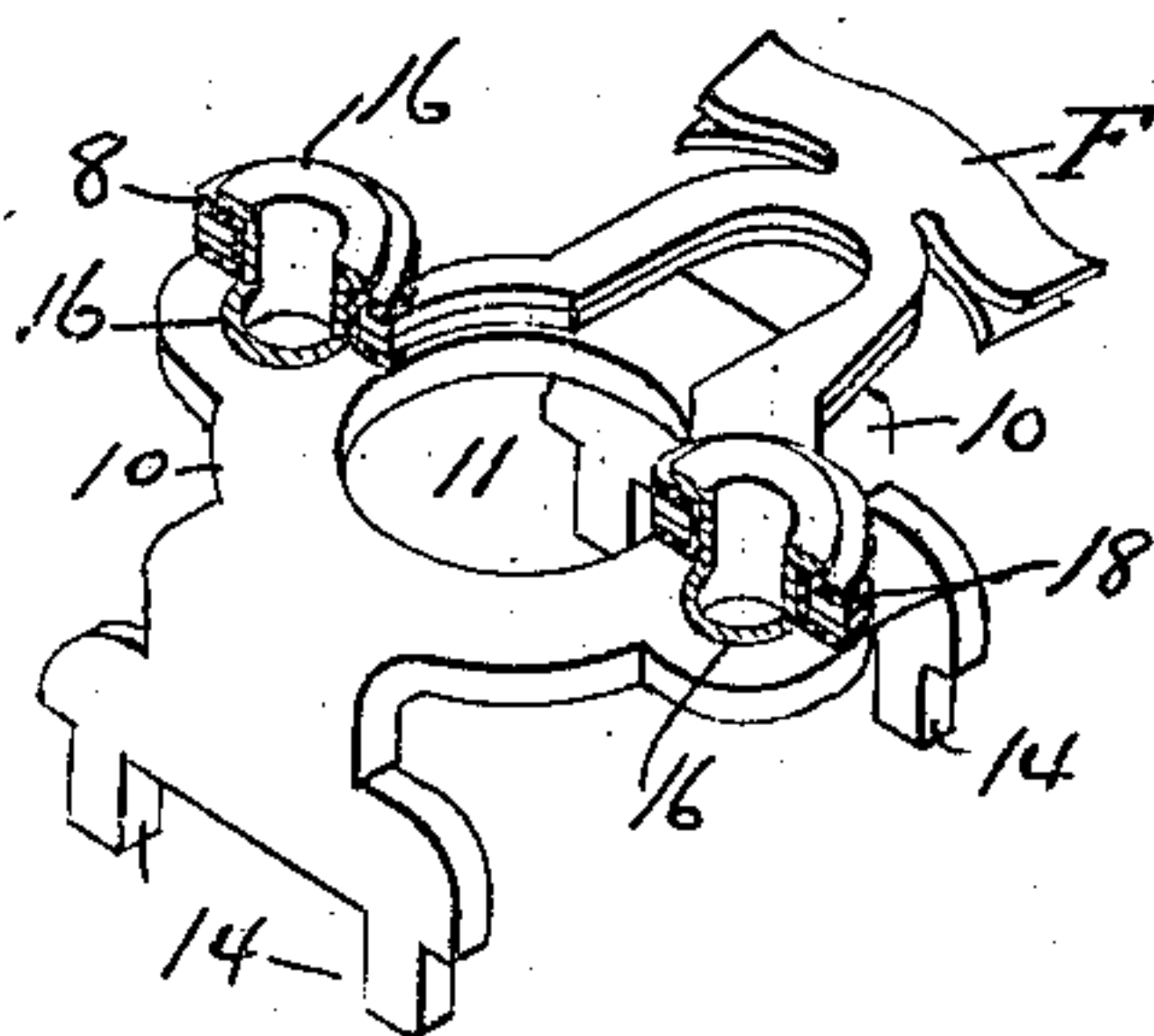


Fig. 2.

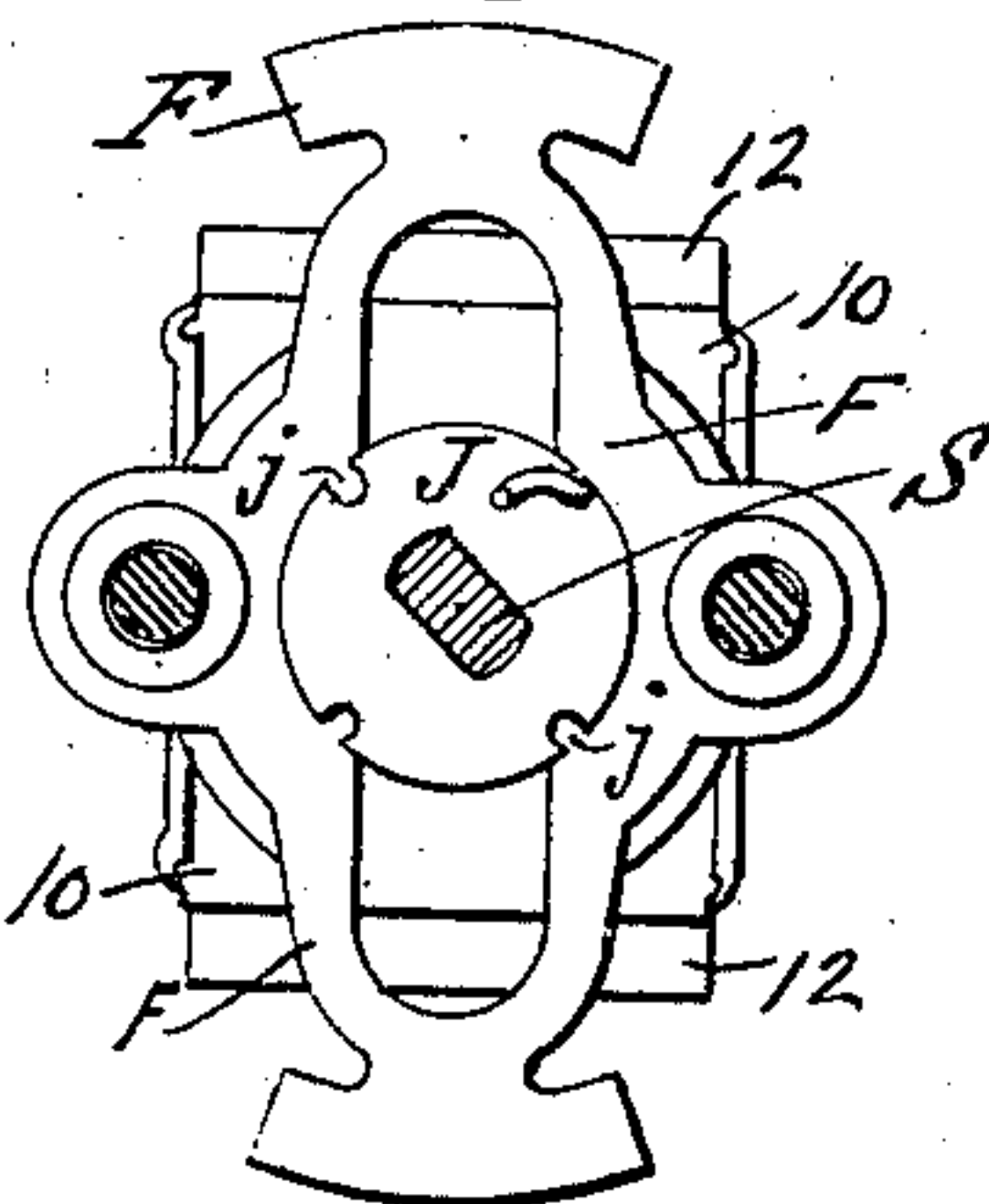


Fig. 5.

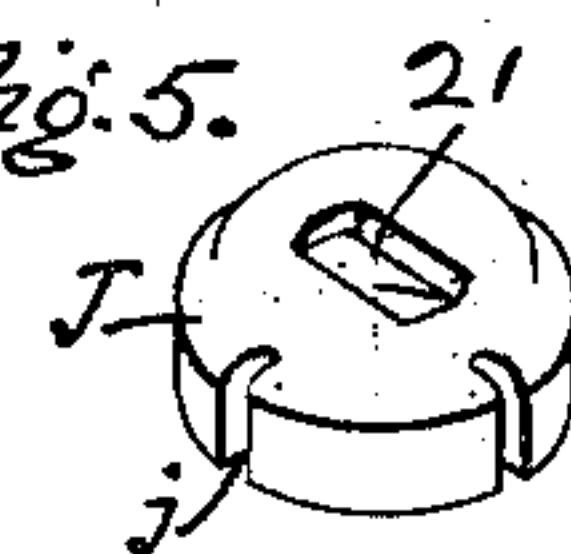


Fig. 7.

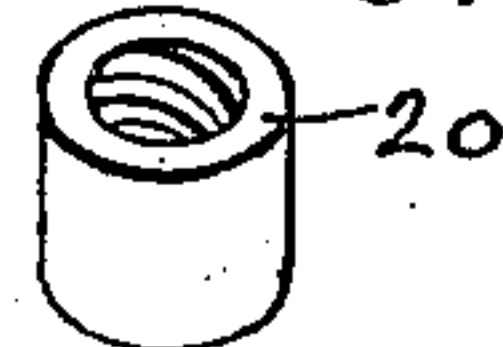


Fig. 6.

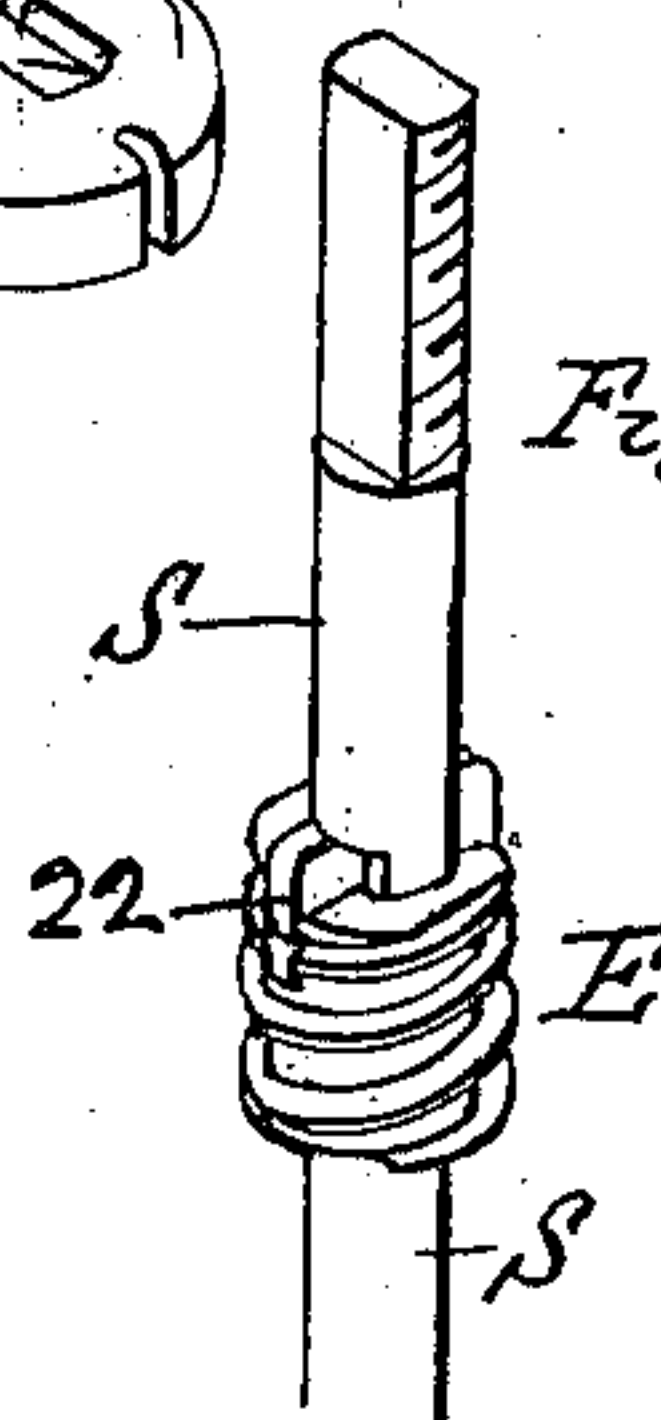


Fig. 4.

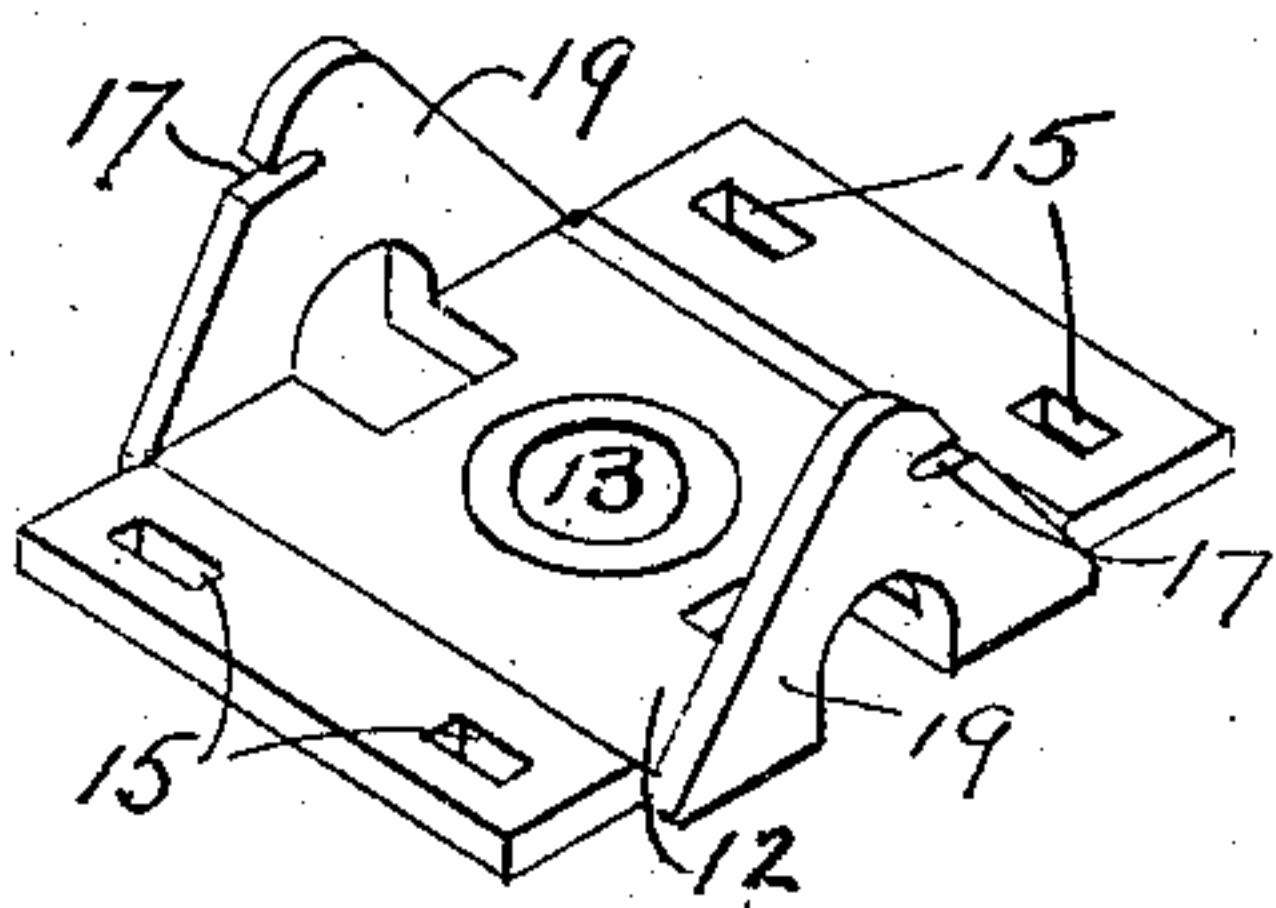
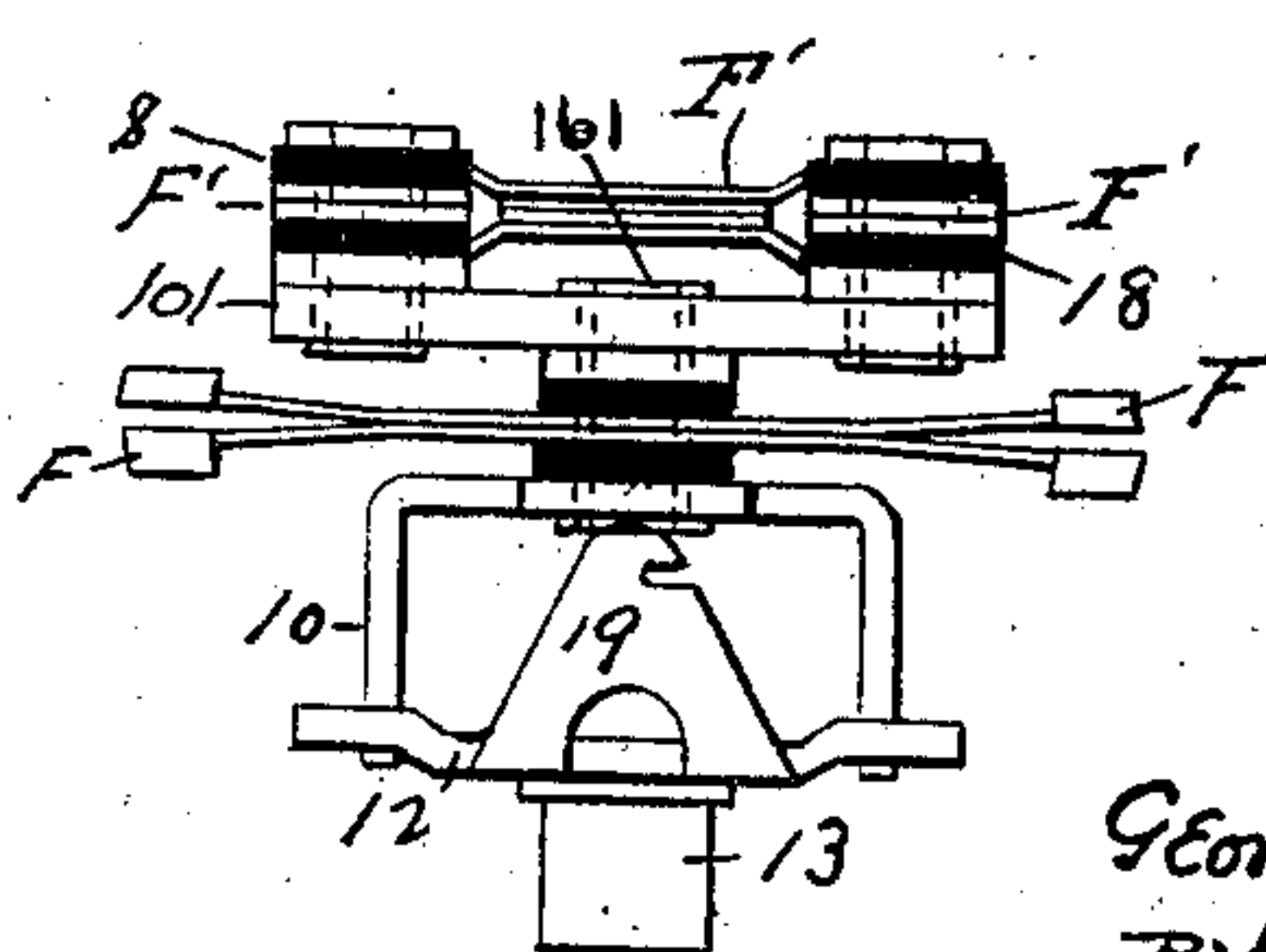


Fig. 8.



WITNESSES

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ROTARY SNAP-SWITCH.

966,368.

Specification of Letters Patent.

Patented Aug. 2, 1910.

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To all whom it may concern:

Be it known that I, GEORGE B. THOMAS, a citizen of the United States of America, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Rotary Snap-Switches, of which the following is a specification.

My invention relates to electric switches, principally those of the rotary snap type, and the object of my invention is to so construct such a switch that convenient means will be provided for adjustment of the spiral spring in assembling the parts of the switch, that the switch blades will be self-adjusting in making contacts, that a switch without a dial may be readily converted to a dial switch and that a double pole form may be built up on the single pole construction.

In the accompanying drawings Figure 1 is a vertical section, drawn to an enlarged scale, of a rotary snap switch embodying my improvements; Fig. 2 is a sectional plan view on the line 2—2, Fig. 1; Fig. 3 is a perspective view, partly in section, of the switch blade and upper part of the carrier; Fig. 4 is a perspective view of the lower part of the switch blade carrier; Fig. 5 is a perspective view of the crown piece by which the adjustment of the spring may be obtained; Fig. 6 is a perspective view of a part of the switch spindle; Fig. 7 is a perspective view of a nut by which the crown piece is held on the spindle; and Fig. 8 is a side elevation of the rotating switch member of double pole construction.

In Fig. 1, A is the insulating base of porcelain or other suitable insulating material and of any usual or convenient construction and provided with any suitable cover B, which may be held in place, as usual, by the handle C, screwed on the top of the rotating spindle S. This rotating spindle turns in a sleeve 13 of the switch carrier, and that sleeve 13 turns in a bearing afforded by the catch plate R, fixed in the center of the insulating base A and the spindle is held from removal vertically by a nut *n*, screwed on the lower threaded end of the spindle, and bearing against a washer *r* in the bottom of a recess on the underside of the base. The sleeve 13 finds its lower bearing in the washer *r*. With the catch plate R engages the latch *d* of a nut D, through which passes

the threaded hub E, formed or secured on the spindle S.

The switch blade F, which I have shown as of the double leaf type, is mounted on, but insulated from its carrier, which can turn upon the spindle S. This carrier is preferably made in two parts, an upper part 10 which is of arch or bridge form, Figs. 3 and 8, and a lower part 12, which has at its underside a trunnion or sleeve 13, to turn in the plate R and washer *r*, and is made tubular for the passage of the spindle S, Fig. 1. This sleeve at the same time serves as a bearing for the spindle. This lower part 12 of the carrier may support the upper part 10, by four feet 14 on the latter (Fig. 3) entering with some freedom of motion, holes 15 in the lower part 12, this freedom of motion being such as to permit the upper part 10 to rock on the lower part 12 to a limited extent so that the switch blade F may be self-adjusting in making contact with the contacts at the binding posts as the blade flies around from the "off" to the "on" position. The upper part 10, on which the switch blade is mounted, has the crown of the arch of ring form, Fig. 3, with an opening 11 for the free passage of the spindle and the coiled spring H (Fig. 1). The blade F, which is also made with a central opening for the free passage of the spindle and coiled spring, is mounted on this carrier in the manner shown in Figs. 1 and 3, and the securing means comprise a pair of metallic eyelets 16 passing through openings in the carrier part 10 and through holes in the blade F on opposite sides of the central opening therein, and insulating ferrules and washers 18 are interposed between the blade F on the one hand and the part 10 and eyelets 16 on the other hand. The eyelets 16 are flanged over the insulating washers to secure the described parts together.

The indicating dial K has secured to it a pair of downwardly projecting pins *k*, in such positions and of such size that they will enter with a snug fit a pair of holes formed in the blade carrier, and for this purpose, I prefer to employ eyelets 16, as shown in Fig. 1. In this way, an indicating dial may be readily applied to the blade carrier or omitted, as occasion may require. The hole in the center of the dial K to pass over the spindle S and parts carried by the spindle is made of such a size as to fit snugly

over the collar or cylindrical nut 20 on the spindle, so that the parts will steady each other.

The spiral spring H around the spindle is 5 connected to the latter at its upper end and to the switch carrier at its lower end. An extended end of the spring at the lower end enters at notch 17 in one or other of the arms 19 (Figs. 1 and 3) or some other suitable part of the carrier. At the upper end, 10 I provide a crown piece J, with a flange having a plurality of notches j, into any one of which the upper end of the coil may be engaged, as adjustment of the spring may 15 require, when the parts are assembled. This crown piece is so put onto the spindle that it is prevented from turning, as by slabbing or grooving the upper threaded end of the spindle (Figs. 2 and 6) and making 20 in the crown piece J an opening 21 of shape corresponding with the cross section of the spindle. A nut or screw collar 20 holds the crown J down on a shoulder or shoulders formed on the spindle by slabbing 25 or grooving the spindle.

As an economical way of constructing the threaded hub E on the spindle to raise the latching nut D, I take a tube of brass or other metal of suitable diameter, and with a 30 diametrical slot at the end. After forming on the spindle wings 22, Fig. 6, I drive this metal tube onto the spindle from the lower end of the latter, until the wings 22 enter the slot in the end of the tube, whereupon 35 the latter is compressed into locking engagement with the wings. Thereafter the screw threads are cut in the hub thus applied.

The switch I have above described is of the single pole type; but the construction is 40 such that a double pole switch may be built up from it. Thus as shown in Fig. 8, all that is necessary is to provide above the switch blade F, an intermediate metallic carrier ring 101, which is riveted with intermediate insulation to the carrier 10 by 45 eyelets 161, slightly longer than the eyelets 16. Then to the upper side of this ring 101, I secure a blade F¹ standing at right angles to the blade F. The blade F¹ is of course 50 insulated from the ring 101, and it may be secured and insulated by the like means used

for the mounting and insulation of the blade F.

I claim as my invention:

1. A rotary snap switch, having a spindle, 55 and a rotary switch blade carrier in two parts, one loosely mounted on the other, whereby the blade is self adjusting.

2. A rotary snap switch, having a base, a spindle, a rotary switch piece, a catch and a 60 latch and a spring to act on the rotary switch piece with a flanged crown piece on the spindle having in the flange a plurality of notches, into any one of which the end of the spring may be engaged. 65

3. A rotary snap switch, having a spindle, and a rotary switch piece provided with eyelets to secure the switch piece parts together, in combination with a dial having 70 pendent pins to removably fit into said eyelets.

4. A rotary switch piece, consisting of a bottom carrier, a switch blade riveted to but insulated from said carrier, and a metallic 75 carrier ring mounted above and secured to said blade and carrier, in combination with a second blade riveted to said intermediate carrier ring and insulation interposed to insulate one blade from the other.

5. A rotary snap switch having a base 80 and catch plate, a latch, a rotary switch piece, having a depending sleeve turning in said catch plate, a spindle passing through the sleeve, and a nut and washer on the underside of the base, the sleeve finding a bearing 85 in the washer.

6. A rotary switch piece, comprising a bottom carrier, a switch blade with open center having its opposite sides secured to, but insulated from, said carrier, and a metallic 90 carrier ring secured to said blade and carrier at the same points, in combination with a second blade secured to the intermediate carrier ring and insulation interposed to insulate one blade from the other. 95

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

GEORGE B. THOMAS.

Witnesses:

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F. E. SEELEY.