

No. 811,796.

PATENTED FEB. 6, 1906.

H. R. SARGENT.
SNAP SWITCH.
APPLICATION FILED JULY 5, 1904.

Fig. 1

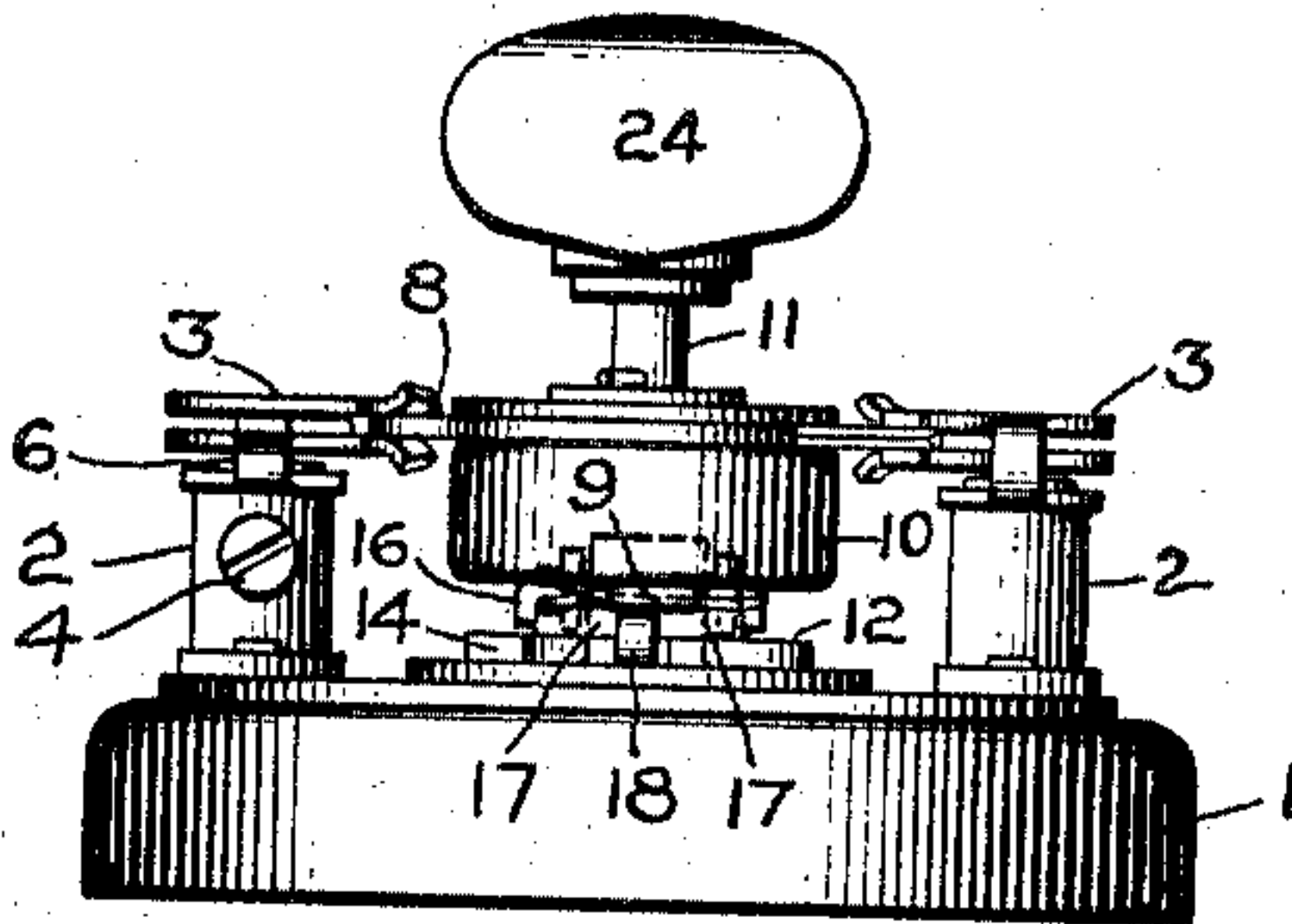


Fig. 4.

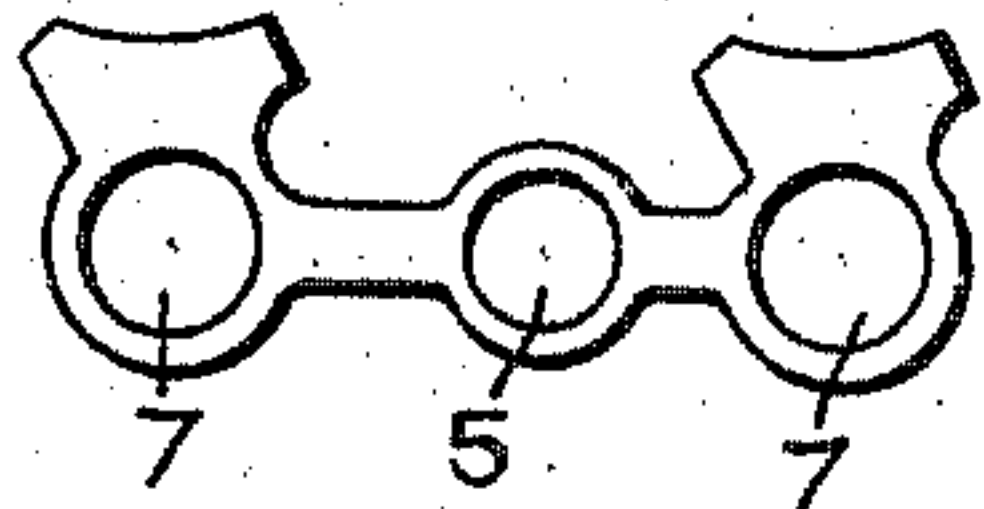


Fig. 5.

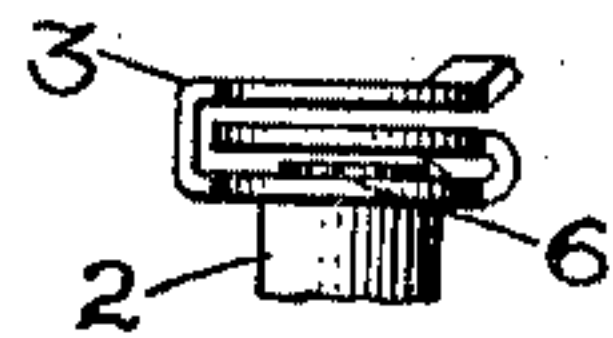


Fig. 2.

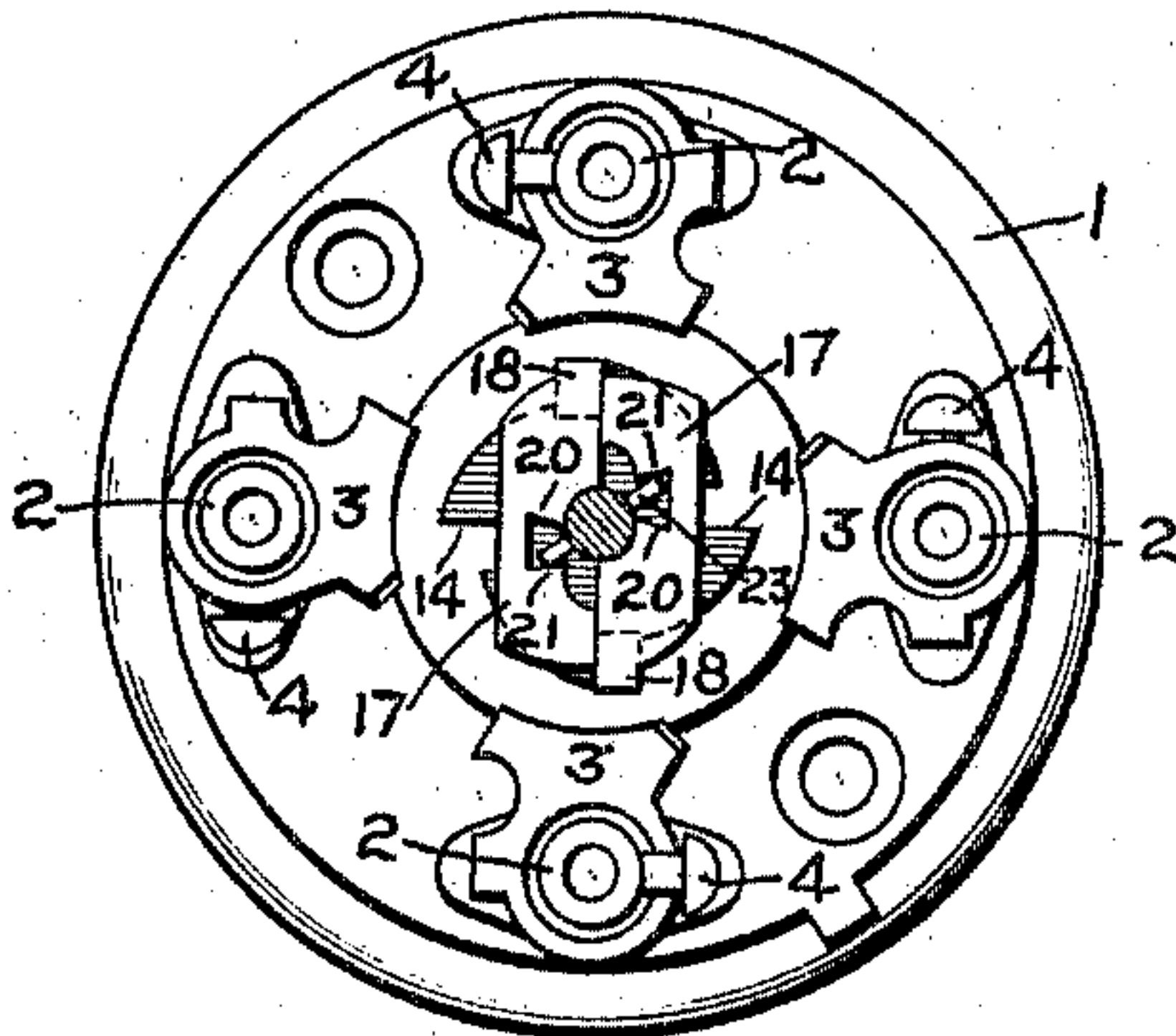


Fig. 6.

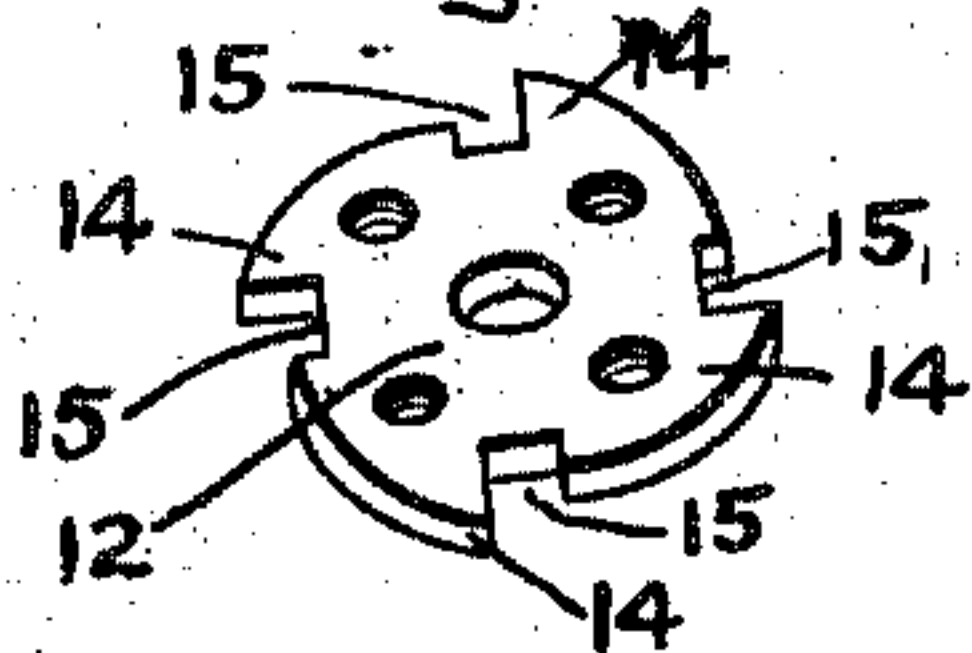


Fig. 7.

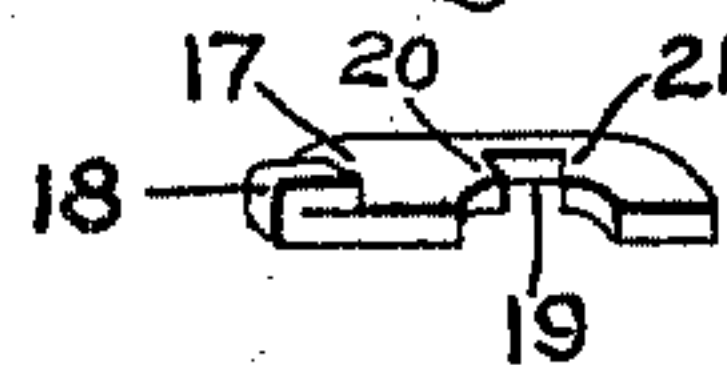
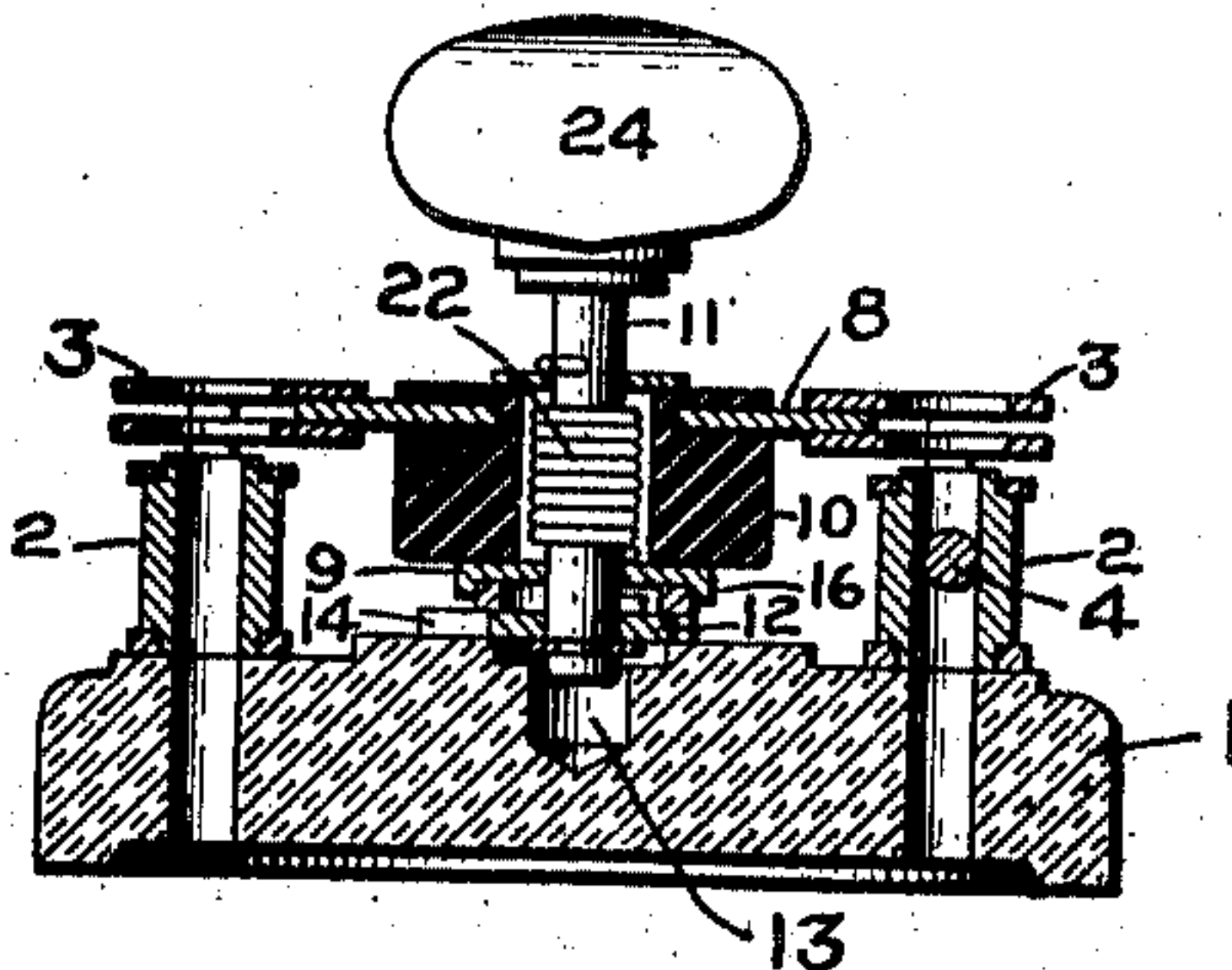


Fig. 3.



Witnesses.
Living E. Steers.
Helen Crawford

Inventor.
Howard R. Sargent.
by *Albert H. Davis*
Atty.

UNITED STATES PATENT OFFICE.

HOWARD R. SARGENT, OF SCHENECTADY, NEW YORK, ASSIGNOR TO
GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SNAP-SWITCH.

No. 811,796.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed July 5, 1904. Serial No. 215,236.

To all whom it may concern:

Be it known that I, HOWARD R. SARGENT, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Snap-Switches, of which the following is a specification.

This invention relates to quick-break switches for electric circuits; and its object is to provide a strong, simply-made switch which will operate promptly and reliably and be durable in service and easy to repair. The invention consists in certain combinations and arrangements of parts hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of a four-pole switch embodying my invention, the nearest contact-post being dotted. Fig. 2 is a sectional plan view of the same. Fig. 3 is a diametrical cross-section. Fig. 4 shows the blank for a clip. Fig. 5 is an elevation of said clip, and Figs. 6 and 7 are perspective views of the stop-plate and one catch.

The embodiment of my invention which is shown in the drawings comprises a base 1, of any suitable insulating material and preferably circular in form, to the upper side of which and at equal intervals about the same are secured the four contact-posts 2, each carrying a contact-clip 3 and set-screw 4. The blank for the clip is shown in Fig. 4 consisting of a strip of sheet metal having a central hole 5 for the rivet 6, which secures it to the top of the post. The end portions are folded over each other without touching, as shown in Fig. 5, said portions having registering holes 7 to give the riveting-tool access to the rivet.

One pair of oppositely-disposed posts 2 is higher than the other pair, so that each pair can be alternately connected and disconnected by the two double-ended switch-blades or pole-pieces 8 9, which are arranged at different levels corresponding with the heights of the two sets of contact-clips. The two blades cross at right angles, so that they connect and disconnect their clips simultaneously. Both the switch-blades are mounted on a barrel 10 of insulation, which is rotatable concentric with a spindle 11, journaled at its lower end in a stop-plate 12, suitably fastened to the base above a recess 13, into which the

spindle projects. The stop-plate has four equidistant radial teeth 14, with a notch 15 at the inner end of each. A plate, which may be the lower switch-blade 9, if desired, is secured to the lower end of the barrel 10 and is provided with parallel downwardly-turned flanges 16, serving as guides between which the two catches 17 slide side by side. Each catch is a flat plate having parallel side edges, the width of the catch being one-half the space between the guide-flange 16. At respectively opposite ends the catches have on their under sides a lug 18, adapted to engage with the shoulders of the stop-plate. In their adjoining edges the catches have notches 19, whose edges form shoulders 20 21, substantially transverse to the catch.

The spindle 11 is yieldingly connected with the barrel by a helical spring 22, surrounding the spindle and attached thereto at one end, the other end of the spring being fastened to the guide-plate. Just below the guide-plate the spindle carries a transverse pin 23, whose ends engage, respectively, with the notches 19 in the catches 17. The spring is under some tension and tends to turn the spindle counter-clockwise, so that the action of the pin against the shoulders 21 of the notches is to pull the lugs 18 in against the edges of the stop-plate. The lugs lie normally in the notches 15 in said plate.

When the spindle is turned clockwise by its thumb-piece 24, the pin abuts against the shoulders 20 of the notches and forces the catches to slide outwardly until the lugs 18 slip off the ends of the radial teeth 14 of the stop-plate, when the recoil of the spring causes the barrel to rotate suddenly, the lug on each catch being caught by the next tooth on the stop-plate when the barrel has made a quarter-turn and its switch-blades have made the proper contact with the clips 3. The engagement of the lugs with the notches 15 prevents any backlash of the switch-arms.

I am aware that a switch of this general construction has been proposed in which a single sliding catch has been used; but I find that two catches sliding in opposite directions and operating on opposite sides of the stop-plate make a stronger and more durable construction. In the single-catch construction the reaction of the spring causes the catch to exert a constant side thrust on the spindle, and as the latter has a comparatively small

bearing in the stop-plate there is liable to be an excessive wear at this point. By using two catches and a double-ended actuating-pin the side thrust on the spindle and the attendant wear are avoided.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. In a quick-break switch, the combination with a contact-post, of a clip secured to the top thereof, and consisting of a middle portion having integral overlapping end portions folded over in opposite directions.

2. In a quick-break switch, the combination with a contact-post, of a clip secured to the top thereof, and consisting of a middle portion having integral overlapping end portions folded over in opposite directions, said end portions having registering holes giving access to the middle portion where it is secured to said post.

3. In a quick-break switch, the combination with a spindle, of a switch-blade rotatably mounted thereon, a spring connecting them, a stationary stop-plate, two catches rotating with the switch-blade and movable radially to the spindle, and two arms on said spindle for simultaneously actuating said catches.

4. In a quick-break switch, the combination with a spindle, of a switch-blade rotatably mounted thereon, a spring connecting them, a stop-plate in which said spindle is journaled, guide-flanges rotatable with the switch-blade, two similar catch-plates located

on opposite sides of the spindle and sliding between said flanges, and a double-ended pin transverse to said spindle for simultaneously actuating said catches in opposite directions radially to said spindle.

5. In a quick-break switch, the combination with a spindle, of a switch-blade rotatably mounted thereon, a spring connecting them, a stop-plate in which said spindle is journaled, guide-flanges rotatable with said switch-blade, two catch-plates located on opposite sides of the spindle between said flanges with their adjacent edges in contact, each plate having a recess through which the spindle passes and provided with shoulders 20, 21, and a double-ended pin transverse to said spindle and engaging with said shoulders.

6. In a quick-break switch, the combination with a spindle provided with two oppositely-arranged arms, of two plates movable in opposite directions in the plane of said arms, and recesses in the adjacent edges of said plates engaged by said arms.

7. In a quick-break switch, the combination with a spindle, of a stop-plate, and radially-movable catches simultaneously actuated by said spindle and engaging said stop-plate at opposite points.

In witness whereof I have hereunto set my hand this 2d day of July, 1904.

HOWARD R. SARGENT.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.