

No. 753,881.

PATENTED MAR. 8, 1904.

G. W. HART.
ELECTRIC SNAP SWITCH.
APPLICATION FILED APR. 18, 1903.

NO MODEL.

Fig. 1.

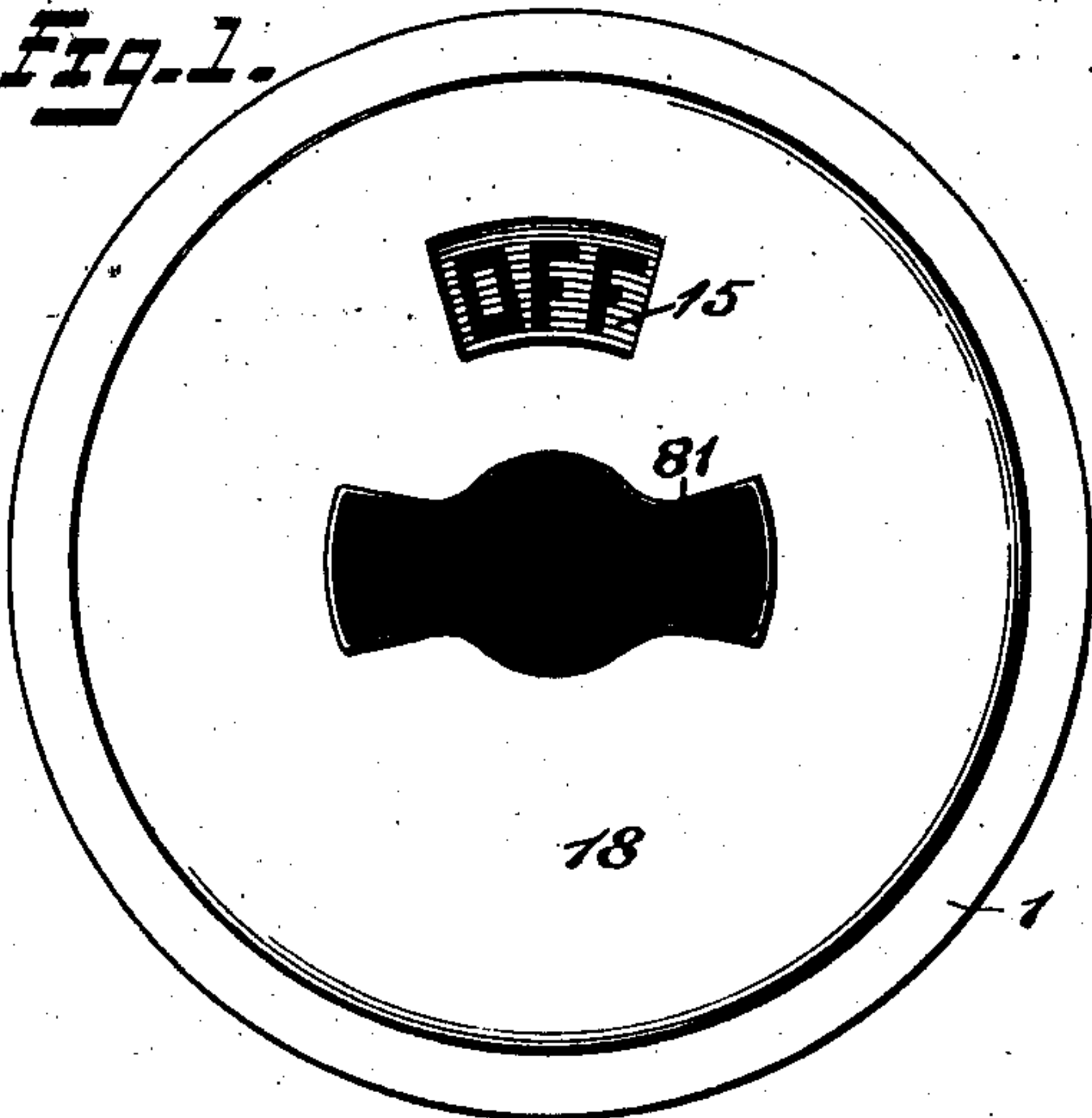


Fig. 2.

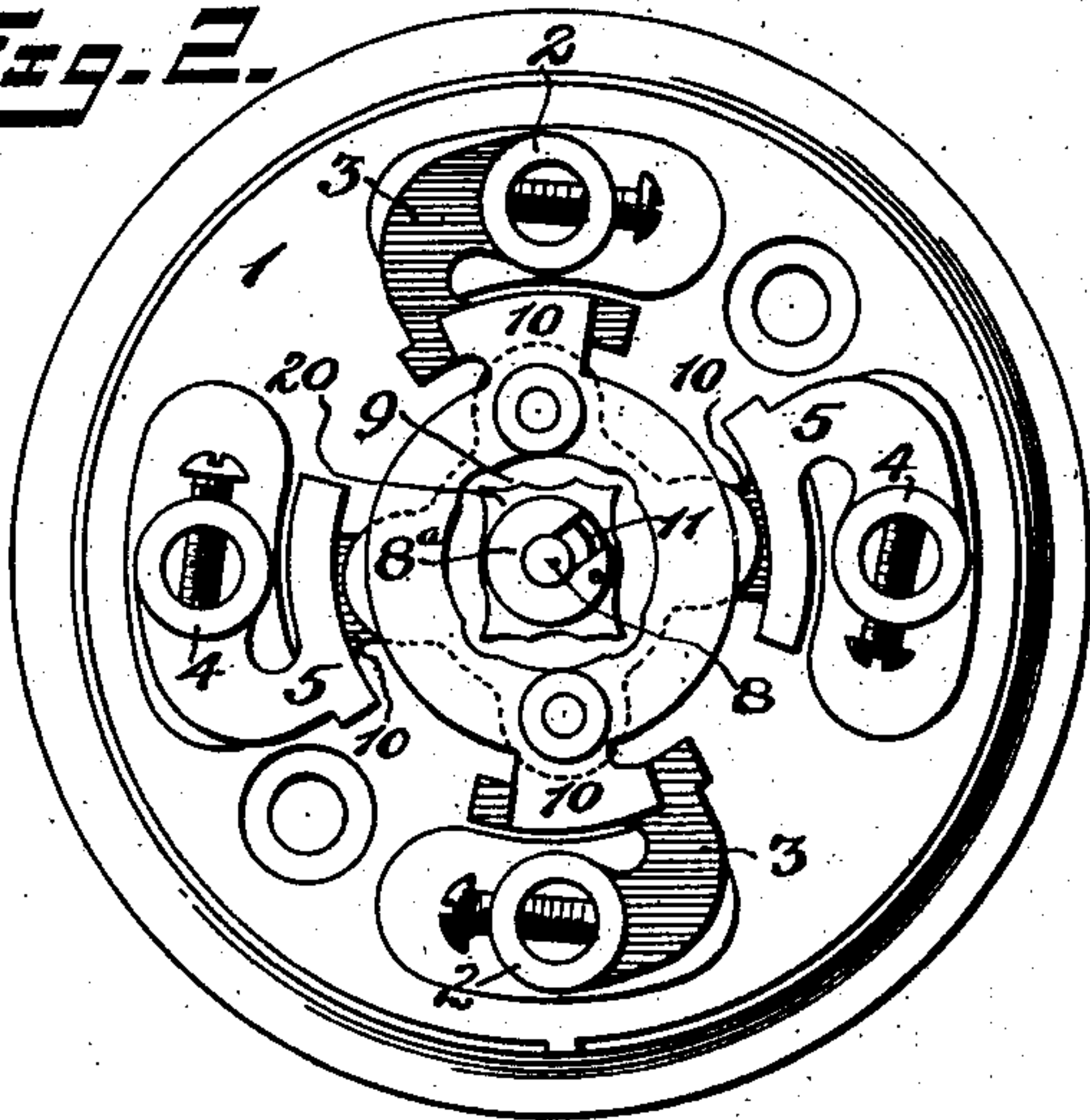


Fig. 3.

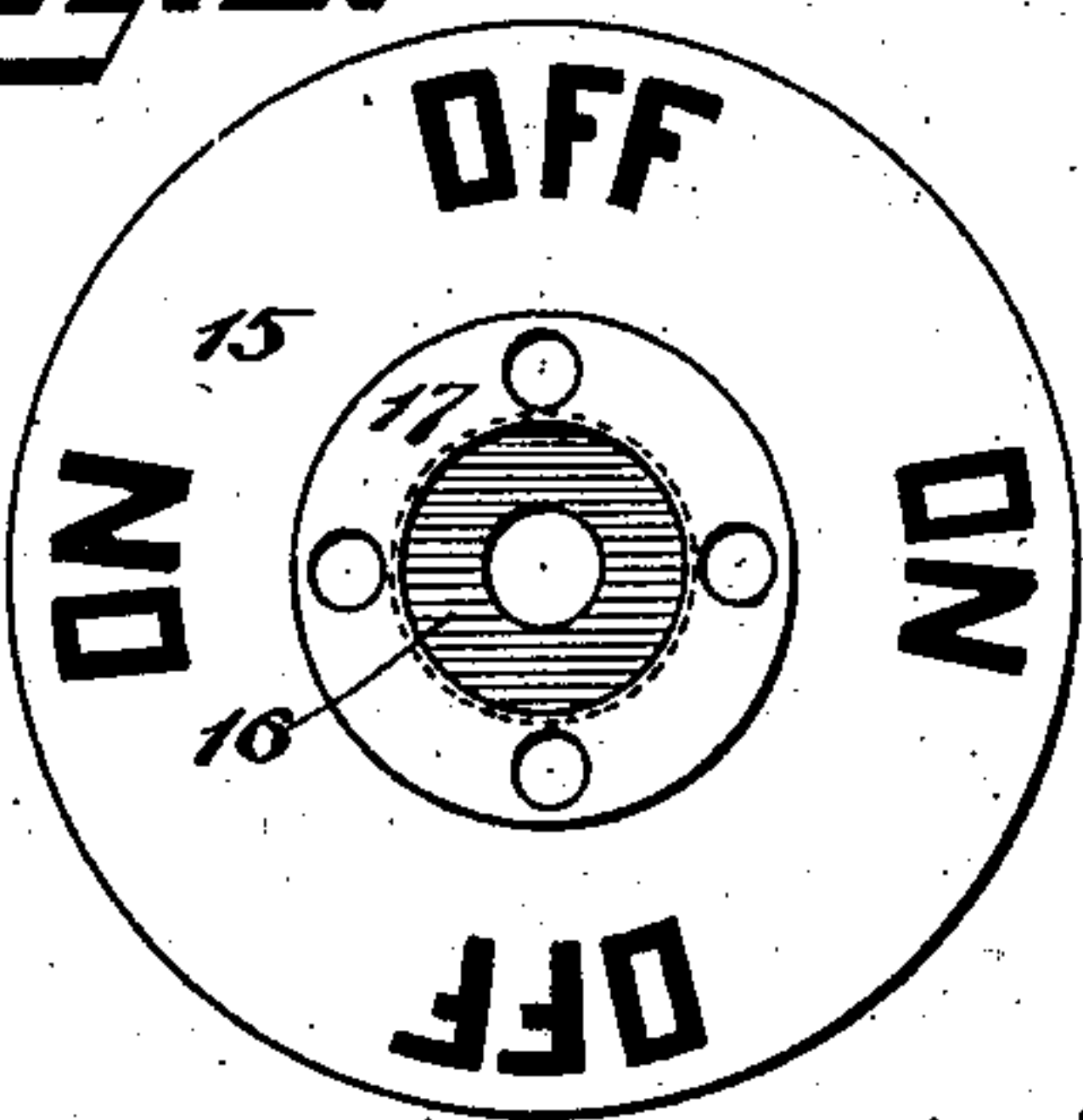


Fig. 4.

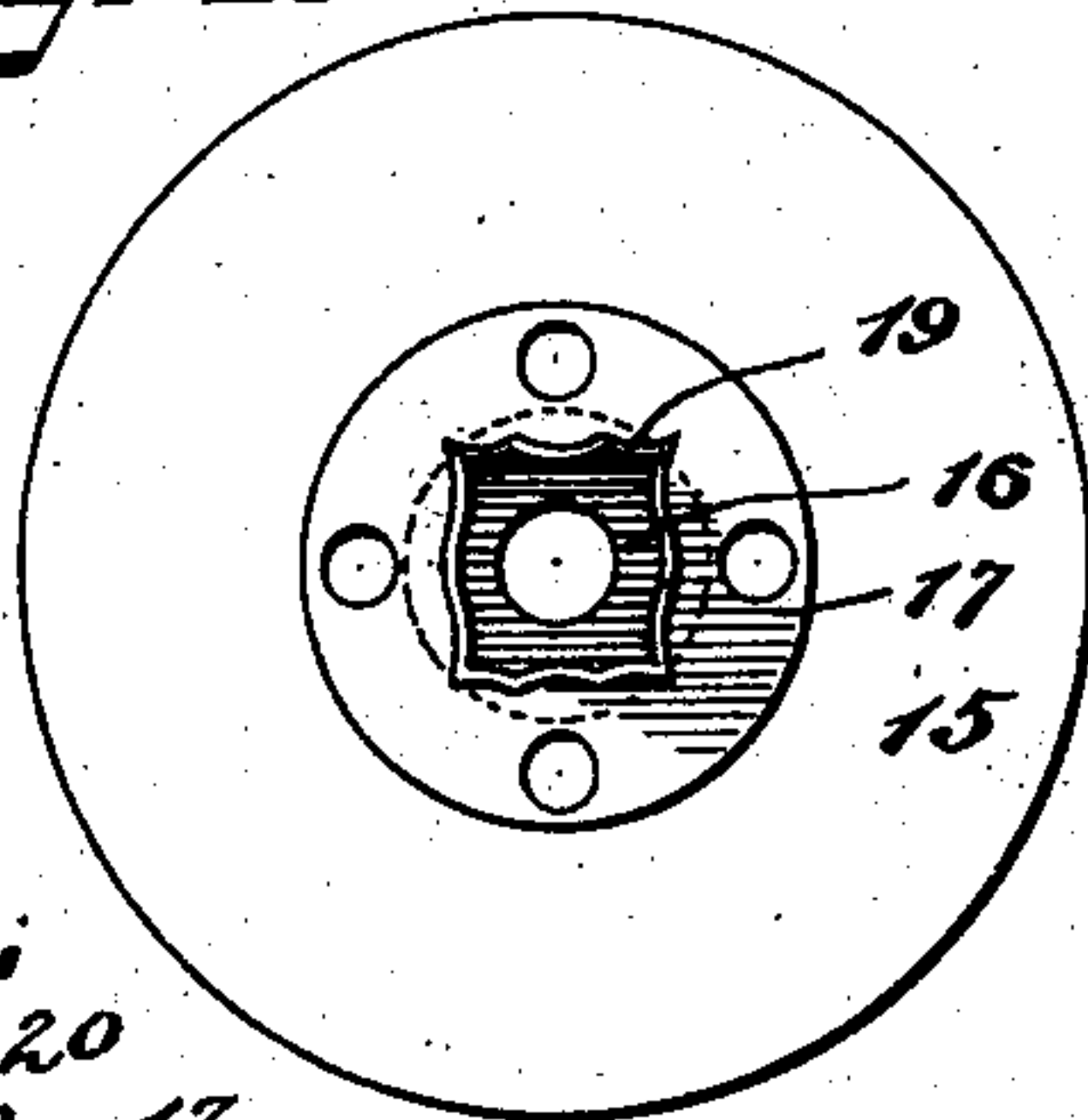


Fig. 5.

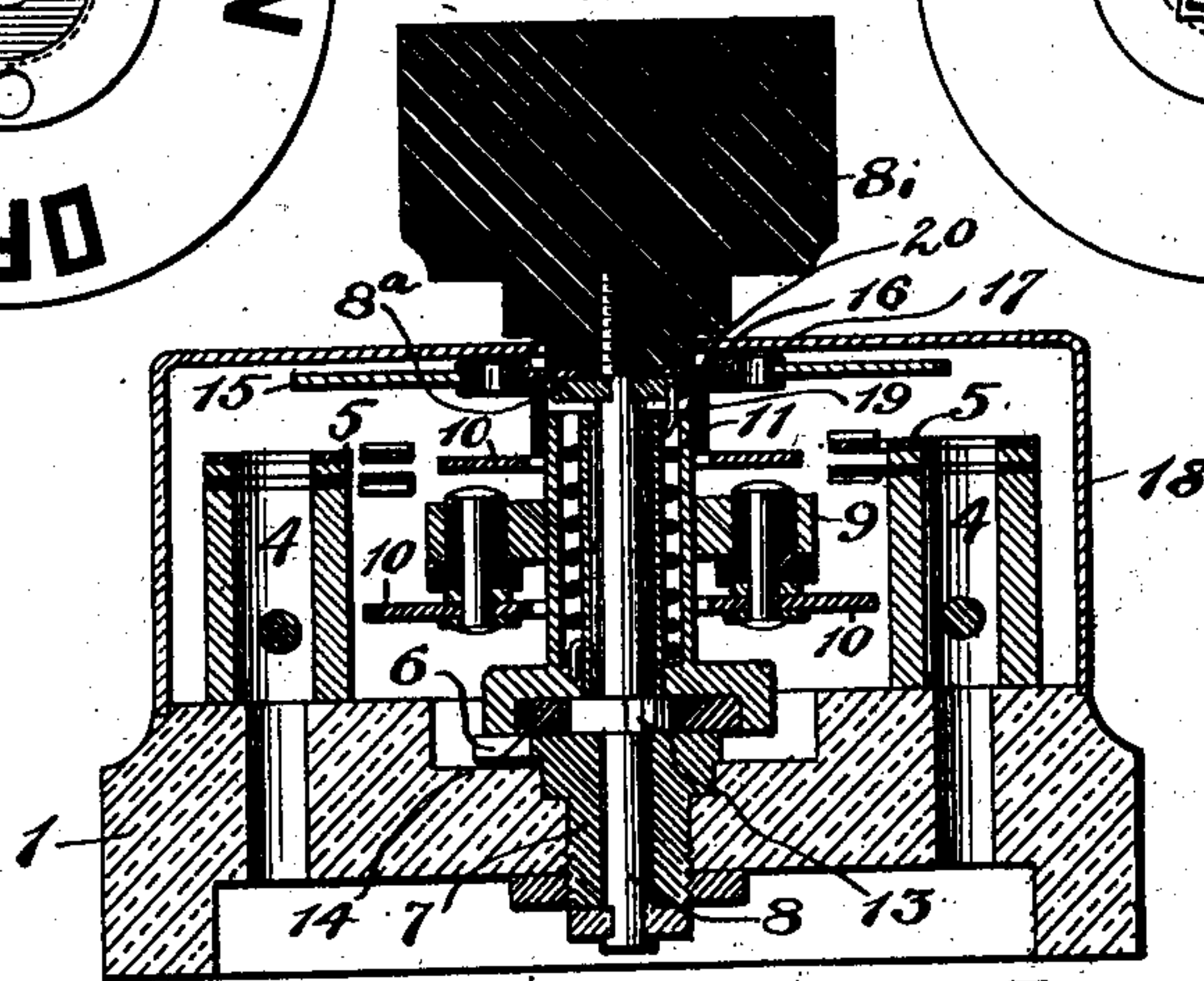


Fig. 6.

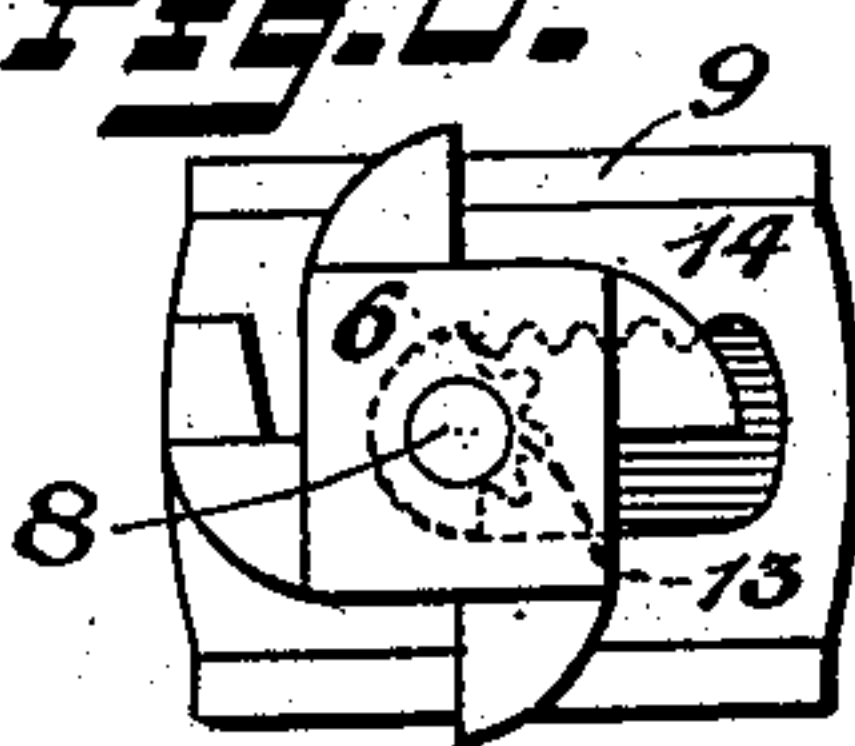


Fig. 7.

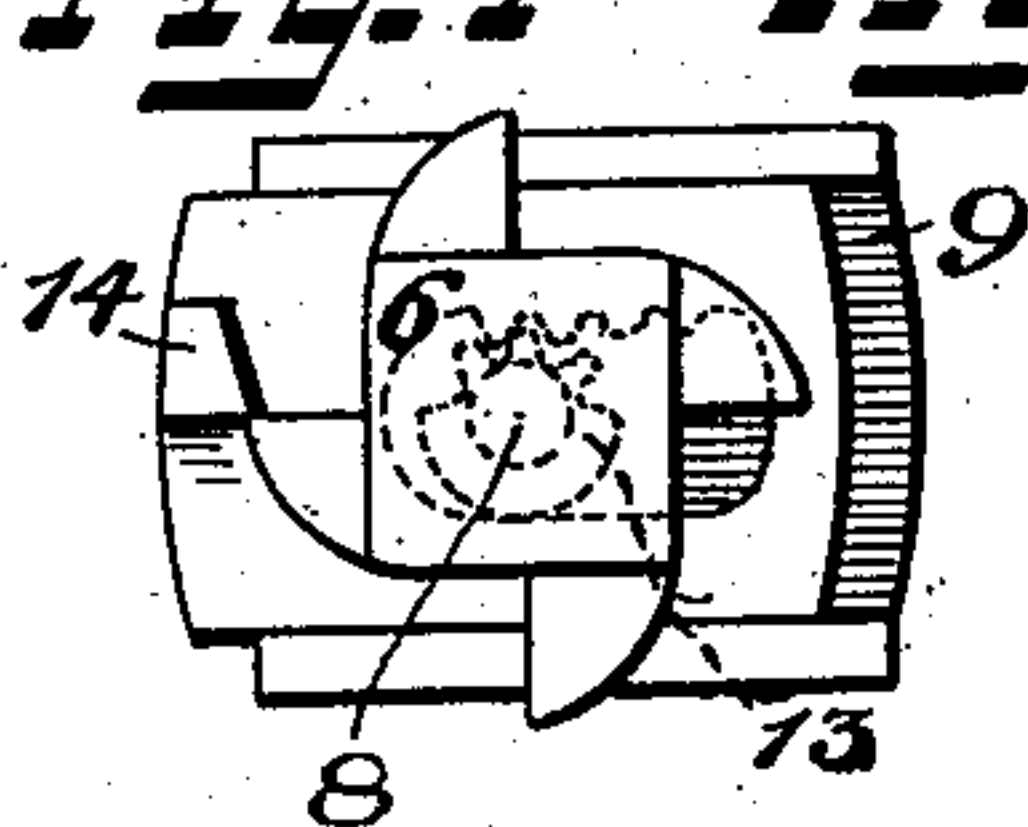
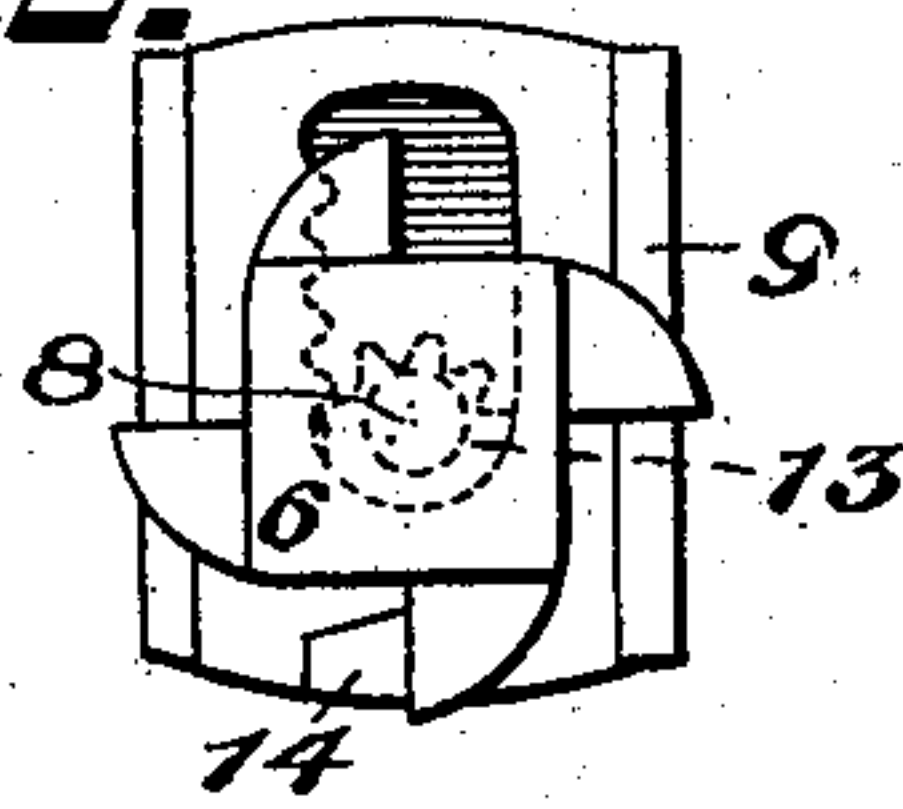


Fig. 8.



Witnesses
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UNITED STATES PATENT OFFICE.

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ELECTRIC SNAP-SWITCH.

SPECIFICATION forming part of Letters Patent No. 753,881, dated March 8, 1904.

Application filed April 18, 1903. Serial No. 153,160. (No model.)

To all whom it may concern:

Be it known that I, GERALD W. HART, a citizen of the United States, residing at West Hartford, in the county of Hartford, State of Connecticut, have invented certain new and useful Improvements in Electric Snap-Switches, of which the following is a full, clear, and exact description.

My invention relates to electric snap-switches, and particularly to a construction including a dial which shall indicate to the user whether the circuit is on or off.

The object of my invention is to provide in a snap-switch a dial which, as above indicated, informs the user of the condition of the circuit. The dial is not gradually moved with the operating-handle, but will snap from one position to the other after the manner of the interior switch mechanism. Other advantages, such as removability of the dial and freedom of friction, will be apparent to the mechanic skilled in the art from a reading of the following description.

In Figure 1 I have shown a plan view of a snap-switch; in Fig. 2, a similar view with the cover, dial, and operating-handle removed. Fig. 3 is a plan view of the face of the dial. Fig. 4 is a view of the under side of the dial. Fig. 5 is a cross-section of the parts shown in Figs. 1 and 2. Figs. 6, 7, and 8 illustrate detached details of construction in successive positions.

The snap-switch illustrated in the accompanying drawings is an embodiment of the invention set forth in the United States Letters Patent issued to Jacob S. Gibbs, No. 557,198, dated March 31, 1896, and hence need be but briefly described herein, since a more detailed description may be found therein.

1 is the base, which is usually made circular in outline and of suitable insulating material.

2 and 4 are binding-posts to which the ends of incoming and outgoing circuit-wires may be attached. The binding-posts 2 are connected with the metallic poles 3, which I shall term the "lower" stationary contact mem-

bers. The binding-posts 4 are connected with metallic poles 5, which I shall term "upper" stationary contact members. When these pairs of upper and lower stationary contacts are joined by metallic pieces, the circuit is completed, and when not it is open. On the base at the center is a stationary ratchet-wheel 6, having teeth forming one part of a locking device which serves to hold the commutator-block 9 until a coil-spring 11, which may be mounted upon a suitable central spindle 8, is sufficiently tense to properly throw or snap the block 9 from the "on" to the "off" position, or vice versa.

7 is a bushing or hub extension of the ratchet-wheel 6, mounted in the base 1, rotatably supporting the spindle 8. Upon the upper end of said spindle is secured a handle 81 of any convenient form. The commutator-block 9 is rotatably supported upon the spindle 8, and said block carries or includes metallic contact pieces or clips 10 10, arranged so that when the block is rotated to certain positions they metal-lically connect the pairs of upper and lower stationary contacts and when rotated into another position disconnect said contacts. One end of the spring 11 is connected with the spindle 8, while the other end is connected with the block 9, so that when the handle 81 is turned the spring tends to wind up to rotate the block at the proper moment. To cause said block to rotate step by step quickly, suitable mechanism is provided, comprising, for example, a pinion 13, borne by the spindle 8 and meshing with the bolt 14. The bolt is carried by and has a sliding movement in the lower side of the commutator-block 9, and when the parts are in the proper position and operated the bolt moves into or out of engagement with the teeth 6 on the base. One face of each tooth may be abrupt to present a holding-shoulder for said bolt. The normal position of the bolt is retracted so as to engage with the lowest part of the abrupt face of a tooth. As the handle is revolved the pinion is turned, moving the bolt outwardly until it becomes freed from the particular tooth with which it is in contact. Dur-

ing the rotation the spring is made more tense. Hence when the bolt becomes freed from the ratchet-wheel the commutator-block is thrown quickly around into the next position, the
 5 spring unwinding, the bolt retracted and engaging with the next tooth on the ratchet-wheel.

The parts thus far described are substantially those set forth in the aforesaid Gibbs
 10 patent.

15 is a dial bearing thereon suitable designating words or characters—for example, "On" and "Off." These words correspond in number to the teeth in the ratchet-wheel,
 15 which in turn correspond to the number of steps necessary to a complete revolution of the rotatable commutator-block 9.

16 is an antifriction-disk concentric with the dial 15, but independently rotatable. This
 20 supplemental disk is carried by the dial 15—for example, by means of a bushing 17.

18 is the cover, which may be provided with a suitable window, as shown in Fig. 1, through which the designating word or character is
 25 visible to the user. On the lower side of the dial 15 and independent of the supplemental disk 16 is a socket 19, shaped to fit onto a hub-like extension 20 of the commutator-block 9. This hub-like extension may be of
 30 an irregular shape, permitting only of the proper attachment of the dial to the hub. For example, in cross-section this hub-like extension might correspond to the outline of the socket indicated in Fig. 4. When this socket
 35 is fitted onto the hub, it in effect keys it thereto, so that it is movable only with said commutator-block. A convenient means of securing one end of the spring 11 to the spindle 8 comprises a slotted washer 8^a, keyed or
 40 otherwise attached to the spindle 8, so that it will turn therewith. To this washer may be secured one end of the spring. Since it is essential to have means for holding the dial in place, I have provided the antifriction-disk 16,
 45 which may rest upon the washer 8^a, as seen in Fig. 5. This disk may be held down in any suitable way—for example, by means of the handle 81.

From the foregoing it is obvious that when
 50 in operation the handle is turned the antifriction-disk 16 will turn therewith, being held between the handle and the washer 8^a, but the dial 15 will remain stationary with the commutator-block 9. At the proper moment,
 55 however, and when the commutator-block snaps into the next position the dial moves with it and exposes through the window in the case 18 the designating word or character. It is obvious there is no appreciable friction between the dial 15 and the handle, spindle, or
 60 washer. The handle 81 may be affixed to the spindle by an ordinary screw-thread, and when the same is removed the cover 18 may be removed and the dial slipped off. By having
 65 the same, in effect, keyed to the commutator-

block it is impossible for the user to reassemble these parts without having the dial indicate correctly in subsequent use.

The part 9, which has been termed a "commutator-block," is in the form shown a sleeve,
 70 sometimes called a "pole-sleeve," in that it carries the switch-blade. In the particular form shown it is this sleeve that supports the dial. It is obvious that my invention may be modified without departure from the spirit or
 75 scope of the claims, my main purpose being to provide a simple and effective means for removably securing to the switch mechanism an indicating-dial which may be easily applied or removed when the handle and switch-
 80 cover are taken off. The means of connection between the dial and its support is such that these parts are locked against independent rotative movement; but this means does not prevent the longitudinal movement of said parts
 85 for the purpose of removing the dial to give access to the underlying parts.

What I claim is—

1. In a snap-switch in combination, a base bearing contact mechanism for making or
 90 breaking a circuit through said contacts, said mechanism comprising a rotary member, a spindle coacting with said rotary member and means whereby said spindle can be given a partial rotation independent of said rotary
 95 member, a dial carried by the rotary member, an antifriction device carried by said dial but revoluble independently thereof, and means for holding said antifriction-disk against said spindle. 100

2. In a snap-switch in combination, a base bearing contact mechanism for making or
 breaking a circuit through said contacts, said mechanism comprising a rotary member, a
 105 spindle coacting with said rotary member and means whereby said spindle can be given a partial rotation independent of said rotary member, a dial carried by the rotary member, an antifriction device carried by said dial but
 110 revoluble independently thereof, and means for holding said antifriction-disk against said spindle, said dial being detachably connected with said rotary member. 115

3. In an electric snap-switch in combination, contact members, a rotary member carrying means for making and breaking the circuit through said contact members, and having an irregular-shaped top, a spindle arranged to have partially-independent rotation relatively to said rotary member, a dial bearing
 120 designating words or characters, a socket secured to said dial to fit on the top of and be detachably connected with said rotary member, and means for preventing the independent rotation of said rotary member and dial,
 125 and means for holding said dial in place when the parts are assembled, and a cover having a window arranged to expose one of said designating words or characters. 130

4. In combination with a rotary snap-switch 130

having a pole-sleeve with an angular head, an indicating-dial having on its lower face an angular pocket which loosely fits the angular head of the pole-sleeve, substantially as specified.

5 5. In a rotary snap-switch, an indicating-dial, a rotative support therefor said dial being carried by said support, means for connecting said parts for causing them to rotate together but permitting disconnection of said parts by longitudinal movement.

10 6. In a rotary snap-switch, an indicating-dial, a rotative support therefor said dial being carried by said support, means for connecting said parts for causing them to rotate together but permitting disconnection of said parts by longitudinal movement, and separate means for holding said parts against accidental disengagement.

20 7. In a rotary snap-switch, a dial, a rotative sleeve said dial being supported on said sleeve, means to hold said dial against independent rotative movement relatively thereto but not against longitudinal movement relatively thereto, an actuating-spindle within said sleeve and projecting through said dial, an operating-handle carried by said spindle and standing above said dial to prevent the accidental removal of the latter.

30 8. In an electric snap-switch, a central rotative actuating-spindle, a handle thereon, a

rotative sleeve surrounding said spindle and means of connection between said parts whereby the rotation of the former rotates the latter, an indicating-dial removably mounted on said sleeve below said handle and held from accidental disengagement therefrom by the presence of said handle, and means whereby said dial is locked against independent rotative movement relatively to said sleeve.

40 9. In an electric snap-switch, an indicating-dial comprising a disk-like member arranged to carry indicating characters, a central opening in said disk-like member, a smaller anti-friction-disk located in said opening, and means securing both said disk-like members together said means permitting the free and independent rotation of one disk relatively to the other.

50 10. In an electric snap-switch, a rotative pole-carrying member, an indicating-dial, means for connecting said dial to said member to prevent independent rotation of said parts said means of connection permitting disengagement of said parts by a sliding movement of one relatively to the other.

Signed at Hartford, Connecticut, this 16th day of April, 1903.

GERALD W. HART.

Witnesses:

F. B. SEXTON,
R. D. CHAPIN.