

No. 845,236.

PATENTED FEB. 26, 1907.

E. M. HEWLETT & C. H. HILL.  
CUT-OUT.

APPLICATION FILED MAY 2, 1904.

2 SHEETS—SHEET 1.

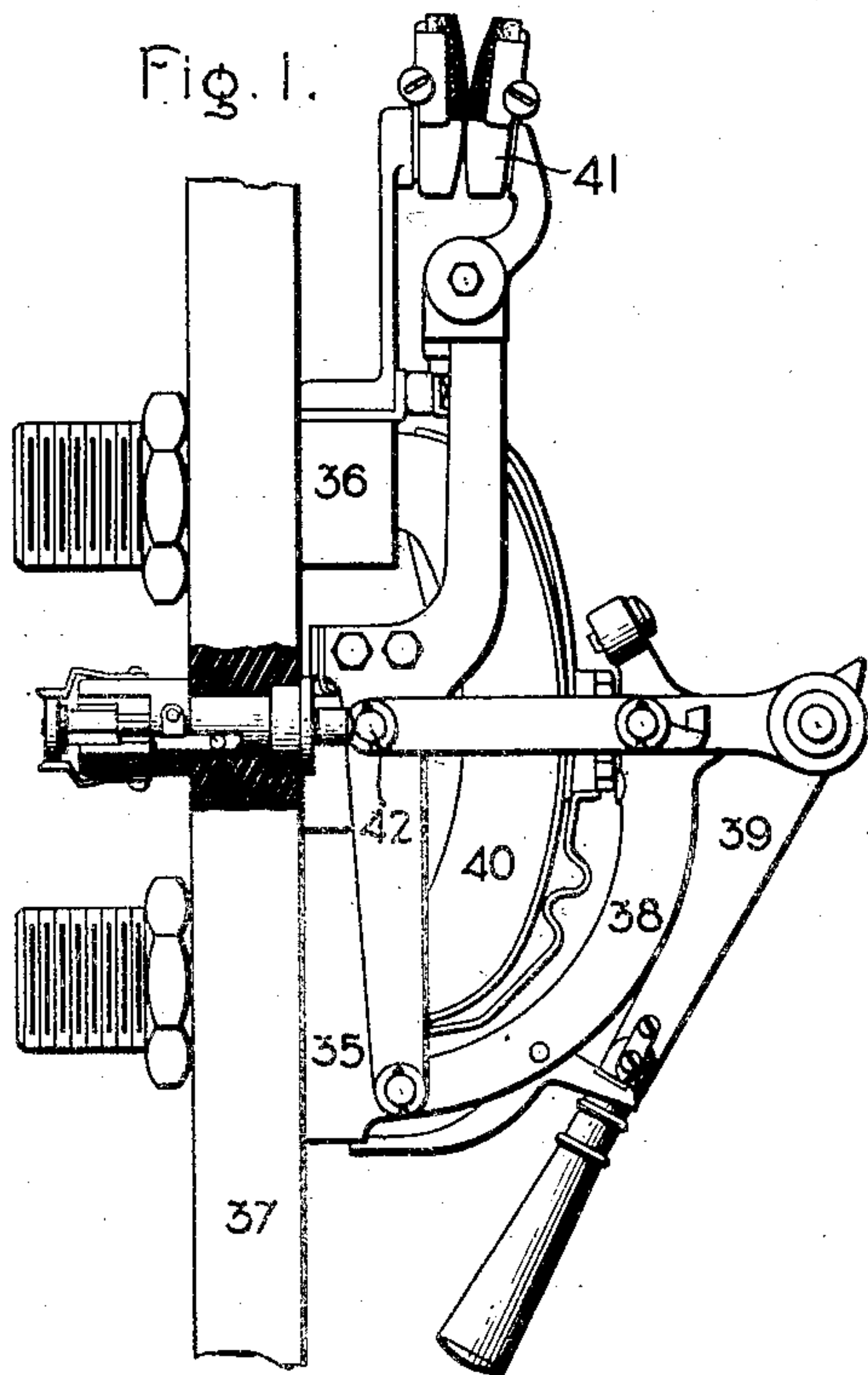
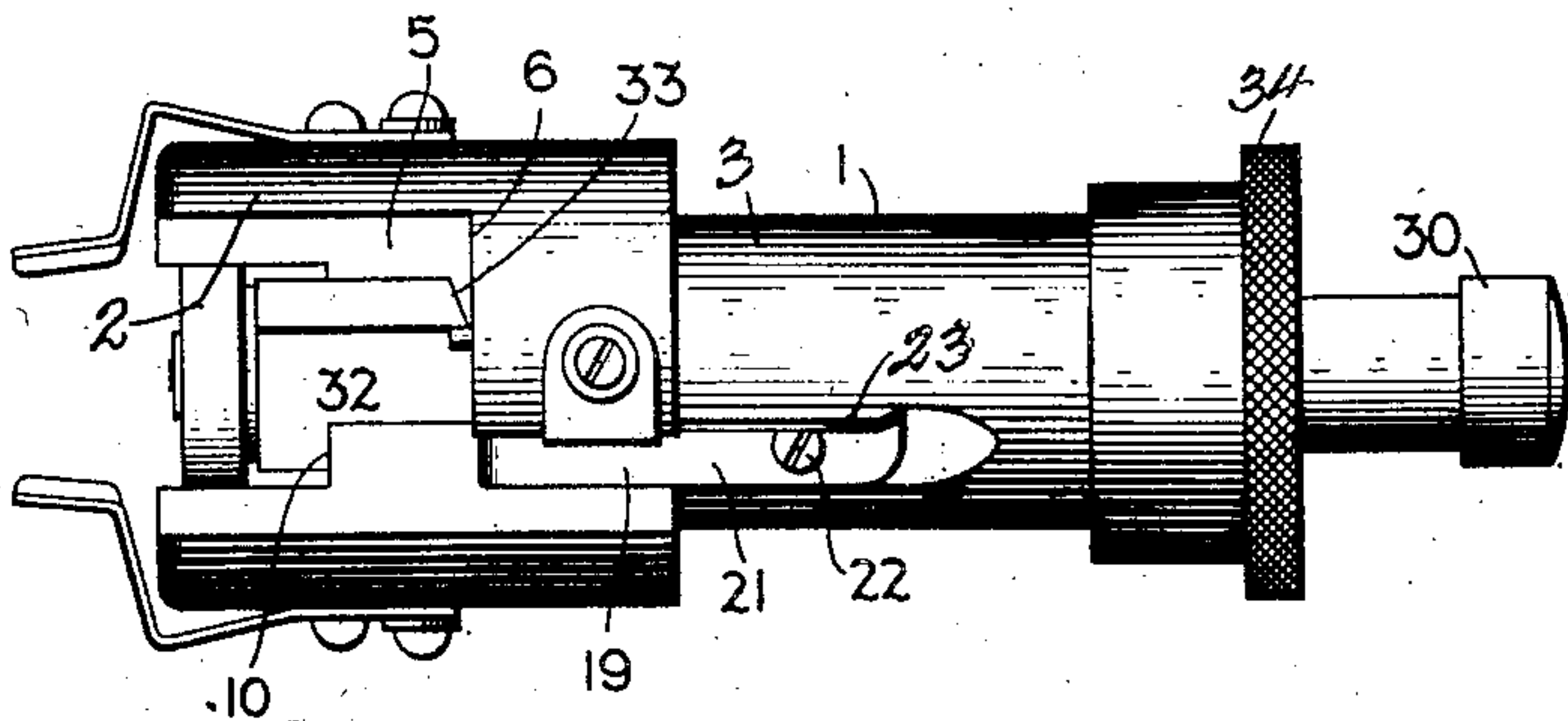


Fig. 2.



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Inventors:

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Charles H. Hill.  
by *Albert H. Davis* Atty.

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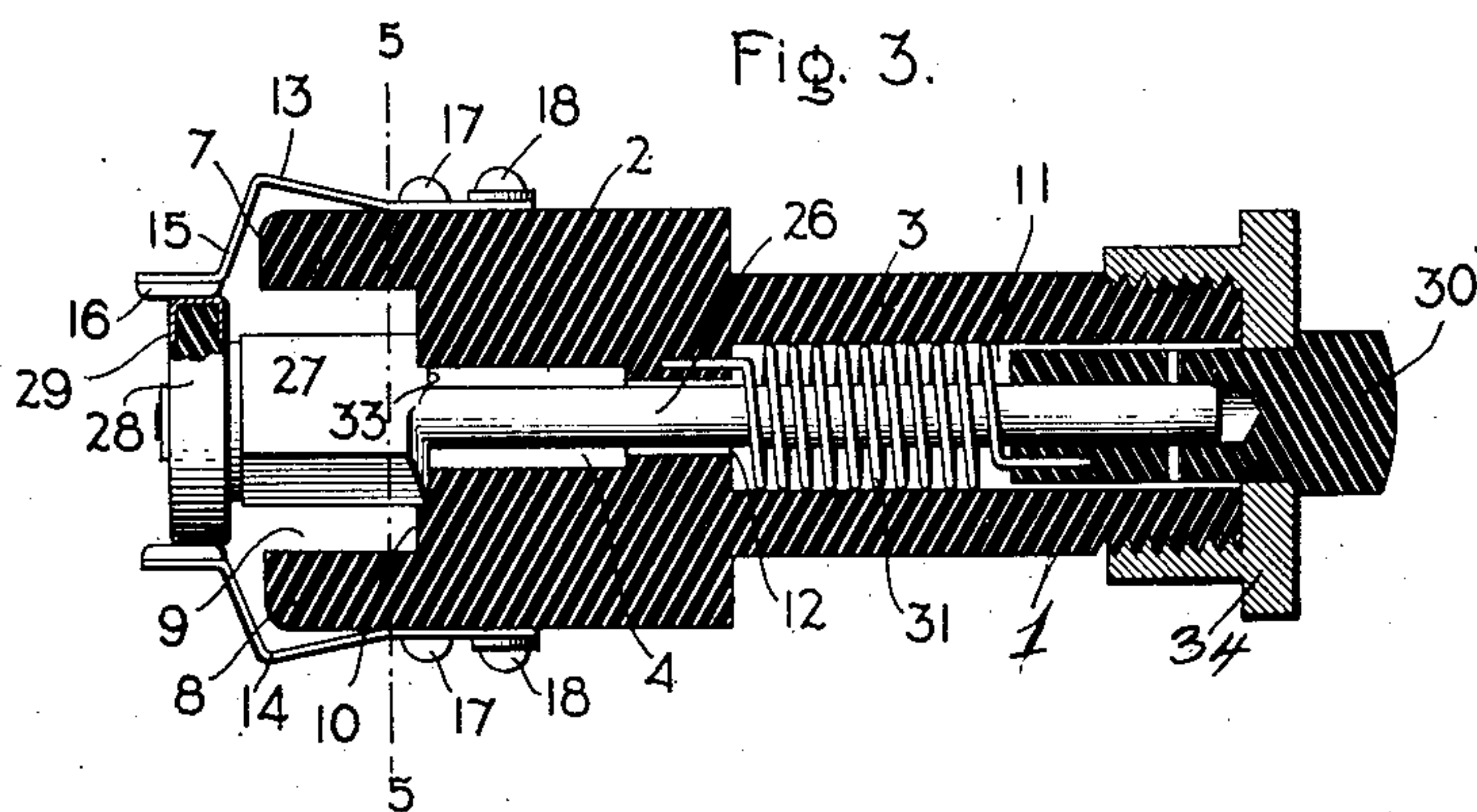


Fig. 4.

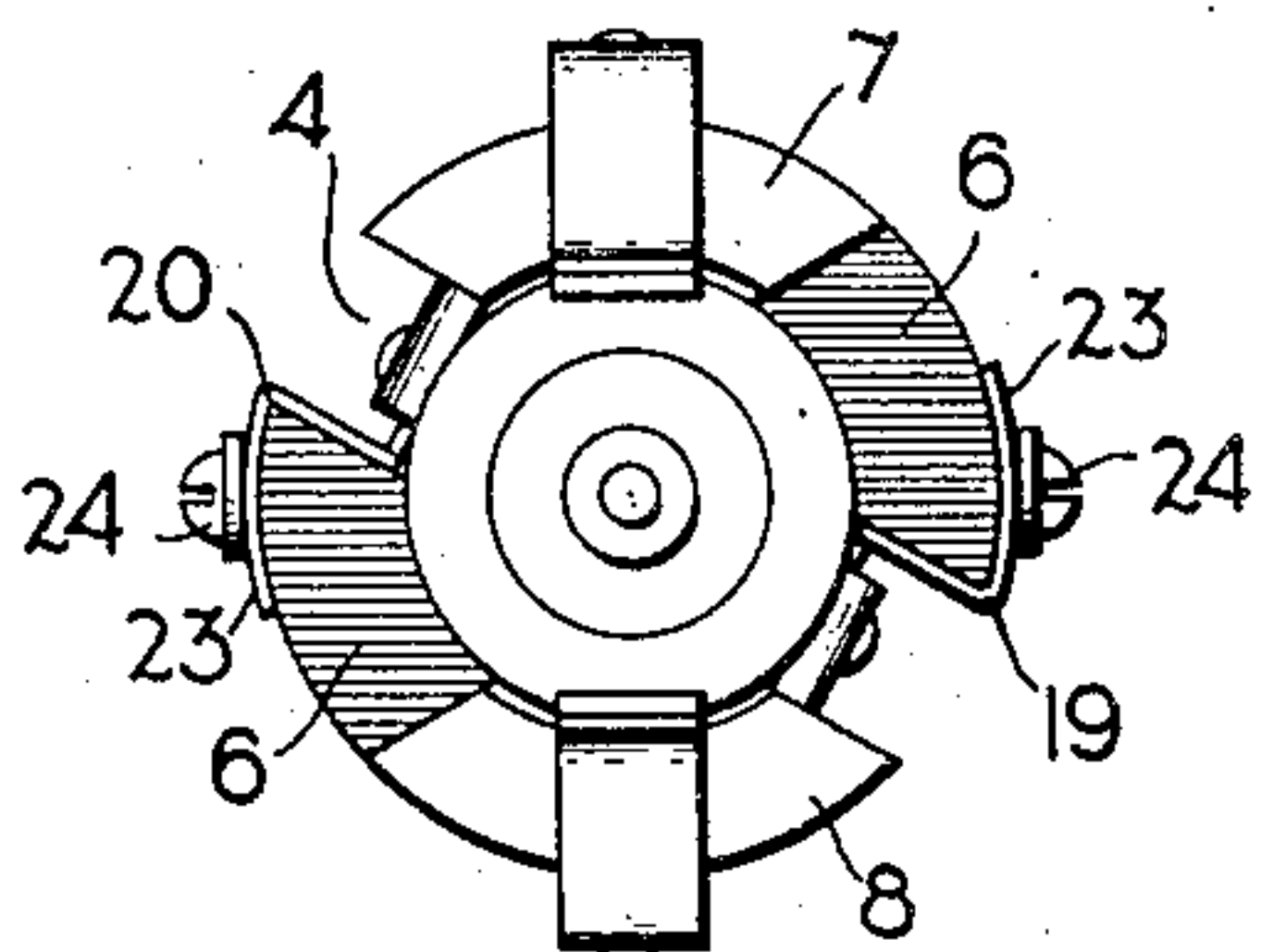


Fig. 5.

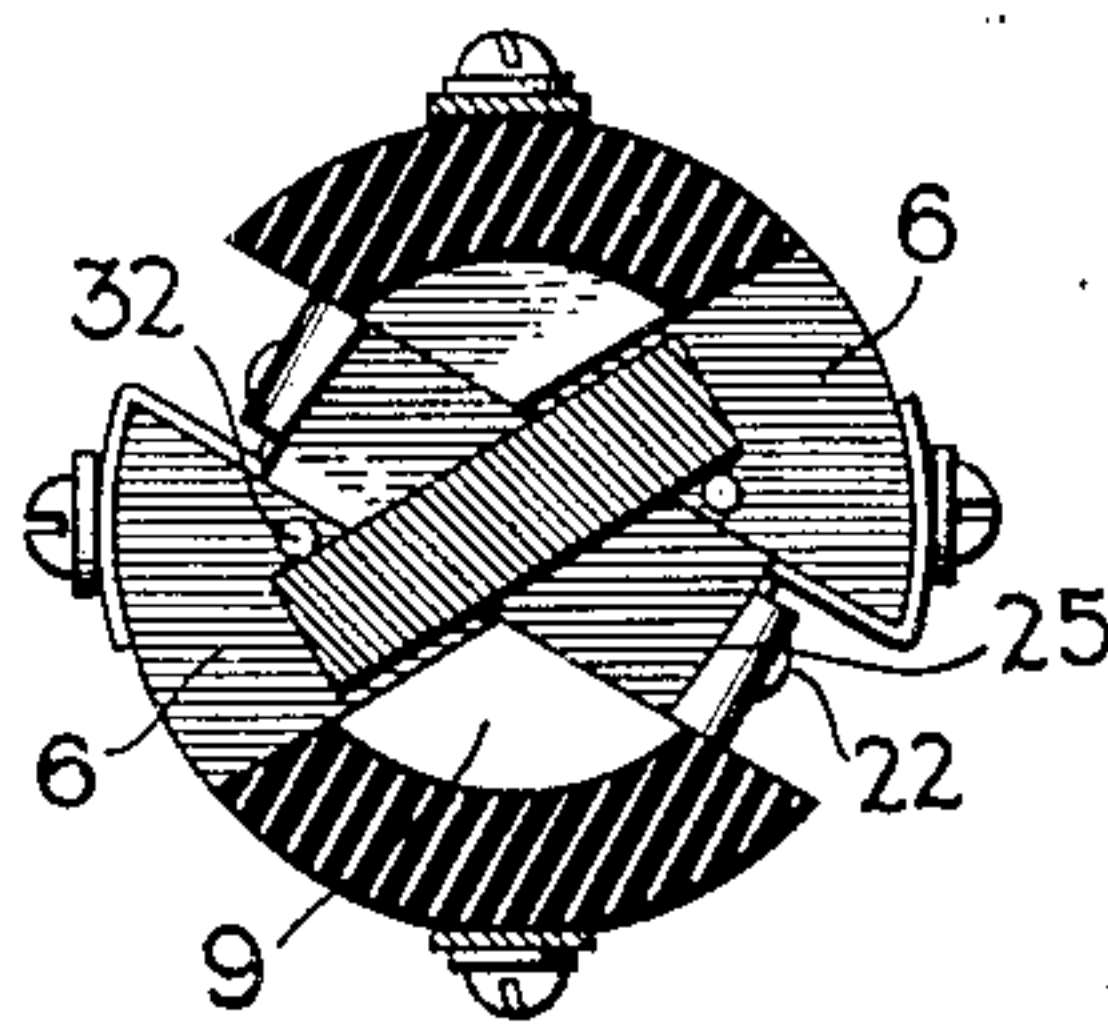
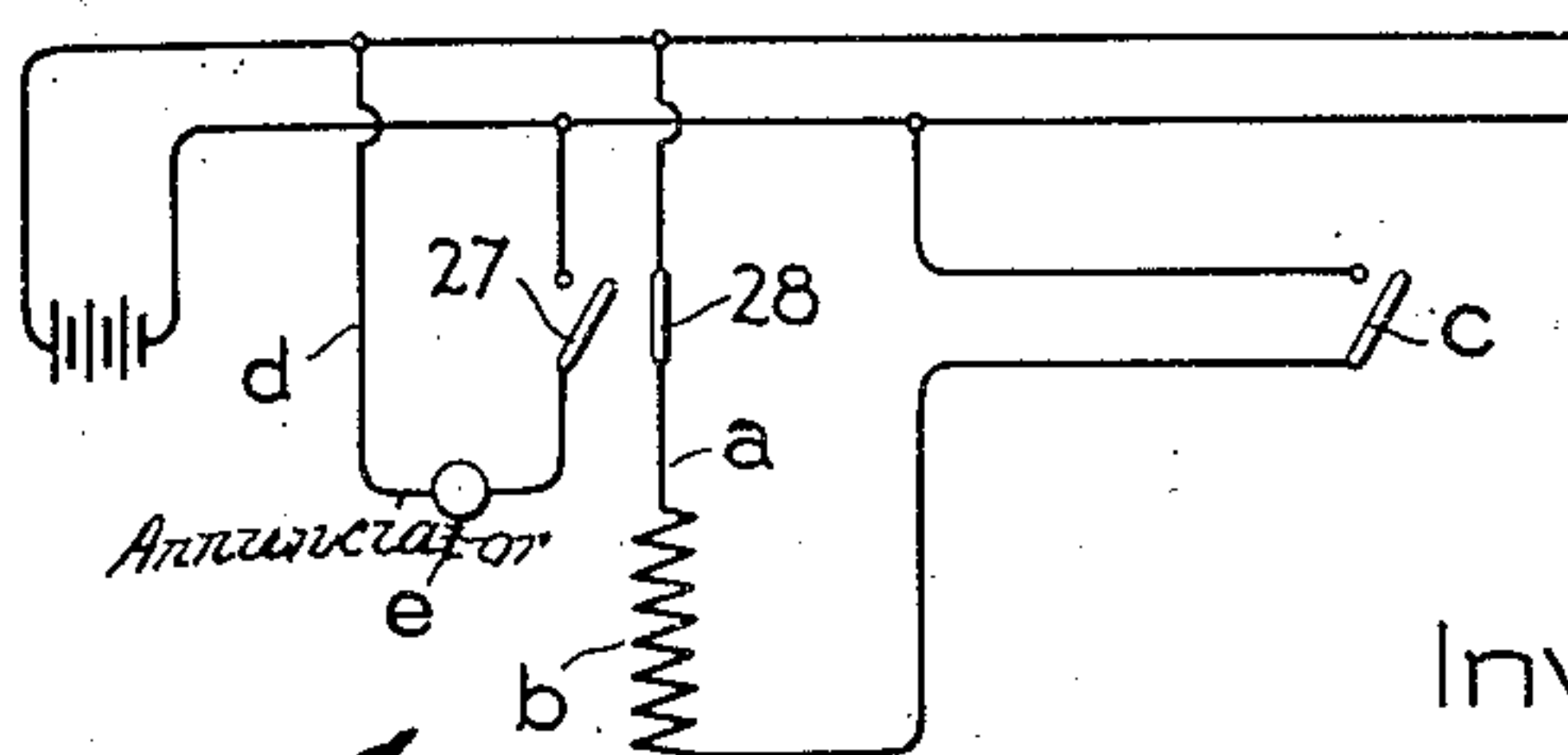


Fig. 6.



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# UNITED STATES PATENT OFFICE.

EDWARD M. HEWLETT AND CHARLES H. HILL, OF SCHENECTADY, NEW YORK, ASSIGNORS TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## CUT-OUT.

No. 845,236.

Specification of Letters Patent.

Patented Feb. 26, 1907.

Application filed May 2, 1904. Serial No. 205,894.

*To all whom it may concern:*

Be it known that we, EDWARD M. HEWLETT and CHARLES H. HILL, citizens of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Cut-Outs, of which the following is a specification.

The present invention relates to mechanical cut-out devices for making and breaking electric circuits, and has for its object the provision of a device of this character particularly adapted for use in connection with suitable signal means for audibly or visually indicating the condition of some remote or concealed apparatus or parts thereof.

In carrying out our invention we provide a suitable base of insulating material having stationary electric contacts fixed thereon, a movable contact member normally biased to move into engagement with the stationary contacts and having a projecting part adapted to be engaged and held in inoperative position by some movable part of the apparatus the change of condition of which is to be announced, and a means for locking by hand the movable member in inoperative position in order that the circuit through the signal device may be interrupted in case it becomes necessary or desirable to allow the apparatus to remain in abnormal condition, the locking means being so arranged and constructed that it will be released automatically upon restoration of the apparatus to its normal condition. Moreover, in order to adapt our cut-out device to control an auxiliary circuit in addition to the signal-circuit we provide a second set of stationary contacts upon the insulating-base in such position that the movable contact will engage therewith when in the opposite extreme position from that in which it operates to close the signal-circuit.

For a more complete understanding of our invention reference may be had to the following detailed specification and the accompanying drawings, forming a part thereof, in which—

Figure 1 is a side elevation of a switch-board and circuit-breaker, having mounted in operative relation therewith a cut-out device embodying one form of our invention. Fig. 2 is a side elevation of the cut-out device

with the movable contact in locked position. Fig. 3 is a longitudinal section thereof with the movable contact in extreme inner position. Fig. 4 is a rear end elevation. Fig. 5 is a transverse section taken on line 5 5 of Fig. 3, and Fig. 6 is a diagrammatic representation of a system of connections.

The base 1 of our cut-out device is made of wood or other insulating material with a large cylindrical rear section 2 and a smaller cylindrical forward section 3. The rear section is provided with a diametrical slot 4, which extends about three-fourths of its length, and fan-shaped recesses 5, extending in opposite directions from the sides of the slot 4, whereby ledges 6 are provided in a plane transverse to the axis of the base, and in the ends of the prongs 7 and 8 of the base thus formed a cylindrical recess or chamber 9 is provided with its end wall 10 located at about one-third the length of the large section 2. The small section 3 is provided with a concentric cylindrical chamber 11, which connects at its inner end, by means of a small aperture 12, with the bottom of the transverse slot 4.

To the outside of the pronged ends of the base are secured stationary contacts 13 and 14, each consisting of a strip of phosphor-bronze or other spring metal, with its free end bent over the end of the base and turned outwardly and provided with a bearing-shoe 16, while the other end is secured to the base by a screw 17 and carries a binding-screw 18, by which a conductor-wire of the auxiliary circuit may be connected thereto. To the sides of the large section 2, near the end of the slot 4, are secured a second pair of stationary contacts 19 and 20, each consisting of a sheet-metal bracket 21, secured in a shallow channel formed in the side of the small base-section 3 by a screw 22 and having extending therefrom at its side a projecting arm 23, which is bent sidewise and provided with a binding-screw 24 and having its free end bent over and inwardly to form a spring contact-surface 25.

The movable switch member consists of a shaft 26, which extends axially through the base and carries at its rear end a flat metallic head 27, adapted to normally rest in slot 4, with its edges in engagement with contacts



19 and 20, and on the outer end of the head 27 is closely mounted an insulating-disk 28, having a metallic peripheral band 29, adapted to engage the contacts 13 and 14. The forward end of the shaft 26 is secured to an insulating-button 30, and between the inner end of the button and the rear wall of the cylindrical chamber 11 is a helical spring 31, which has its ends bent out parallel to its axis and entered into holes in the respective parts, so that the movable switch member is held under spring tension both longitudinally and rotarily.

The ledges 6 at the ends of the fan-shaped recesses 5 are provided with small shouldered projections or pins 32, behind which the shoulders 33 of the contact-head 27 may be caught after a partial rotation of the head against the rotary tension of the spring 31. The front end of the base 1 is provided with an external screw-thread for the reception of a nut 34, whereby the cut-out device may be clamped into position, as indicated in Fig. 1, with the push-button in 30 operative relation to the apparatus whose change of condition is to be announced.

This apparatus, as shown, consists of a well-known form of circuit-breaker, having main stationary contacts 35 36, mounted upon an insulating-slab 37, and a frame 38, upon which are fulcrumed the operating-lever 39 and the several movable parts of the switch, which carry the main movable contact 40 and the shunt-contact 41. When the circuit-breaker is moved into closed position, as shown in Fig. 1, a projecting pin 42, carried by the lever of the shunt-contact member 41, forces the movable member of the cut-out device into its extreme rear position, connecting electrically the contacts 13 and 14, which, as indicated at *a* in Fig. 6, may be connected in a shunt-circuit with a trip-coil *b* of the circuit-breaker, so that it may be actuated from some remote point by closing a hand-switch *c*. As soon as the circuit-breaker operates to open the main circuit the push-button 30 of the cut-out is released and moves forward under the stress of its spring 31 until the head 27 engages the stationary contacts 19 20. This completes the circuit *d*, which may be provided in connection with a bell or annunciator *e*. This circuit will continue excited until the circuit-breaker is returned to normal position or until the push-button 30 is forced into intermediate position and given a partial rotation, so as to carry the shoulders 33 of the head 27 back of the pins 32 to lock it in inoperative position. When the circuit-breaker is again returned to closed position, the head 27 is automatically forced backward out of locked position and rotated under the stress of the spring 31 to its normal position.

We do not desire to restrict ourselves to the particular form or arrangement of parts

herein described and shown, since it is apparent that they may be changed and modified without departing from our invention.

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

1. The combination with a tubular base, of stationary contacts mounted upon opposite sides of said base, a movable contact having biasing means tending to move it angularly and longitudinally of the base into engagement with the stationary contacts, and means for locking said movable contact in inoperative position when angularly rotated.

2. The combination with a base having a longitudinal slot extending therethrough and recesses extending from the sides of the slot, of stationary contacts mounted on said base at opposite ends of said slot, a movable contact located in said slot and having biasing means tending to move it into engagement with said stationary contacts, and means located in said recesses for locking said movable contact in inoperative position.

3. The combination with a base having a longitudinal slot and transverse recesses, of stationary contacts mounted thereon at opposite ends of said slot, a movable contact having biasing means tending to move it longitudinally into engagement with said stationary contacts and rotarily parallel to the sides of said slot, and shouldered projections located in said recesses and adapted to engage said movable contact when the latter is partially rotated.

4. The combination with a base having a slot extending into one end and transverse recesses extending from opposite sides of said slot with end ledges out of the plane of the bottom of said slot, of stationary contacts mounted on said base at the ends of said slot, a movable contact, means tending to move said movable contact longitudinally into engagement with said stationary contacts and rotarily into parallelism with the sides of said slot, and shouldered projections extending from said end ledges and adapted to engage said movable contact when the latter is partially rotated.

5. The combination with a base, of two sets of stationary contacts mounted thereon in different planes, a longitudinally-movable contact adapted to engage the respective pairs of stationary contacts at opposite ends of its travel, biasing means tending to move said movable contact into engagement with one set of stationary contacts, and means for locking said movable contact in intermediate inoperative position.

6. The combination with a base, of two sets of stationary contacts mounted thereon in different planes, a longitudinally-movable contact, biasing means tending to move it into engagement with one set of contacts, and means located between the planes of the



stationary contacts for locking the movable  
contact in inoperative position, said parts  
being so arranged that a force applied in one  
direction to said movable contact will move  
5 it from engagement with one set of contacts  
into engagement with the other set or from  
its locked position into engagement with the  
latter set of contacts.

In witness whereof we have hereunto set  
our hands this 30th day of April, 1904.

EDWARD M. HEWLETT.  
CHARLES H. HILL.

Witnesses:

BENJAMIN B. HULL,  
HELEN ORFORD.