

No. 693,799.

Patented Feb. 18, 1902.

H. HUBBELL.

PULL SOCKET.

(Application filed July 24, 1901.)

(No Model.)

Fig. 1.

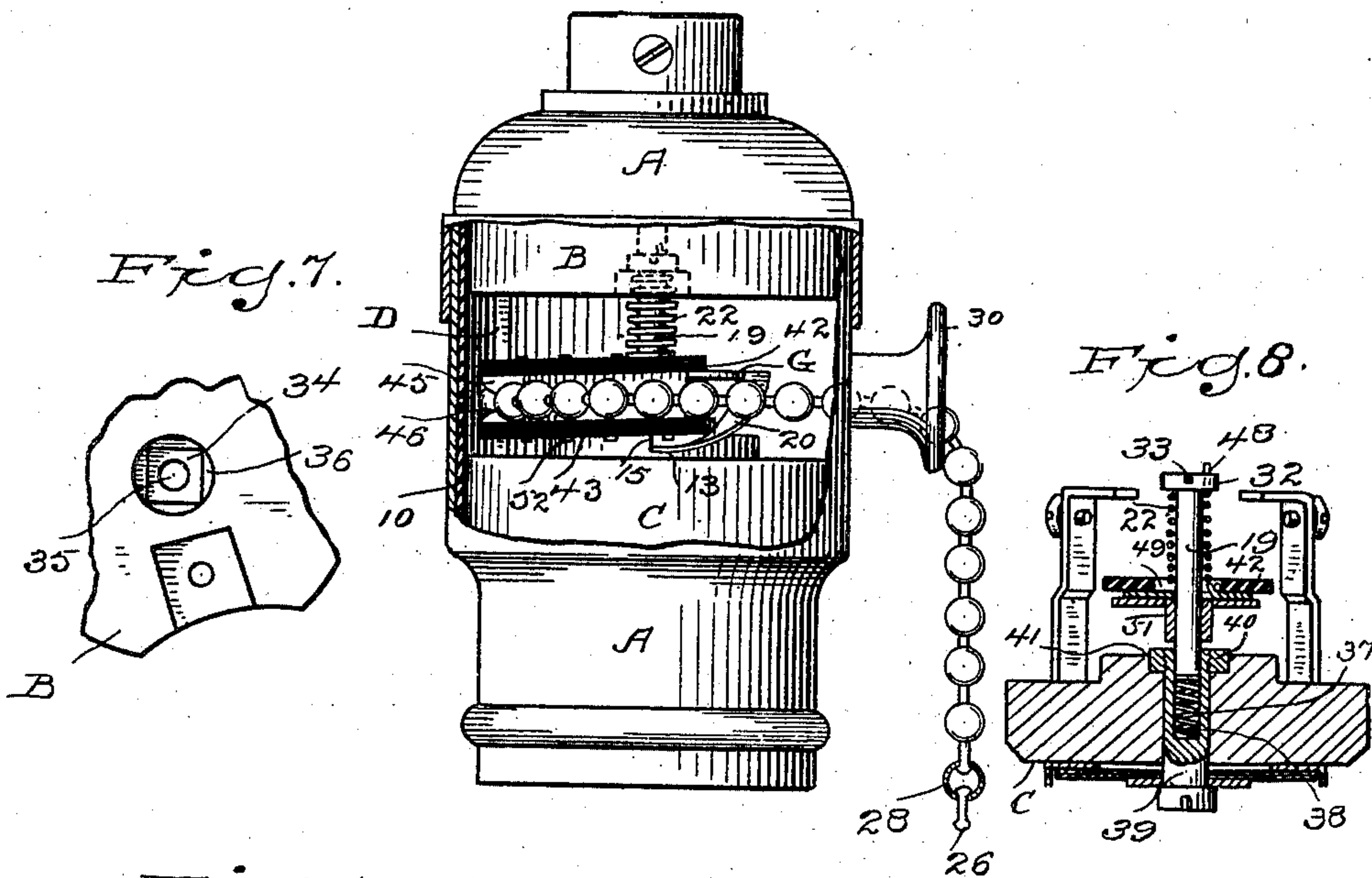


Fig. 7.

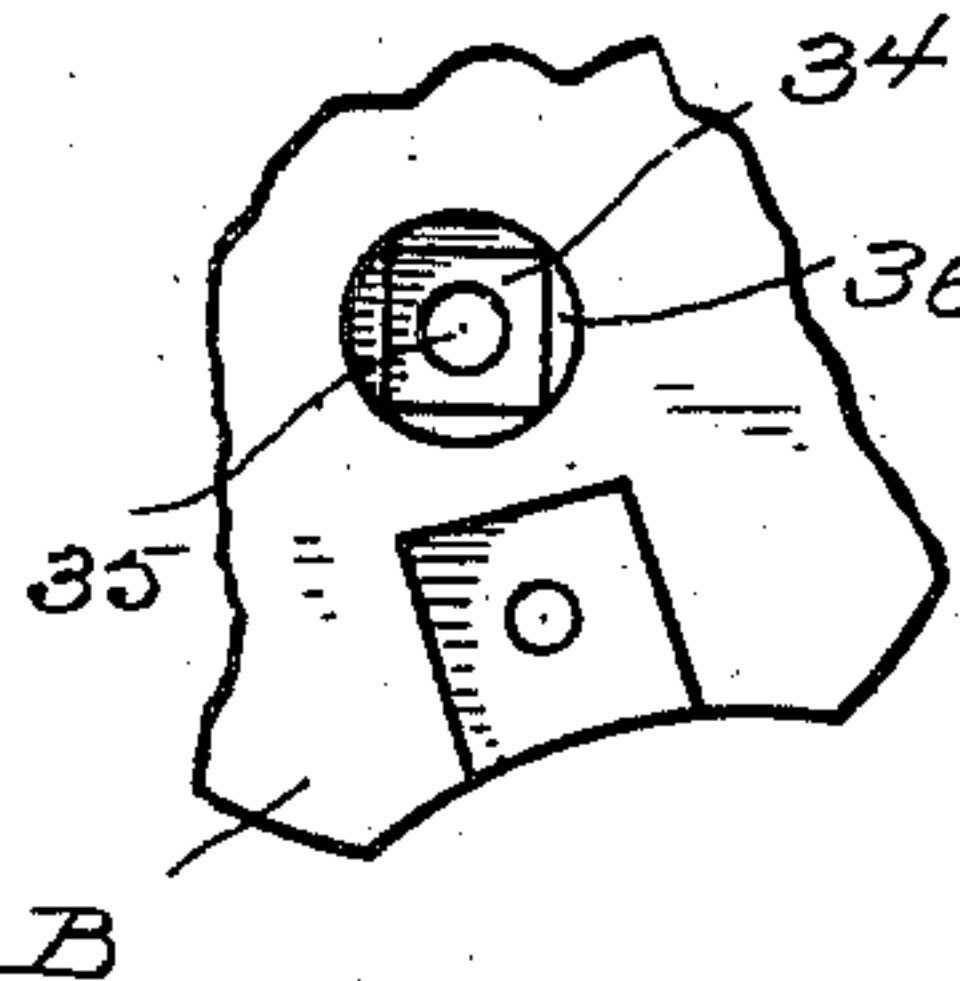


Fig. 8.

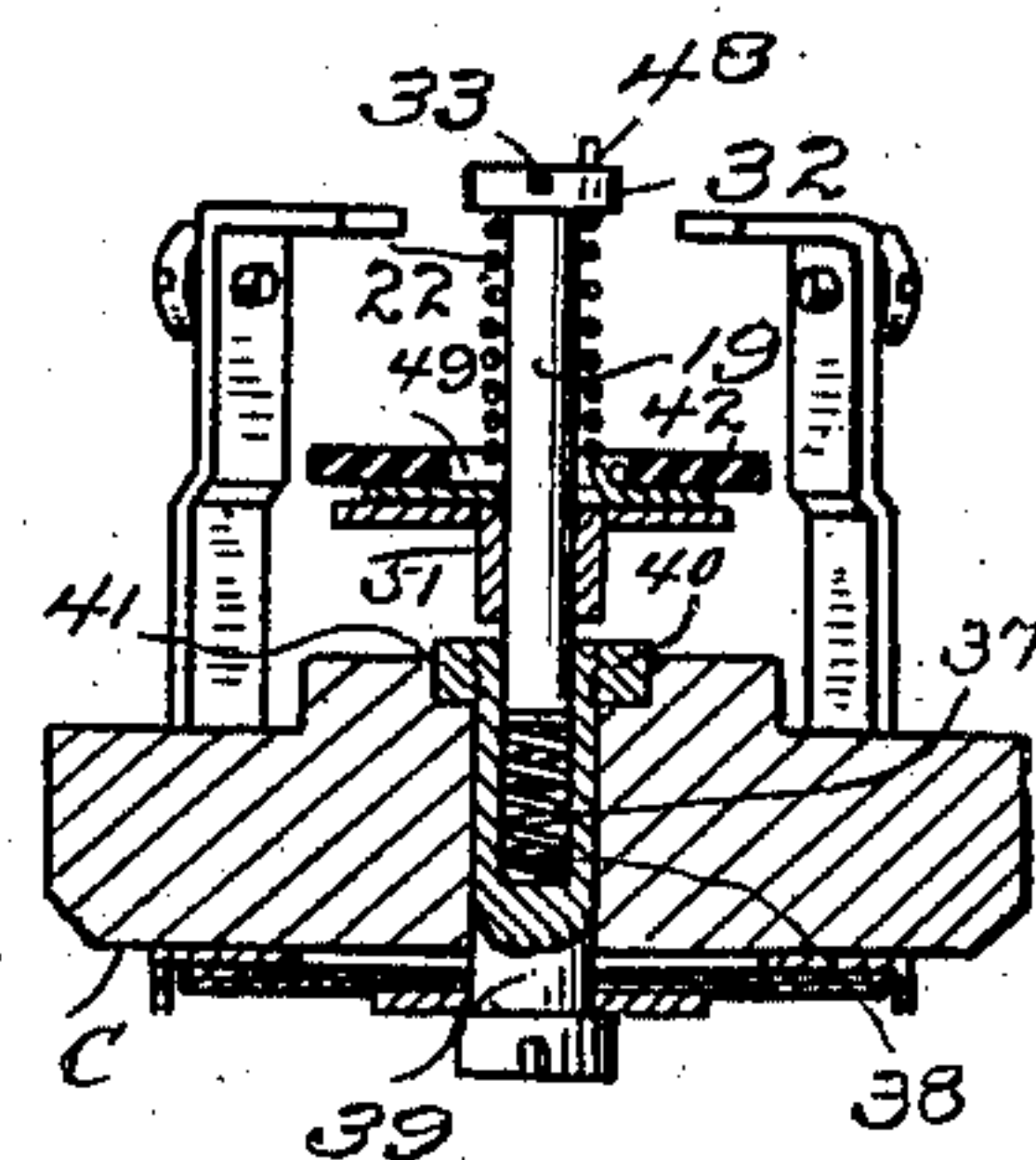


Fig. 4.

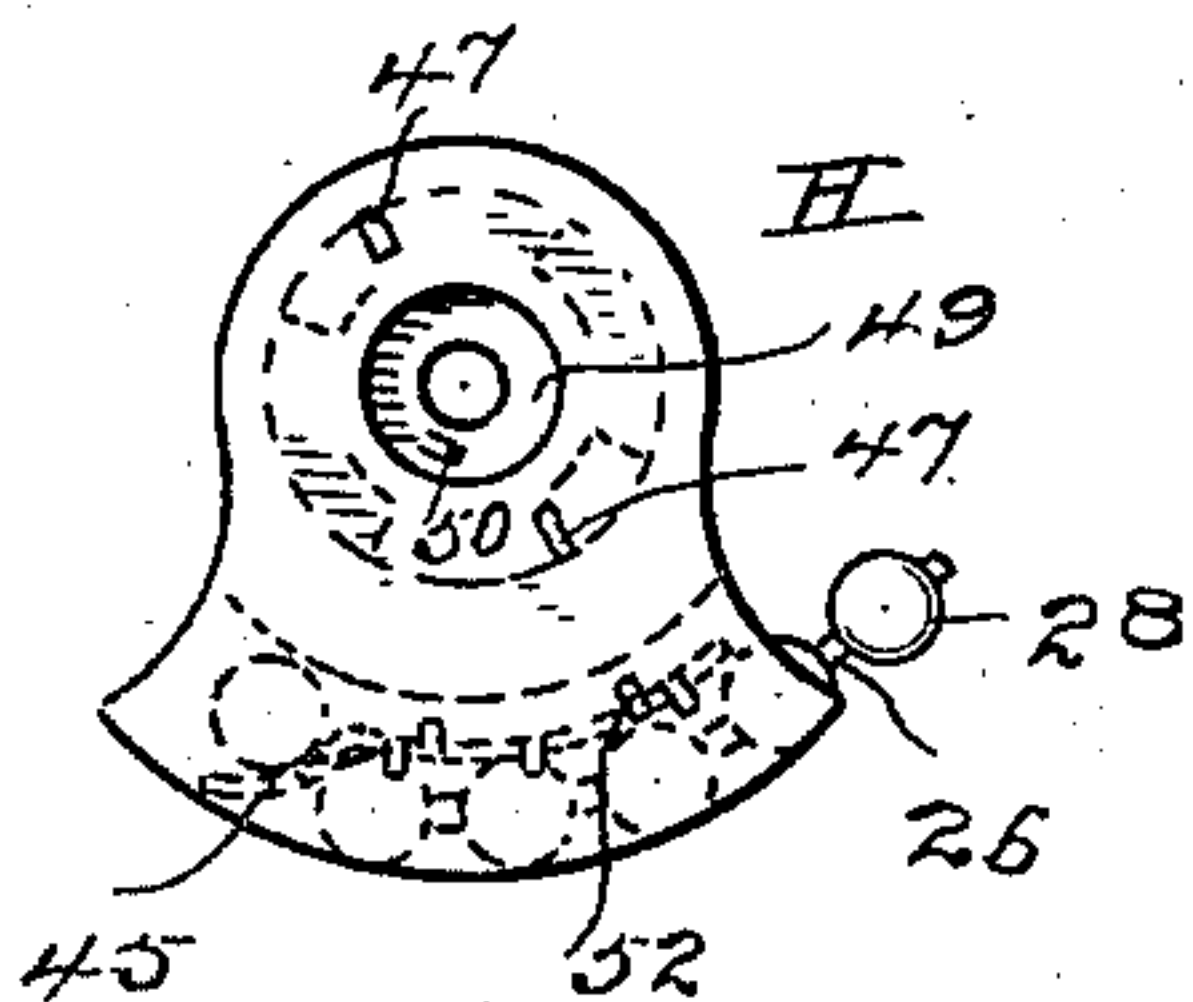


Fig. 2.

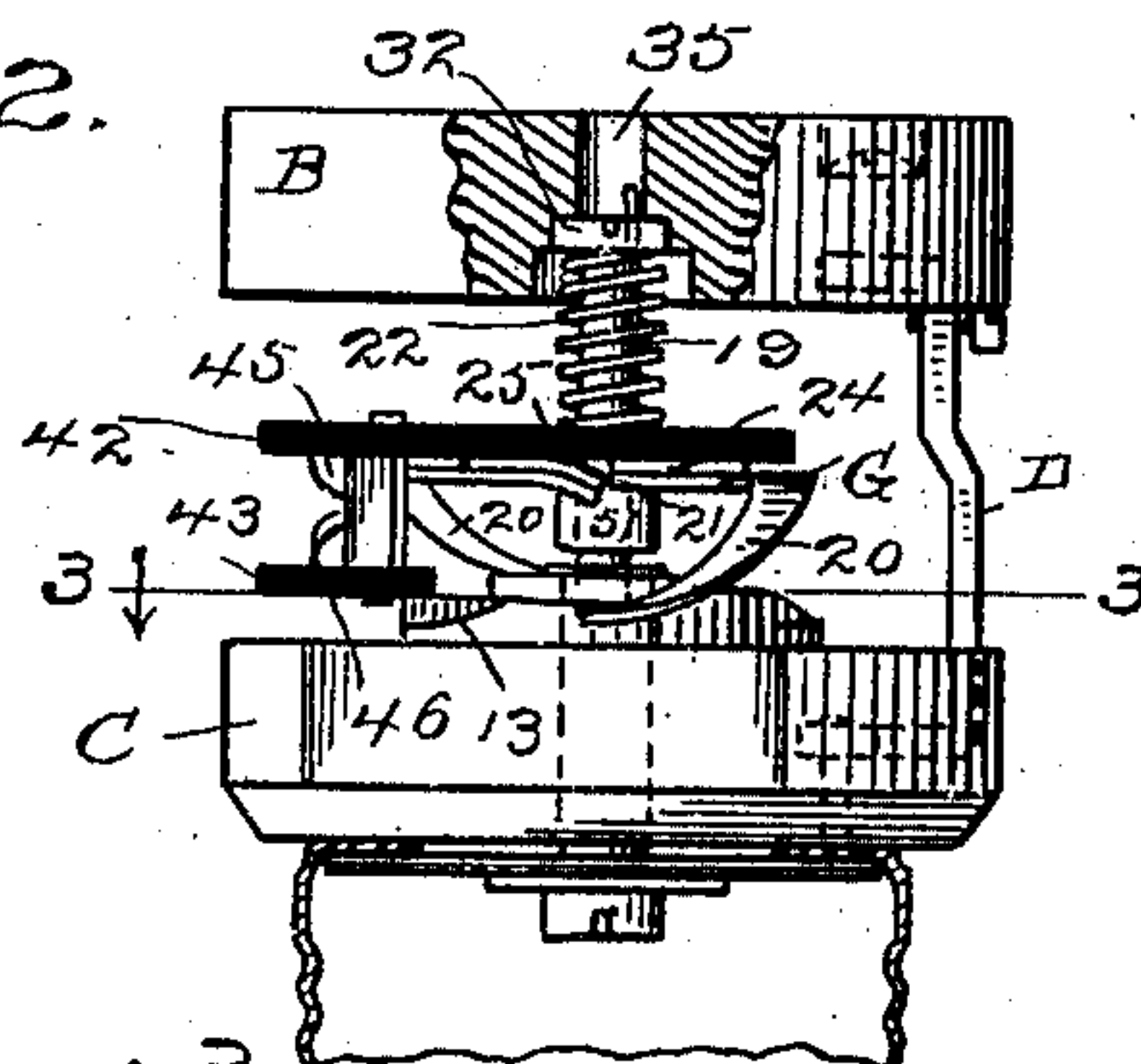


Fig. 5.

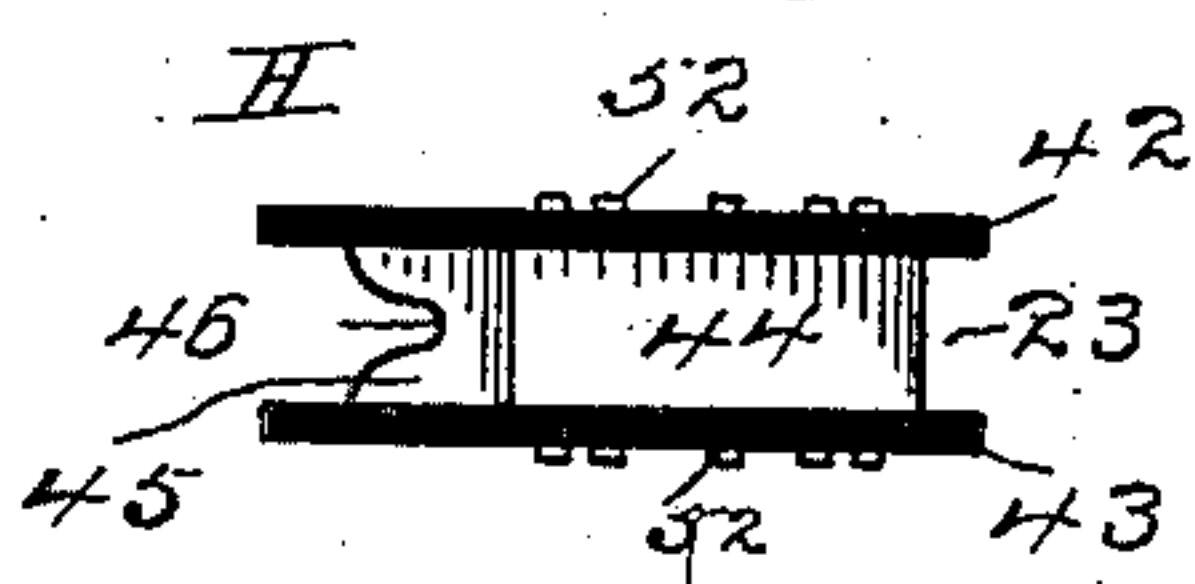


Fig. 3.

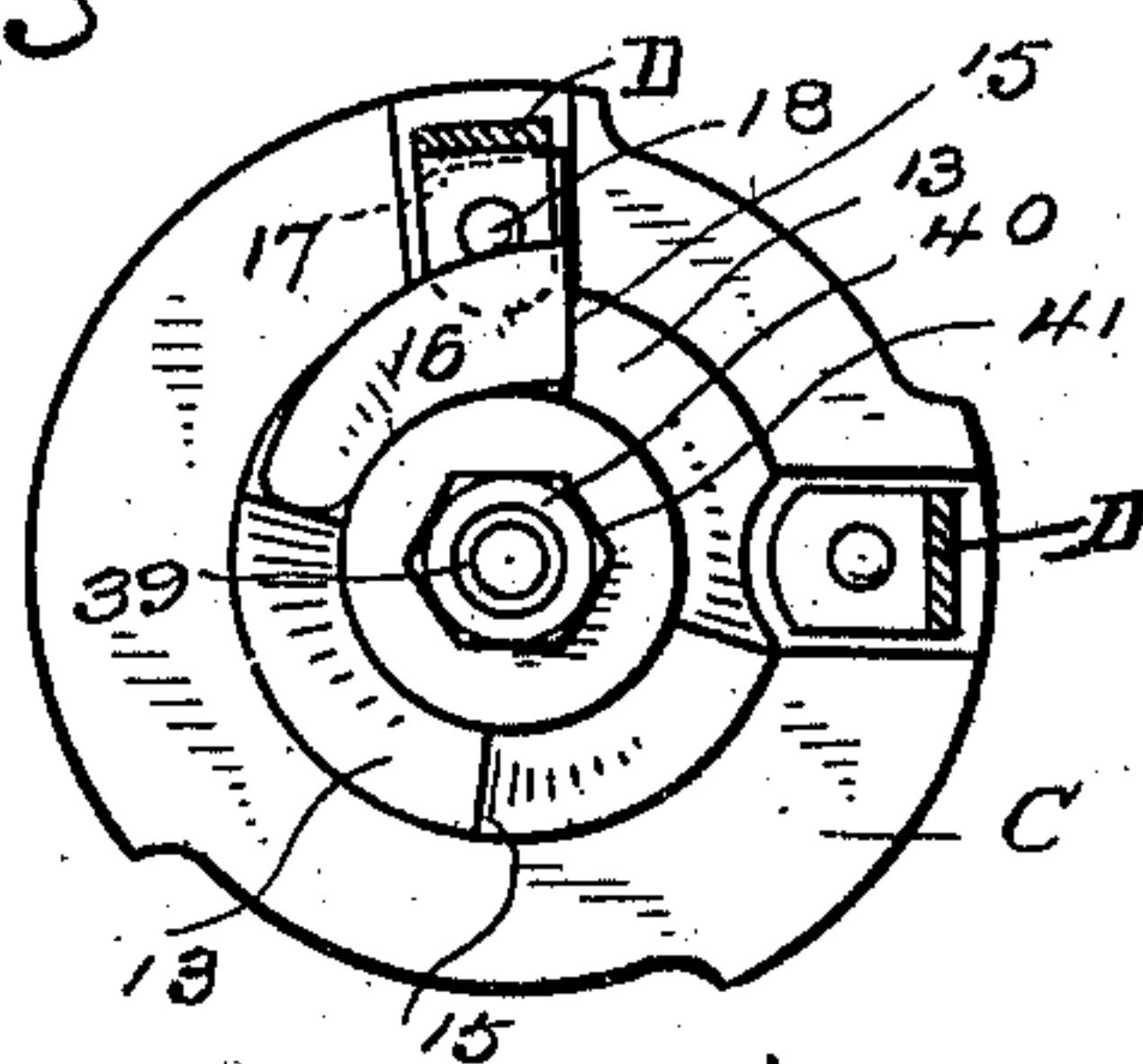
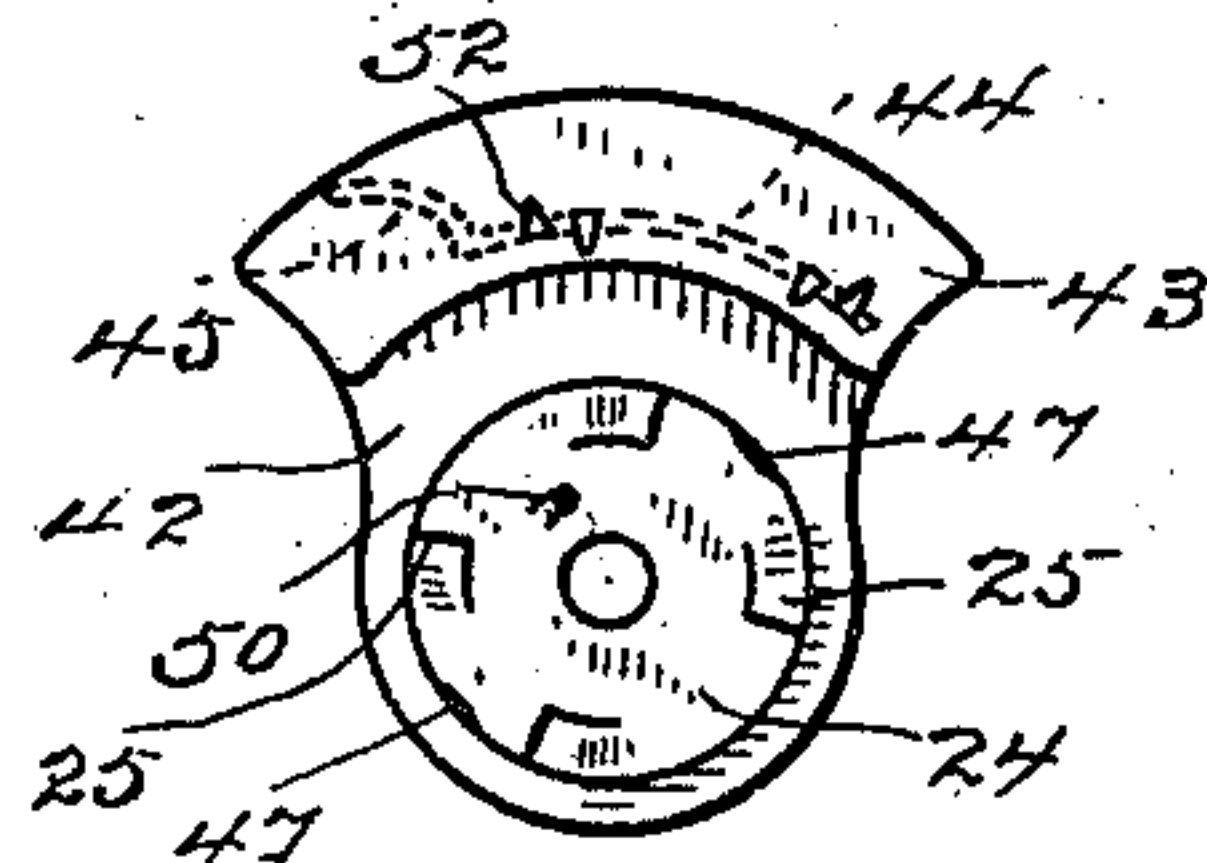


Fig. 6.



WITNESSES.

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UNITED STATES PATENT OFFICE.

HARVEY HUBBELL, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO THE HUBBELL, GRIER ELECTRIC COMPANY, OF BRIDGEPORT, CONNECTICUT, A CORPORATION OF NEW YORK.

PULL-SOCKET.

SPECIFICATION forming part of Letters Patent No. 693,799, dated February 18, 1902.

Application filed July 24, 1901. Serial No. 69,566. (No model.)

To all whom it may concern:

Be it known that I, HARVEY HUBBELL, a citizen of the United States, residing at Bridgeport, county of Fairfield, State of Connecticut, have invented a new and useful Pull-Socket, of which the following is a specification.

My invention relates to the class of pull-sockets illustrated and described in my former Letters Patent, No. 565,541, dated August 11, 1896, and No. 649,308, dated May 8, 1900, and has for its object to still further improve the construction and mode of operation of this class of sockets. With this end in view I have devised the novel improvements in this class of sockets which I will now describe, referring to the accompanying drawings, forming part of this specification, and using reference characters to designate the several parts.

Figure 1 is an elevation of my novel socket on an enlarged scale, a portion of the shell and insulating-lining being broken away; Fig. 2, an elevation, partly broken away, of the switch detached; Fig. 3, a section on the line 3-3 in Fig. 2; Fig. 4, a plan view of the insulating operating-wheel detached; Fig. 5, an edge view corresponding with Fig. 4; Fig. 6, an inverted plan view of the insulating operating-wheel; Fig. 7, an inverted plan view of a portion of the upper insulating-block; and Fig. 8 is a detail sectional view, to be read in connection with Fig. 2, illustrating means for regulating the tension of the operating-spring.

A denotes the shell, which is provided with an insulating-lining, as 10; B, the upper insulating-block; C, the lower insulating-block; D, standards by which the insulating-blocks are connected, and G a rotatable contact-plate having a hub 51, two downwardly-extending spring-arms 20, and shoulders 21. The upper surface of the lower insulating-block is provided with four inclines, (indicated by 13,) each terminating in an abrupt shoulder 15, and one of said inclines having a metal plate 16, with an extension 17, shaped to lie in contact with the base of one of the standards, as in my former patent, No. 649,308,

and retained in place by a screw 18, which also secures the standard to the lower insulating-block. Above contact-plate G is an insulating operating-wheel H of novel construction.

19 denotes a pin on which the contact-plate and the insulating operating-wheel are adapted to rotate freely and which is provided with an angular head 32, having a slot 33 in its outer face. The upper insulating-block B is provided on its under side with an angular socket 34, which is adapted to receive head 32 and retain the pin against rotation, and a hole 35, leading through the block from the top. Below the angular socket is a circular opening 36, which is adapted to retain the angular head against lateral displacement, but permit it to be freely rotated therein in adjusting the tension of the operating-spring, as will presently be fully explained. The lower end of pin 19 rests upon a relatively strong spring 37, lying in a socket 38 in a screw 39, which passes upward through the lower insulating-block and engages an angular nut 40, seated in a socket 41 in the upper side of said block.

Any strong and flexible metallic chain may be used to operate wheel H. I preferably, however, on account of its great strength and flexibility, use a chain of the style illustrated in the drawings. This chain consists of bars 26, headed at each end, and balls 28, having openings in opposite sides, into which the heads of the bars are passed, after which the metal of the balls is closed inward upon the bars, so as to inclose the heads. A trumpet-shaped metallic guard 30 is rigidly secured to the shell through which the chain passes, as is clearly shown.

My novel insulating operating-wheel comprises upper and lower insulating-plates 42 and 43, both of which are riveted or otherwise secured to a curved metallic strip 44, which lies edgewise between them, strip 44 being set inward from the edge of the wheel far enough to form, with insulating-plates 42 and 43, a groove 23 to receive the chain. The end of strip 44 farthest from guard 30 is turned outward toward the edges of the plates to form

a socket 45, adapted to receive the last ball or other projection of the chain, and is provided with a notch 46, which just receives the last bar or reduced portion thereof.

5 The socket and notch provide a strong and perfectly reliable means of attaching the chain to the wheel and adjusting it, and one that permits convenient disengagement of the chain therefrom should it be desired to

10 shorten the chain or attach a new one, it being obvious that to shorten a chain it is simply necessary to remove the last ball from the socket and the last bar from the notch, pull the chain in as far as may be required, remove

15 a portion, and again place the last ball and contiguous bar in engagement with the socket and notch. On the under side of upper insulating-plate 42 of wheel H and rigidly secured thereto, as by lugs 47, is a metallic plate 24,

20 having downwardly-extending lugs 25, which are adapted to engage the shoulders 21 on contact-plate G, as in my former patent, No. 649,308. Lugs 47 are shown as formed integral with plate 24, and the plate is attached

25 to the insulating-plate by placing the lugs through the latter and heading them down. The insulating-plates may be made of hard rubber, vulcanized fiber, or any suitable material and of any preferred shape. Plate 43

30 is shown as made smaller than plate 42 and not surrounding pin 19, and strip 44 is shown as provided with lugs 52 and as attached to plates 42 and 43 by passing the lugs through them and heading them down in the same

35 manner as lugs 47.

22 denotes an operating-spring surrounding pin 19. One end of this spring is shown as secured to head 32, as at 48, and the other end as engaging the insulating operating-

40 wheel. In the present instance the spring is shown as passing through a hole 49 in the upper insulating-plate of wheel H and engaging a lug 50 on metallic plate 24, which is secured to the underside of the insulating-plate.

45 This spring acts to return the insulating operating-wheel to its normal position after each actuation and also to retain the arms of the contact-plate closely in engagement with the inclines upon the lower insulating-block.

50 The movement of the insulating operating-wheel in either direction is limited by one of the standards, as in my former patent, No. 649,308. Should it be desired at any time to change the tension of the adjusting-spring,

55 the operator simply passes a small screw-driver through hole 35 in the upper insulating-block, engages the slot in head 32, and pushes said head downward out of angular socket 34 and into the circular opening 36 below it against the power of spring 37. The

60 pin may then be turned in either direction as much as may be required to give the desired tension to the operating-spring, after which the operator allows spring 37 to seat head 32

65 in the angular socket again, where it will be retained by said spring.

It will be readily understood from the drawings that when the chain is pulled the insulating operating-wheel will be oscillated until one side thereof will engage one of the stand- 70 ards, and through the engagement of lugs 25 on plate 24 with shoulders 21 on the contact-plate the latter will be carried forward with it, hub 51 providing ample bearing of the contact-plate on the pin and preventing tilting 75 in use. When either of the arms 20 of the contact-plate is in engagement with plate 16 upon one of the inclines 14 on the lower insulating-block, the circuit is closed. When neither of the arms 20 of the contact-plate is 80 in engagement with plate 16, the circuit is open. A full movement of the insulating operating-wheel—that is, until stopped by engagement with one of the standards—carries each of the spring-arms 20 over one of 85 the inclines. As soon as the pull on the chain is relieved spring 22 will return the insulating operating-wheel to its normal position—that is, until its movement in the other direction is stopped by the other standard. It will be 90 obvious, therefore, that if the circuit is closed a pull upon the chain will open it and if it is open a pull upon the chain will close it.

Having thus described my invention, I claim— 95

1. The insulating operating-wheel H comprising insulating-plates 42 and 43 and metallic plate 44 having notch 46.
2. In a device of the character described the combination with a chain having projec- 100 tions and reduced portions, of an insulating operating-wheel consisting of two insulating-plates secured to a metal strip lying edgewise between them so as to form a groove to receive the chain, one end of the strip being 105 turned outward to form a socket to receive a projection and having a notch to receive a reduced portion of the chain.
3. In a device of the character described the combination with an upper insulating- 110 block having an angular socket 34, a pin having an angular head engaging said socket and an insulating operating-wheel adapted to oscillate on the pin, of a lower insulating-block having a screw extending upward through it 115 and provided with a socket 38, a spring 37 in said socket upon which the pin rests and a spring 22, one end of which is attached to the head of the pin and the other to the insulating operating-wheel, so that when the head 120 is disengaged from socket 34 the pin may be turned in either direction to adjust the tension of spring 22, spring 37 acting to seat the head in the socket and retain spring 22 at the desired adjustment. 125

In testimony whereof I affix my signature in presence of two witnesses.

HARVEY HUBBELL.

Witnesses:

A. M. WOOSTER,
S. W. ATHERTON.