

H. HUBBELL.
KEY SOCKET SWITCH.
APPLICATION FILED DEC. 21, 1908.

921,839.

Patented May 18, 1909.

Fig. 1.

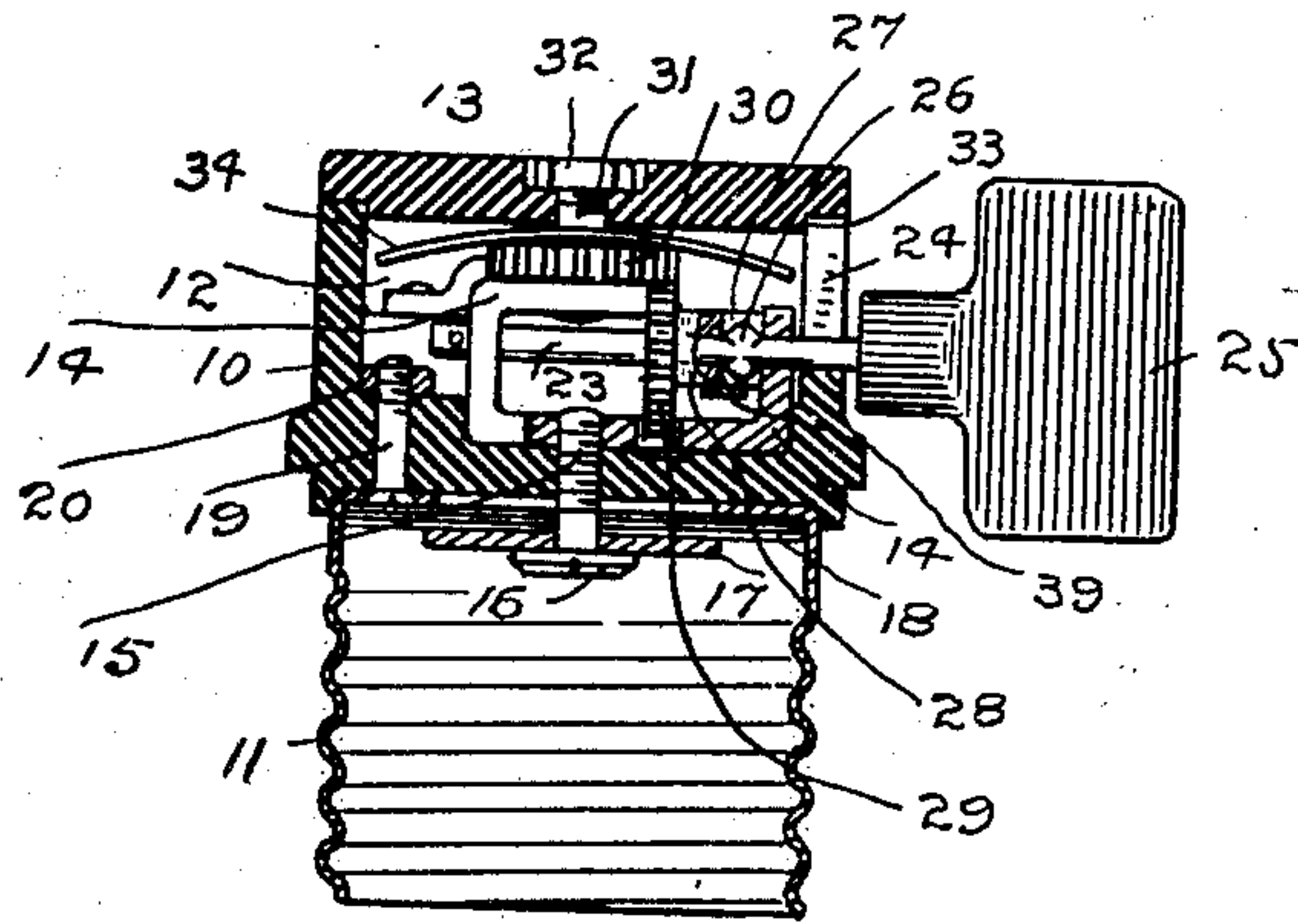


Fig. 2.

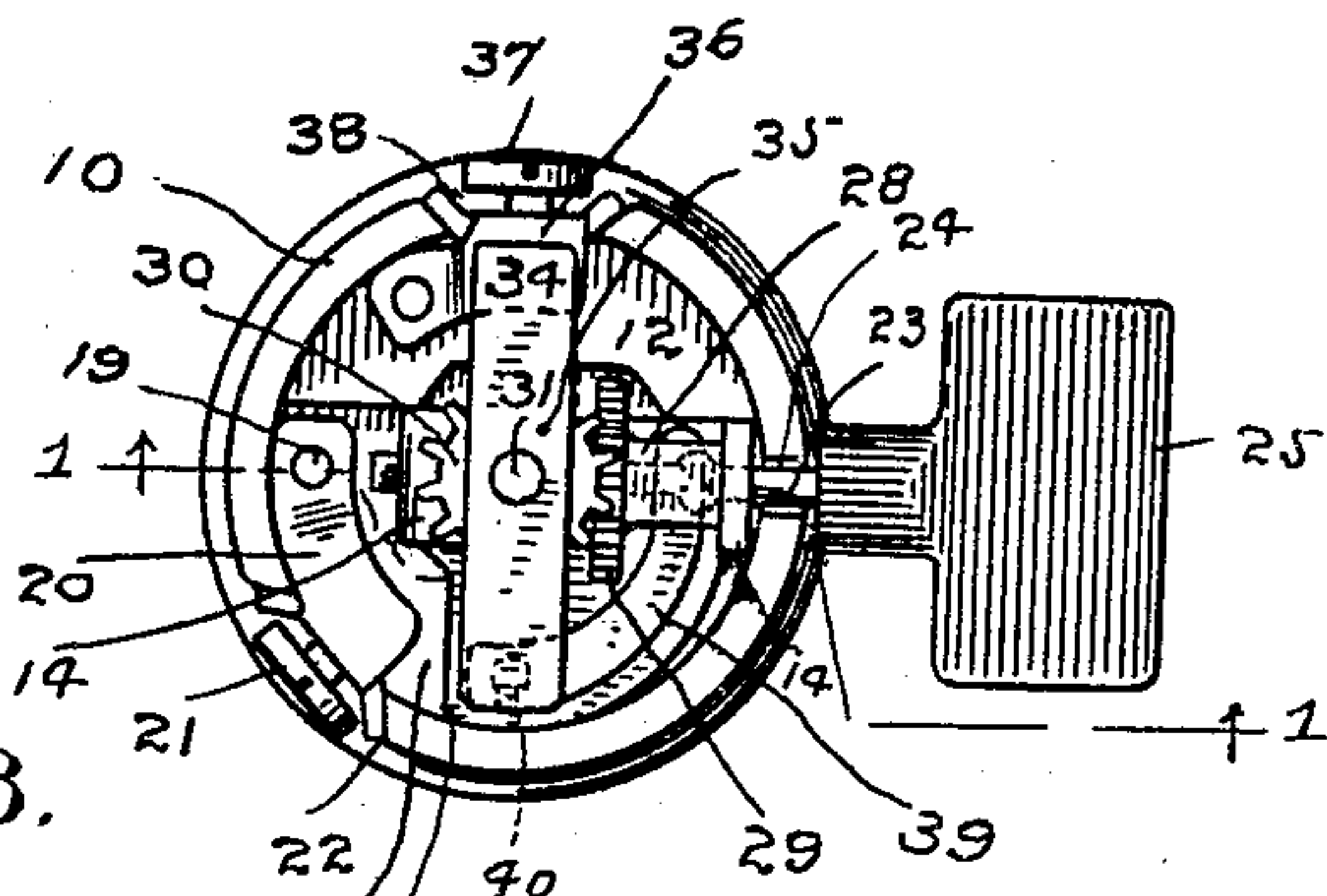
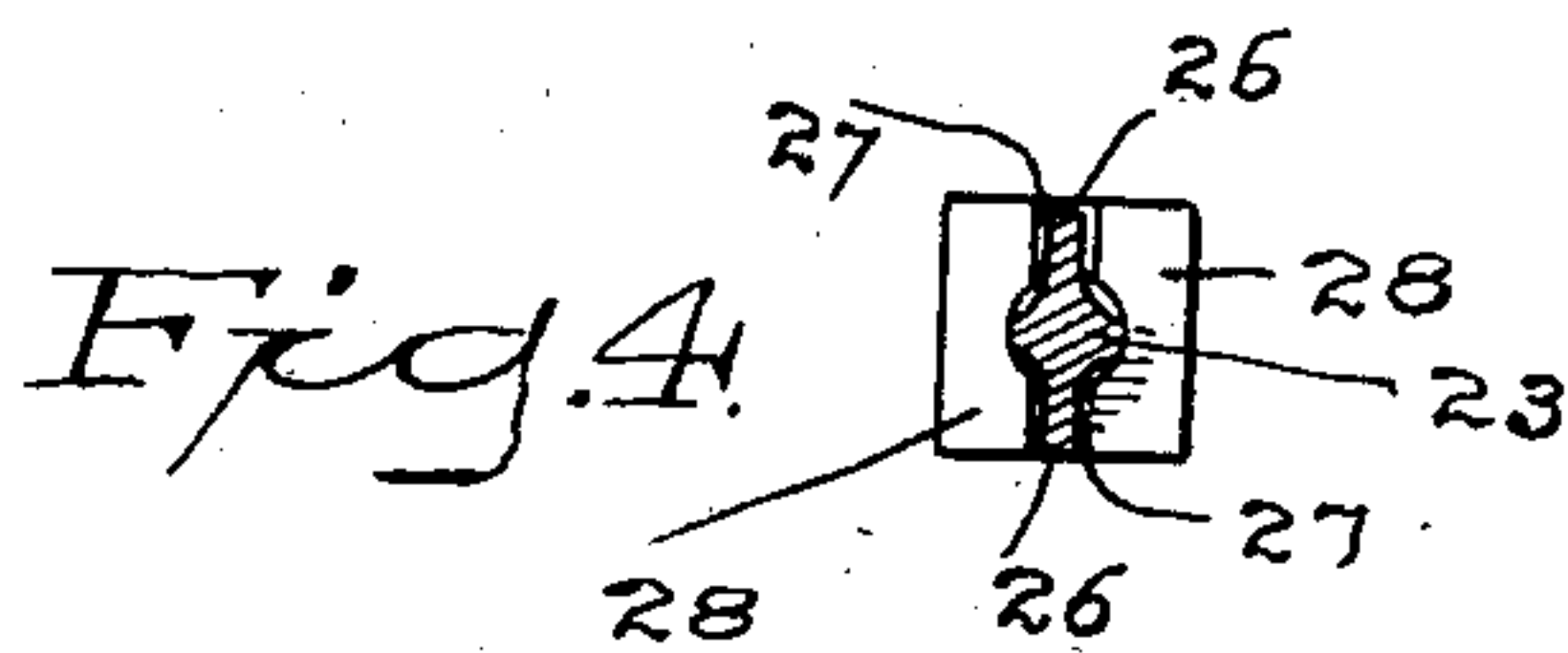
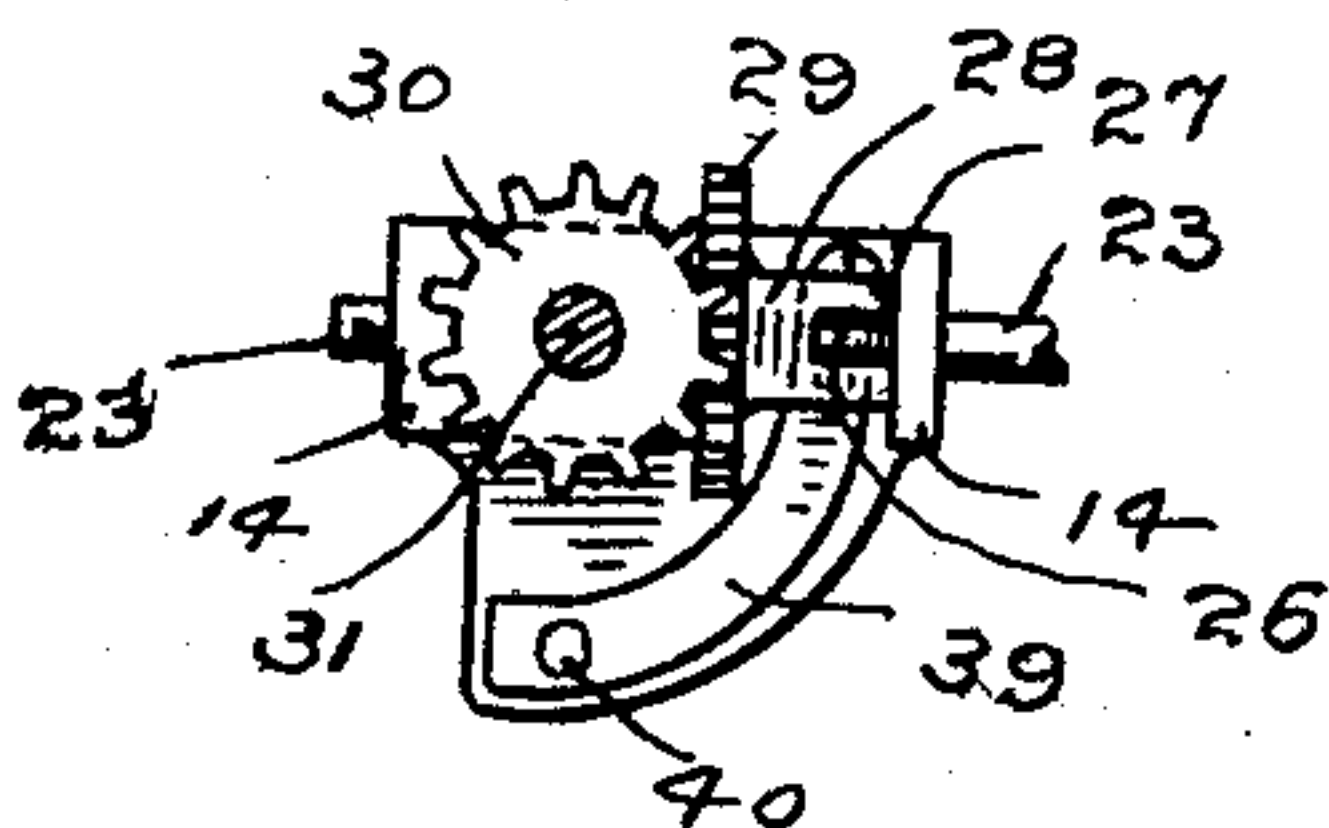


Fig. 3.



Witnesses:
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UNITED STATES PATENT OFFICE.

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KEY-SOCKET SWITCH.

No. 921,839.

Specification of Letters Patent.

Patented May 18, 1909.

Application filed December 21, 1908. Serial No. 468,474.

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 Key-Socket Switch, of which the following is a specification.

This invention relates to switches for key sockets and has for an object to provide a switch of this character which while having a relatively wide sweep and a large break shall be so constructed that the size of the socket may be greatly reduced.

A further object of the invention is to generally simplify, cheapen and to perfect the details of construction.

With these ends in view I have devised a switch having a horizontal contact plate rotating in a plane at right angles to the plane of rotation of the shaft.

In the accompanying drawing forming a part of this specification, Figure 1 is a vertical section of my novel socket complete; Fig. 2 a plan view with the cap plate removed; Fig. 3 a detail view of the operating mechanism detached; and Fig. 4 is a detail view showing the shaft in section and the angular block in elevation.

10 denotes an insulating base and 11 the screw shell. Within the base is a recess 12 which receives the operative parts of the switch and which is closed by an insulating cap plate 13. The operative parts of the switch are carried by a frame 14 which is secured in place by a central screw 15 having a head 16 for engagement with the center contact of a lamp (not shown). This screw passes through a metal washer 17 and through one or more insulating washers 18, preferably mica disks, lying in the base of the screw shell. The screw shell is additionally secured to the base by a screw 19 whose head is shown as lying under the insulating washer or washers and which passes through the bottom wall of the base and engages a plate 20 which carries a binding screw 21 lying in a recess 22 in the side wall of the base.

23 denotes the shaft which lies in the horizontal plane, is journaled in the frame and passes through a slot 24 in the side wall of the base. At the outer end of the shaft is an insulating finger piece 25 for convenience in operation. The shaft is provided with wings 26 which loosely engage slots 27 in an

angular block 28, four-sided in the present instance, which is mounted on the shaft and is rotated thereby but which has lost motion on the shaft owing to the loose engagement of the wings with the slots as clearly shown in Fig. 4, in order to permit the switch to operate with a snap.

29 denotes a pinion carried by the block which meshes with a gear wheel 30 mounted to rotate on a vertical stud 31, the lower end of which is rigidly secured to the frame, the upper end being threaded and passing through the cap plate. A nut 32, which is shown as recessed into the cap plate, engages the threaded end of the stud to secure the cap in place and also to give rigidity to the frame and operative parts of the switch. The under side of the cap plate is shown as provided with a circular boss 33 which lies within the side walls of the base and prevents displacement of the cap relatively to the base.

34 denotes a contact plate, preferably resilient, which is rigidly secured to gear wheel 30, as by rivets 35, so as to rotate therewith. 36 denotes a contact which is adapted to be engaged by one of the ends of the contact plate at each alternate actuation. This plate carries a binding screw 37 which lies in a recess 38 in the side wall of the base.

39 denotes a spring which is secured to the base, as at 40, and the free end of which engages the sides of angular block 28 to retain said block and with it the pinion, gear wheel and contact plate in place after each actuation, the only lost motion being between the shaft and the block. At each actuation of the finger piece in either direction, the angular block, pinion, gear wheel and contact plate are carried forward against the power of the spring until an angle of the block has passed the dead center of engagement with the spring when the latter will move the block, pinion, gear wheel and contact plate forward with a snap and complete the quarter rotation, which will move one end of the contact plate either into or out of engagement with contact 36. It will be seen, therefore, that each actuation of the shaft by means of the finger piece either opens or closes the circuit.

The passage of the current is from binding screw 21 through plate 20 and screw 19 to the screw shell, thence to the lamp (not shown) and returning from the center contact of the

lamp to center screw 15, the frame, gear wheel 30 and the contact plate to contact 36 and binding screw 37.

Having thus described my invention, I claim:

1. A switch of the character described comprising a shaft, an angular block loosely carried thereby, a spring engaging said block, for the purpose set forth, a contact plate rotating in a plane at right angles to the plane of rotation of the shaft and operating connections between the shaft and the contact plate.

2. A switch of the character described, comprising a shaft, an angular block loosely carried thereby and carrying a pinion, a spring engaging the angular block, for the purpose set forth, and a gear wheel meshing with the pinion and carrying a contact plate which rotates in a plane at right angles to the plane of rotation of the shaft.

3. A switch of the character described, comprising a shaft having wings, an angular block mounted on the shaft and having slots loosely engaged by the wings, a spring engaging the block, for the purpose set forth, a pinion carried by the block, a gear wheel meshing with the pinion and a contact plate carried by the gear wheel and rotating in a

plane at right angles to the plane of rotation of the shaft.

4. A switch of the character described, comprising a frame, a shaft mounted to rotate therein, a block loosely carried by the shaft and carrying a pinion, a gear wheel mounted to rotate on the frame and meshing with the pinion, and a contact plate carried by the gear wheel and rotating in a plane at right angles to the plane of rotation of the shaft.

5. A switch of the character described, comprising a shaft, a four-sided block loosely carried thereby, a spring engaging the block, for the purpose set forth, a pinion carried by the block, a gear wheel meshing with the pinion, a contact plate carried by the gear wheel and rotating in a plane at right angles to the plane of rotation of the shaft and a contact which is engaged by the contact plate at each alternate actuation of the shaft in either direction.

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

HARVEY HUBBELL.

Witnesses:

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