

J. W. TORPEY.
HIGH ROTARY SWITCH STAND.
APPLICATION FILED JAN. 5, 1910.

952,022.

Patented Mar. 15, 1910.

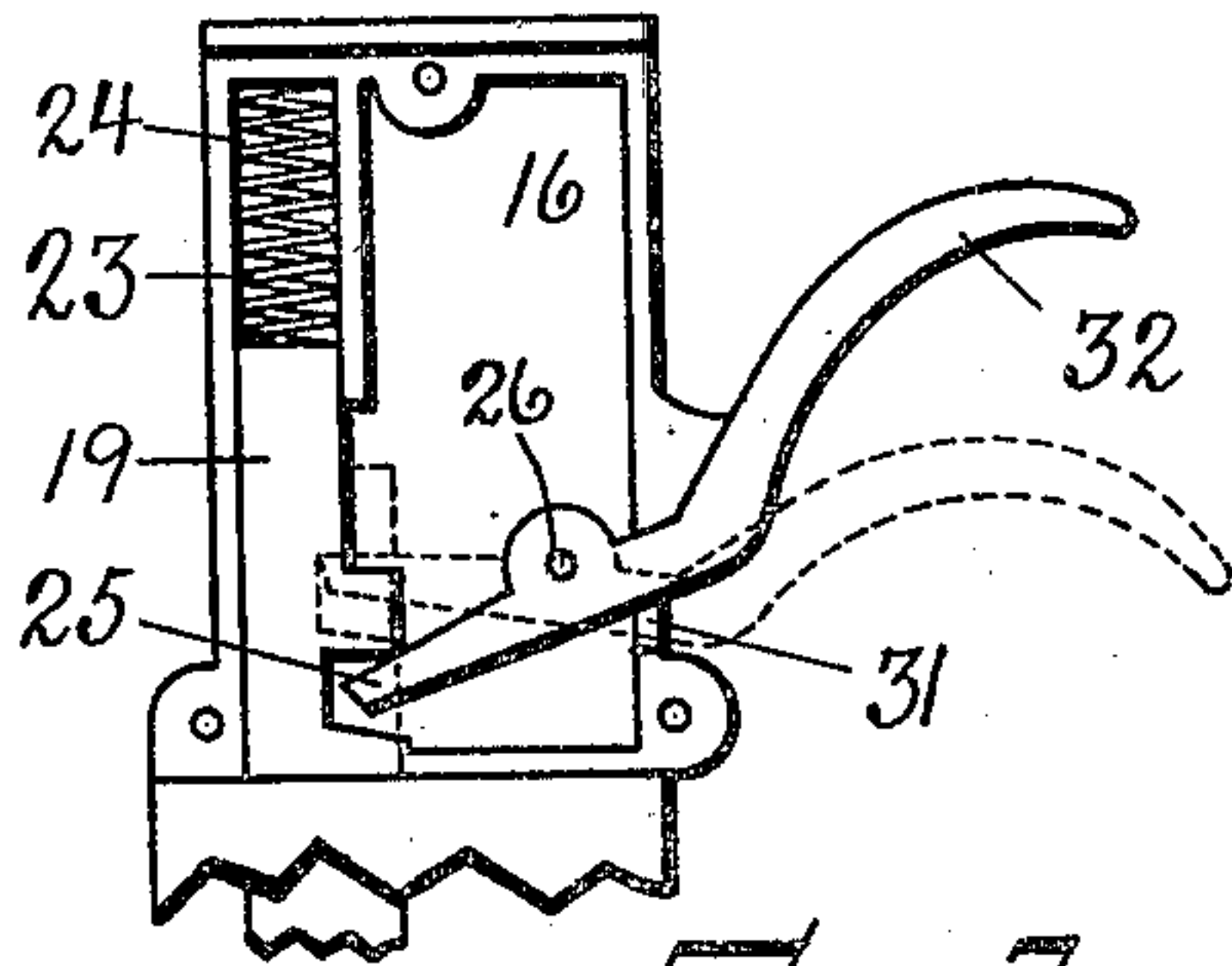


Fig. 3-

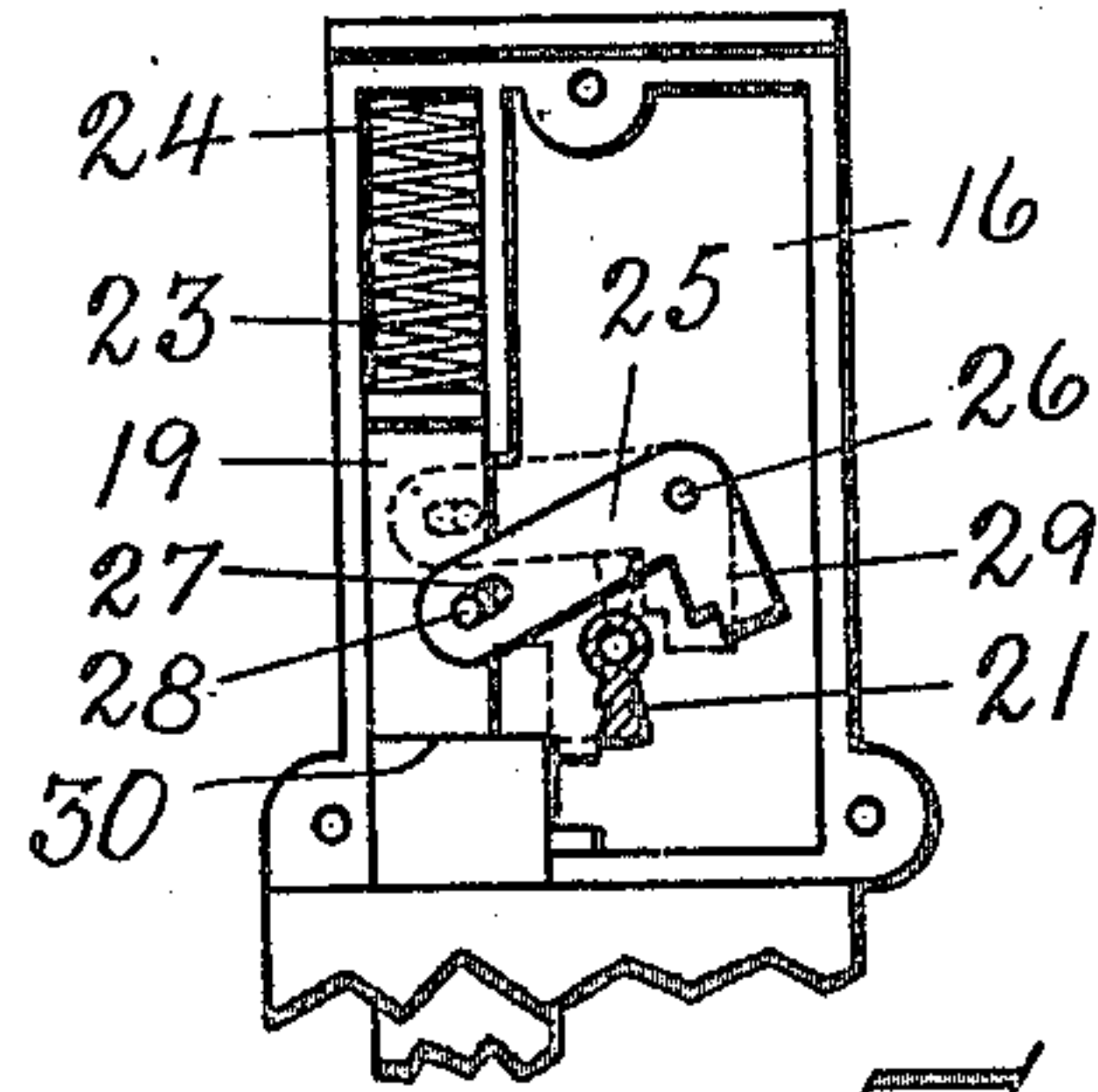


Fig. 4-

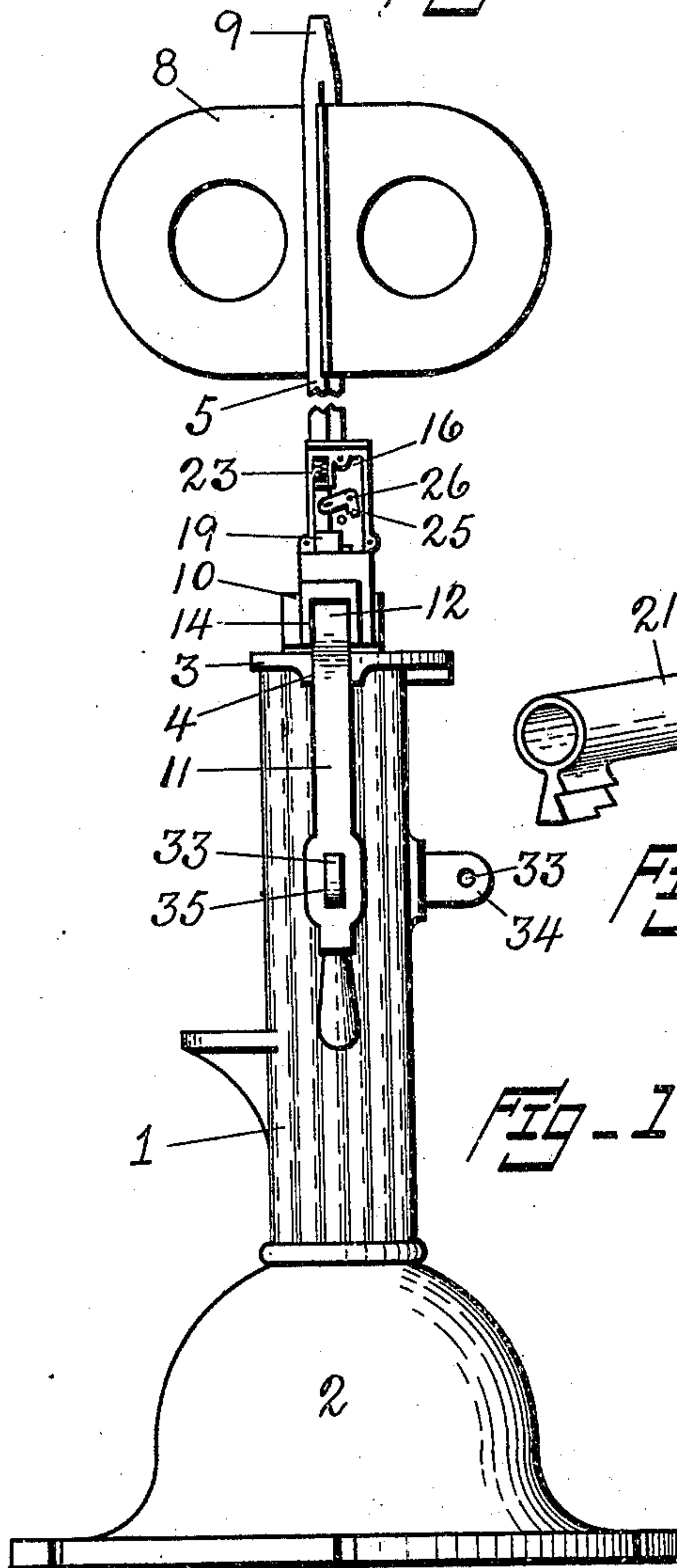


Fig. 1-

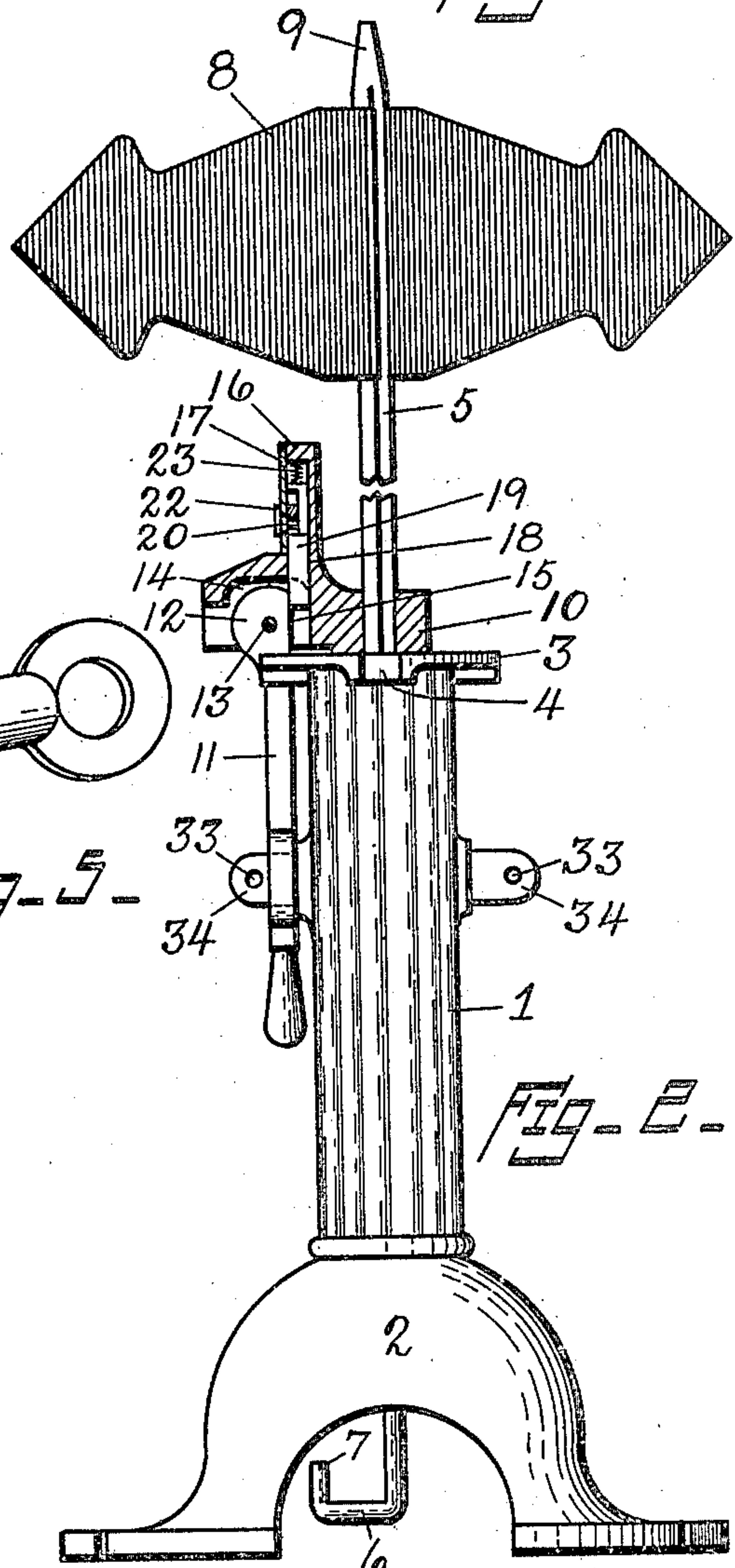


Fig. 2-

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HIGH ROTARY SWITCH-STAND.

952,022.

Specification of Letters Patent. Patented Mar. 15, 1910.

Original application filed October 6, 1909, Serial No. 521,222. Divided and this application filed January 5, 1910. Serial No. 536,492.

To all whom it may concern:

Be it known that I, JOSEPH W. TORPEY, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented a new and useful Improvement in High Rotary Switch-Stands, of which the following is a specification.

This invention relates to railroad switch-stands and locks, and is an improvement on the switch-stand and lock for which I obtained Patent No. 900,131, Oct. 6, 1908.

There are several difficulties and sources of expense incident to the practice of the art to which this invention pertains which I have endeavored to overcome and obviate.

In the present practice detachable locks are used on switch-stands. These locks may not be in service twenty-four hours before they are either carried away or otherwise disposed of. The locks are usually made of brass and are required to be of good quality and therefore their cost is considerable. When a great deal of switching is to be done at one point, rather than open and close the lock each time the switch is thrown, the switchman sometimes simply removes the lock, relegates it to some completely sequestered location, and reports the lock lost; a new one then has to be supplied, and this may be similarly lost in a short time. During the absence of the lock, the main line is liable to be left open and serious results may follow, and the responsibility cannot be located.

An object of my invention is to avoid this feature and obviate the expense of supplying additional locks by forming the lock integral with the stand, so that it cannot be removed.

The objects of my improvement are, to provide a railroad switch-stand from which the key cannot be removed except when the switch is fully locked, thus preventing switches from being unlocked and left to be shifted by persons without authority to do so; to facilitate placing the responsibility for irregularity in the position of switches; to provide a combined switch-stand and lock which may be comparatively cheaply manufactured; strength, durability, and security in a device of the class named, and facility of operation. These objects I attain by means of the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an elevation; Fig. 2, an elevation, partly in section, at right angles to Fig. 1; Fig. 3, an enlarged elevation of a modification of the lock; Fig. 4, an enlarged detail elevation of the lock with the cover removed; and, Fig. 5 is a perspective view of the key.

Similar reference numerals refer to similar parts throughout the several views of the drawings.

The switch-stand is of the form of the general high rotary type and comprises a pillar, 1, and a base, 2. Upon the top of the pillar 1 is the usual flange, 3, provided on its circumference with notches or keepers, 4, for the reception of an operating lever. On the axis of pillar 1 is journaled the usual upright staff, 5, which is provided at its lower end with a crank-arm, 6, and an upturned crank-pin, 7, for receiving and operating the switch-bar. The upper end of the staff is provided with the conventional target, 8, and the squared end, 9, for receiving the signal lantern.

The upper portion of the staff 5 is preferably of squared cross section. Over this is mounted a yoke, 10. The yoke 10 is provided with a squared hole adapted to receive the squared portion of staff 5, so that the staff may be turned by means of the yoke.

In the outer or free end of yoke 10 is pivotally mounted an operating lever, 11, of the usual form. This operating lever is provided at its upper end with a head, 12, of circular form and mounted on a pivot-pin, 13, passed transversely through yoke 10 and in a chamber or housing, 14, formed therefor in the yoke.

The head 12 of lever 11 is provided on its rear side with a keeper or means for receiving and engaging a lock-bolt, preferably in the form of a flat, 15.

Above chamber 14 is provided an integral pillar, 16, in the form of a box, adapted to receive lock mechanism, and this is fitted with a cover, 17, which is preferably riveted on or otherwise secured so that it cannot be removed by ordinary means. The lock-box 16 is provided in its bottom with an aperture, 18, which extends through the bottom, opens into chamber 14 and serves as a socket to receive a lock-bolt, 19, and is so positioned that the lock-bolt may drop down when keeper 15 registers with the bolt,

that is, when lever 11 is in the vertical or locked position.

The cover 17 is provided with a keyhole, 20, for receiving a key, 21. The keyhole 5 20 is preferably covered with a key-drop, 22.

Bolt 19 extends upward from aperture 18 into box 16 and is normally pressed downward by a spring, 23, placed in a receptacle, 24, therefor in the upper part of the lock- 10 box.

A lever, 25, is pivoted at, 26, in proximity to bolt 19 and is provided at its outer or free end with a slot, 27, adapted to receive a pin, 28, secured in the bolt. The lever, 15 25 is relatively so arranged that when key 21 is inserted in keyhole 20 and turned to the right, the bit of the key engages the under surface of the lever and swings the lever upward, so that bolt 19 is raised. A 20 right-angular extension, 29, is also provided on lever 25 so arranged that the right-hand movement of the bit of key 21 is limited thereby when bolt 19 is at the upward limit of its movement.

Bolt 19 is provided with a shoulder, 30, at a suitable point below lever 25, so arranged that when bolt 19 has been raised by the bit of the key and is prevented from dropping, any effort to turn the key backward to bring the bit into alinement with the keyhole is resisted by the bit impinging on the shoulder. Thus the key cannot be 25 removed from the lock until bolt 19 is allowed to descend by seating itself in keeper 15. It will thus be understood that the switchman's key cannot be removed from the lock unless the switch is locked either in the open or the closed position.

It is obvious that the bolt 19 will ride 40 upon the circumference of head 12 and cannot descend until lever 11 engages one of the notches 4 in flange 3 of the pillar.

The keys used by the switchman are all numbered, and the number of each key is 45 entered against the name of the switchman who received it, so that if the switch is left unlocked and the key is left in the lock, the offending switchman may be identified.

It will be appreciated that the box 16, 50 being cast integral with the yoke 10 of the stand, may be formed with a thick, strong wall, so that the lock cannot easily be injured or deranged and cannot be removed. It ought therefore to last as long as the 55 stand itself, and thus the expense of renewing the locks is obviated.

The modification shown in Fig. 3 is not provided with a key, and is intended for use where, in present practice, the simple latch 60 stand is used, that is, entirely off the main line. In this modification lever 25 is extended through an opening, 31, in the side of the box 16 and is provided on the outside of the box with a handle, 32. When it is required

to throw the switch, the switchman presses 65 upon handle 32 and thereby raises bolt 19 out of the keeper, and when the switch has been fully thrown the bolt is pushed into the keeper automatically by spring 23.

It will be understood that when bolt 19 is 70 down in locking position lever 11 cannot be brought up from the vertical position. When it is required to throw the switch the key is inserted in the lock, bolt 19 is raised thereby, and then lever 11 may be brought 75 to the horizontal position and swung around to throw the switch. It will also be understood that lever 11 cannot be lowered to the vertical, pendent position unless it is in alinement with one of the keepers or notches 80 4 in flange 3, but will rest upon flange 3 until it is brought into alinement with one of the keepers. The keepers 4 are so positioned that they correspond with either the open or the closed position of the switch. 85

When lever 11 is swung from the vertical position and the bolt is lowered by turning the key backward, the bolt rests upon the circular portion of the lever and cannot descend. It is obvious that in this position, if 90 it is attempted to remove the key, the bit will impinge upon the shoulder 30 and cannot be turned backward sufficiently to register with the slot of the keyhole, so that the key cannot be removed while the switch is in a 95 transitional position.

In present practice, the lever 11 is retained in the vertical position by a detachable lock passed through a hole 33, in a lug, 34, which passes through a slot, 35, in 100 lever 11.

Having thus described my invention, so that any one skilled in the art pertaining thereto may make it and understand its use, I claim— 105

In a high rotary switch-stand having a yoke, a switch-throwing lever pivoted in said yoke and a flange provided with notches to receive said switch-throwing lever, a circular portion on the pivoted end of said switch- 110 throwing lever concentric with its pivot pin, said circular portion being provided with a keeper for a lock-bolt, a lock-box formed above and integral with said yoke and provided with a vertical bolt-socket in its bottom, a lock-bolt in said bolt-socket, said 115 lock-bolt being provided with a shoulder to stop the backward motion of the bit of the key, and a lever for lifting said lock-bolt fulcrumed in said lock-box, said lever being 120 provided with a right-angular extension for stopping the forward rotation of the bit of the key and means for receiving and engaging said bolt.

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