

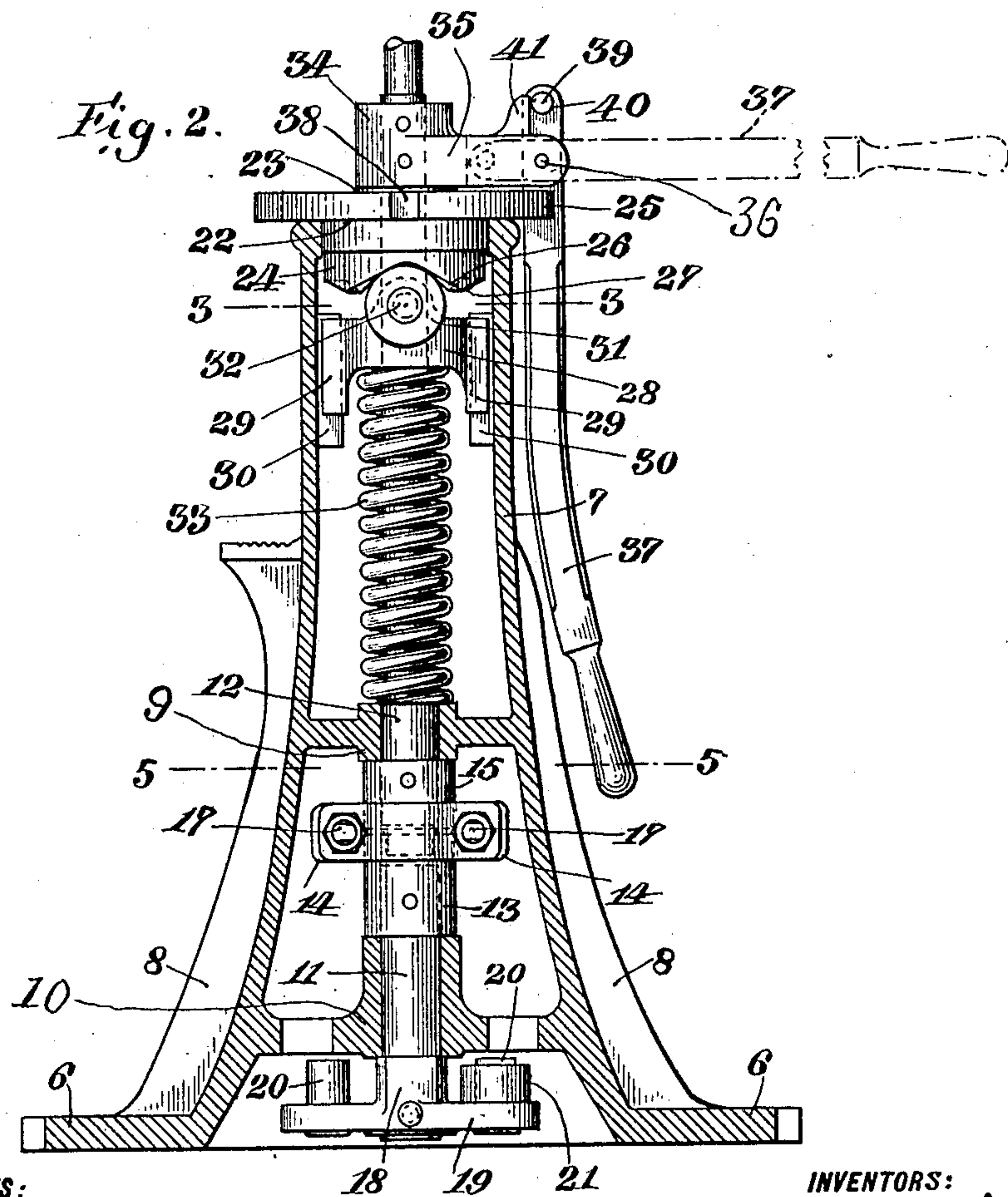
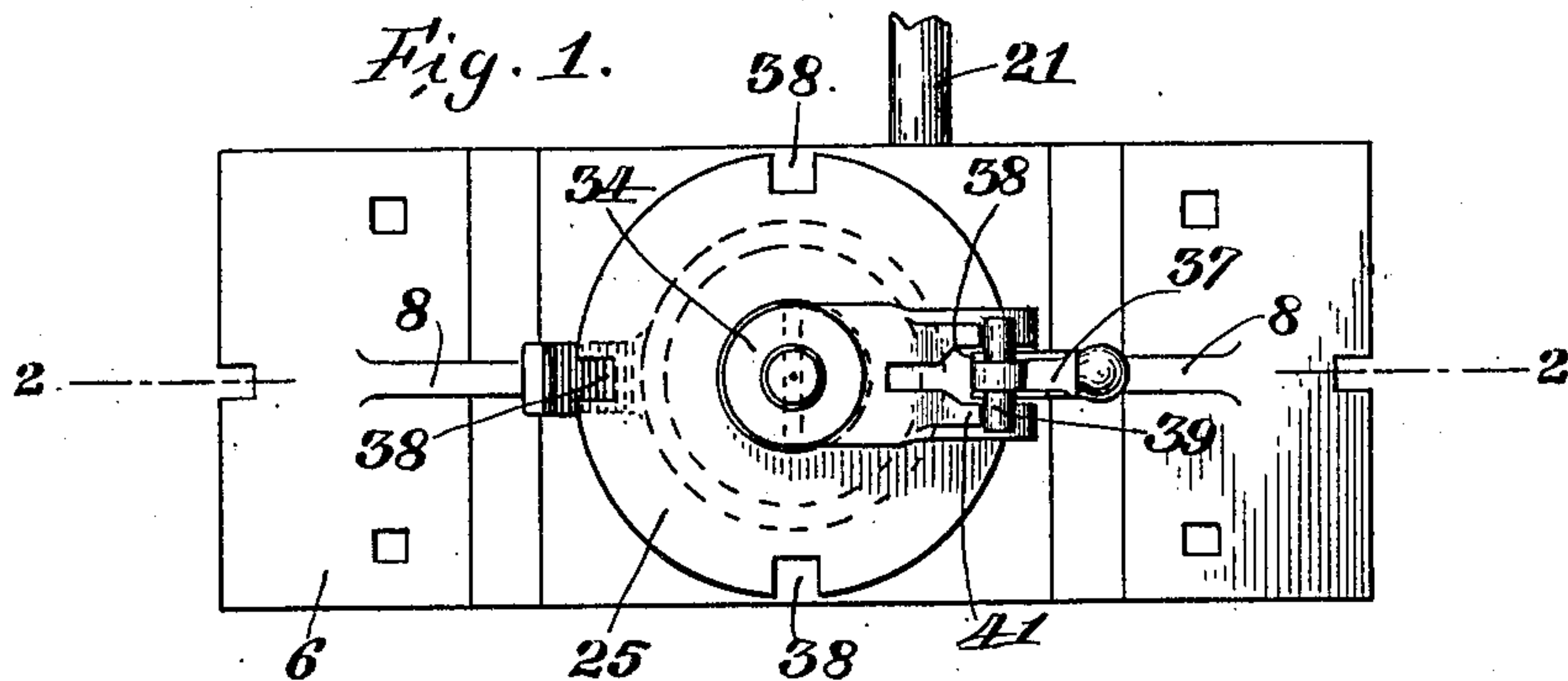
C. W. REINOEHL & M. W. LONG.
SWITCH STAND.

APPLICATION FILED SEPT. 11, 1908.

913,163.

Patented Feb. 23, 1909.

2 SHEETS—SHEET 1.



WITNESSES:

Ella M. Ware
J. H. Gamble

INVENTORS:

Charles W. Reinoehl
and Malcolm W. Long
by A. V. Grouse
ATTORNEY.

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2 SHEETS—SHEET 2.

Fig. 3.

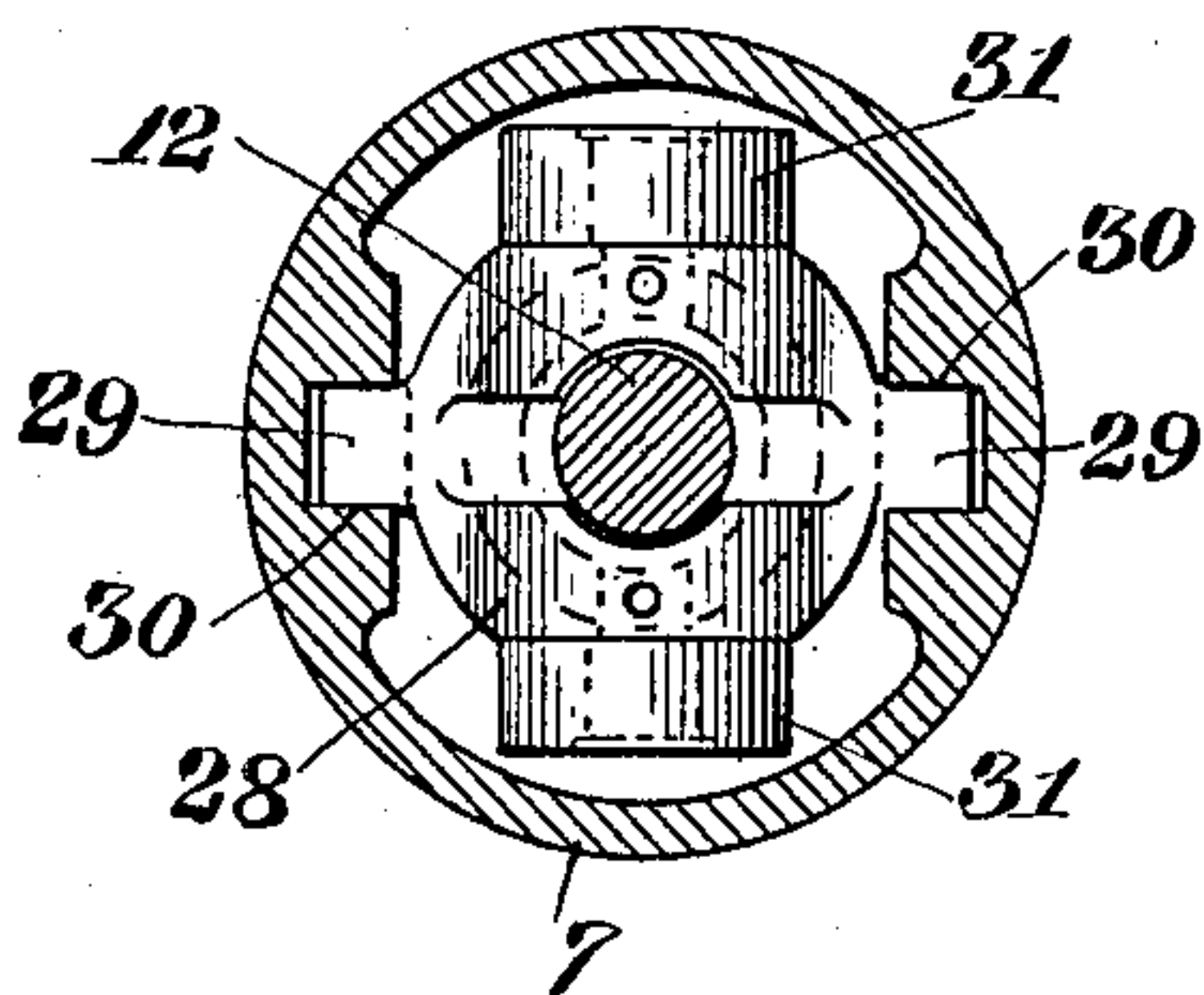


Fig. 4.

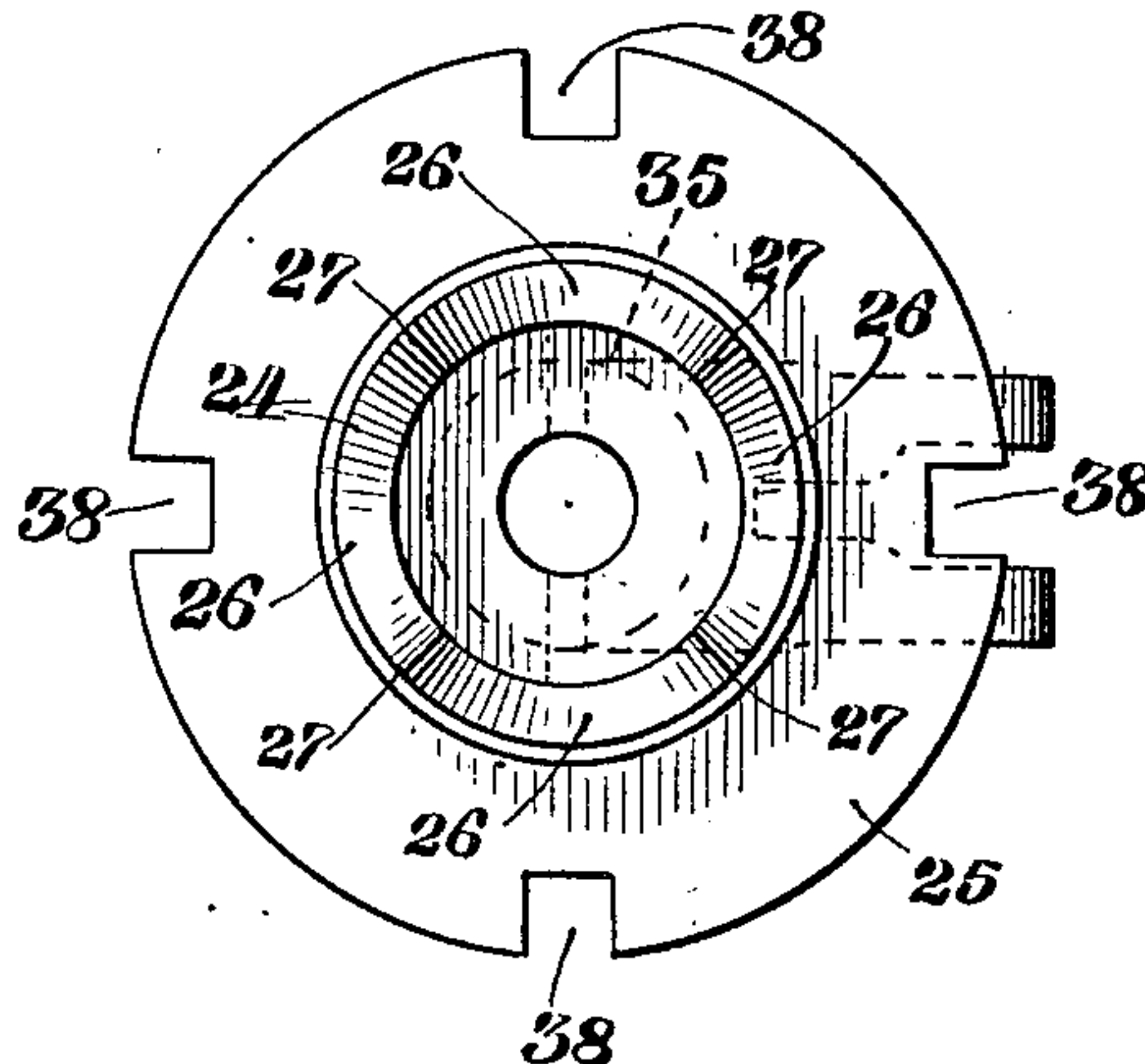
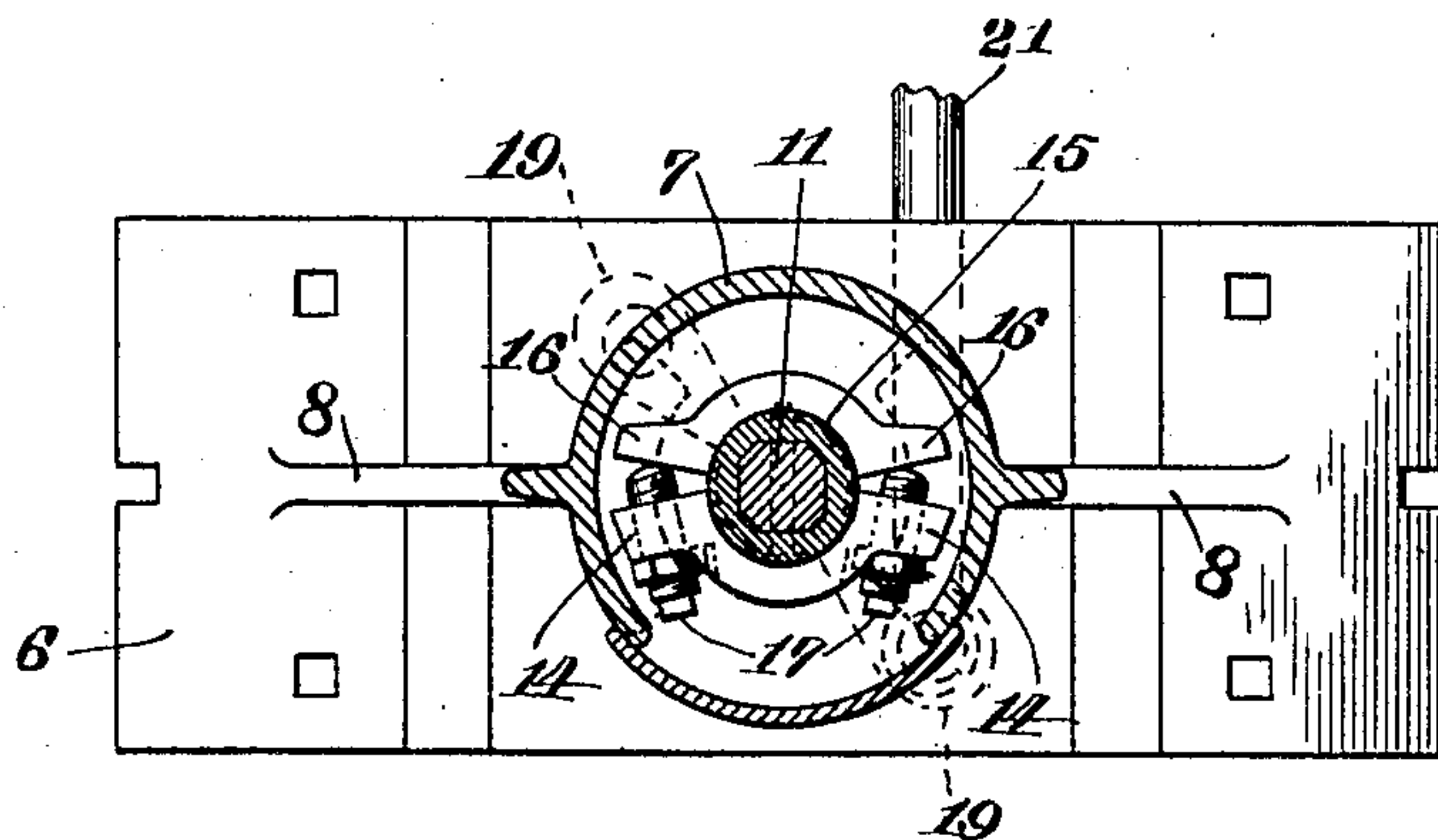


Fig. 5.



WITNESSES:

Ella H. Ware
J. H. Gamble

INVENTORS:

Charles W. Reinoehl
and Malcolm W. Long
by *A. V. Group*
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES W. REINOEHL, OF STEELTON, AND MALCOLM W. LONG, OF HARRISBURG,
PENNSYLVANIA.

SWITCH-STAND.

No. 913,163.

Specification of Letters Patent.

Patented Feb. 23, 1909.

Application filed September 11, 1908. Serial No. 452,531.

To all whom it may concern:

Be it known that we, CHARLES W. REINOEHL, a citizen of the United States, and resident of Steelton, Dauphin county, State of Pennsylvania, and MALCOLM W. LONG, a citizen of the United States, and resident of Harrisburg, Dauphin county, State of Pennsylvania, have invented certain new and useful Improvements in Switch-Stands, of which the following is a specification.

This invention relates to switch stands for railroad switches.

The object of the invention is to provide a switch stand combining simplicity of construction with ease and efficiency of operation, whereby the tongue of a railroad switch may be easily adjusted by hand to either of its two positions, and whereby the switch tongue may be firmly yet yieldingly held in either of its two positions until it is moved therefrom by an excess of a predetermined pressure against the tongue by the action of a car wheel in opening or closing the switch when passing the tongue in a direction from the heel to the point end thereof.

Having this object in view, the invention consists in the novel construction and combinations of parts hereinafter fully described and claimed.

In the drawings:—Figure 1 is a plan view of a railroad switch stand embodying our invention. Fig. 2 is a vertical section thereof, as on the line 2—2 of Fig. 1. Fig. 3 is a horizontal section, as on the line 3—3 of Fig. 2. Fig. 4 is a bottom view of the upper clutch member and lever support, detached. Fig. 5 is a horizontal section as on the line 5—5 of Fig. 2.

The main frame or support of the switch stand comprises a base 6, and a hollow standard 7 rising therefrom, provided with lateral strengthening ribs 8. The base 6 is provided with suitable spike-receiving holes 6^a as a means for securing the frame or support to the cross ties adjacent a railroad switch.

Within the lower portion of the hollow standard 7 are two centrally-disposed, vertically-arranged bearings 9 and 10, located one above the other, as shown. In the present embodiment of our invention, these bearings are cast integral with the main support 7. Fitted to the bearing 10 is a lower vertical shaft 11, and fitted to the bearing 9 is an upper vertical shaft 12, which extends up

through the standard in line with the lower shaft 11 and forms in effect a continuation thereof. Secured to the upper end of the shaft 11 is a collar 13, provided with lateral arms 14, and secured to the lower end of the shaft 12 is a collar 15 provided with lateral arms 16 which are arranged in the same horizontal plane with and adjacent to the arms 14. The arms 14 are provided with adjustable screws 17, which are adapted to abut against the arms 16 and thereby cause the shafts 11 and 12 to turn as a unit and at the same time provide a means whereby one shaft may be adjusted with relation to the other, circularly about the axes thereof. This adjustment is accomplished by adjusting one of the screws 17 toward its adjacent arm 16 while the other screw 17 is adjusted away from its adjacent arm 16. The lower end of the shaft 11 extends below the bearing 10 and has secured thereto a collar 18 which is provided with laterally extending crank arms 19. Each crank arm 19 carries a vertical pin 20, and connected to one pin 20 is one end of an arm 21, the other end of which is adapted to be connected to the tongue of a railroad switch in the usual well known manner.

Located at the top of the standard 7 and mounted on the shaft 12, is a clutch member 22, comprising a central collar 23 rotatably fitted to the shaft 12, a cam flange 24 extending downwardly into the standard 7, and a horizontal flange 25 resting upon the top of the standard 7 and projecting beyond the outer edge thereof. The bottom of the cam flange 24 is provided with a cam surface having four equidistant depressions or retaining portions 26, the cam surface of each depression terminating upon meeting the cam surface of the two adjacent depressions, thus providing the intermediate cam projections 27.

Located directly beneath the clutch member 22 is another clutch member 28, which surrounds the shaft 12 and is slidingly fitted thereto to permit its movement toward and from the clutch member 22 longitudinally of the shaft 12. The lower clutch member 28 is not only guided by the shaft 12 in its movement toward and from the member 23, but it is also guided by lateral, vertically-arranged guide-bars 29, which are formed on the member 28 and fitted to vertical guide-ways 30 formed in the support or standard 7. The

engagement of the guide-bars 29 with the walls of the guide-ways 30 also prevents rotation of the member 28 about the shaft 12.

The lower clutch member 28 is provided with parts adapted to engage and coast with the lower or cam surface of the flange 24 forming the depressions 26 and intermediate projections 27, and in the present embodiment of our invention these parts of the lower clutch member coacting with the cam surfaces of the upper clutch member are anti-friction rollers 31, two in number, and rotatably mounted on pins 32 projecting from opposite sides of the member 28 in line with each other, whereby the two rollers 31 will engage two opposite depressions 26 of the member 22, and when the member 22 is given a quarter turn relatively to the member 28, the rollers 31 will be brought into engagement with the other two opposite depressions 26, as will be hereinafter explained.

The parts or rollers 31 of the lower clutch member 28 are forced into engagement with the upper clutch member 22 by the action of a spring 33 encircling the shaft 12 and having its lower end bearing against the top of the bearing 9 and its upper end bearing against the bottom of the lower clutch member 28.

The vertical movement of the upper clutch member 22 under the influence of the spring 33, is prevented by a collar 34 secured to the shaft 12 directly above the upper clutch member 22. The collar 34 forms a part of a lever support 35 which extends laterally from the shaft 12 and has pivotally connected thereto, as at 36, a locking lever 37, which may be moved on the pivot 36 either to the full line or to the dotted line position shown in Fig. 2. When the lever 37 is lowered to the full line position shown in Fig. 2, it extends into one of four equidistant lever-receiving notches 38, which are formed in the outer portion of the flange 25 of the upper clutch member 22, one notch 38 being located adjacent each cam depression 26. When the lever 37 is in the lowered or full line position extending through one of the notches 38, the sides of the lever engage the side walls of the notch and thus lock the lever 37, its support 35, and the upper clutch member 22 and shaft 12 together, to cause them to turn as a unit. When, however, the lever 37 is raised to the dotted line position it is disengaged from the upper clutch member 22, and it may then be turned to turn the lever support 35 and the shaft 12 fixed thereto independently of the upper clutch member 22, and also independently of the lower clutch member 28, for a purpose hereinafter explained. The lever 37 may be locked in the lowered or full line position by inserting a pin 39 into an opening 40 in the lever 37, the pin 39 being adapted to engage a projection 41 on the lever support 35 and prevent the raising of the lever 37.

In the drawings, the top of the shaft 12 is shown broken away. This shaft is adapted to extend a suitable height and constitute the target shaft for the reception of a target signal which will thereby be adjusted with the switch to indicate its open or closed position.

It will be observed, on reference to Fig. 2, that the top of one of the ribs 8 terminates in a step by means of which the target signal upon the top of the shaft 12 may be reached.

The operation is as follows:—When the switch stand is in position to operate or be operated by a railroad switch, the base 6 is secured to the cross ties adjacent the switch, and the connecting bar 12 is connected to the tongue of the switch at substantially right angles thereto. In this position of the parts the switch tongue is held in either its position against the main rail or its position away from the main rail, by its connection to the shaft 12 and the shaft 12 being held firmly in position by the engagement of the rollers 31 of the clutch member 28 with two opposite depressions or retaining portions 26 of the upper clutch member 22. If, in this position of the parts, a car wheel passes the switch in the direction from the heel to the point of the switch tongue, and the switch is not properly set to receive the wheel, the flange of the wheel exerts sufficient lateral pressure against the switch tongue to cause it to turn the shafts 11 and 12 a quarter revolution, thus overcoming the action of the spring 33 and causing the cam projections 27 of the upper clutch member to force the rollers 31 and lower clutch member 28 downwardly against the action of the spring 33 until the apexes of the cam projections 27 pass the rollers 31, whereupon the rollers 31 will leave two opposite depressions 26 and be forced into the other two opposite depressions 26 to retain the switch tongue in the other position to which it is moved by the car wheel flange. When, however, it is desired to operate the switch stand by hand to move the switch tongue to either of its two positions, the lever 37 is raised to the position shown by dotted lines, thus unlocking the upper clutch member 22 from the shaft 12, and leaving the shafts 12 and 11 free to be operated by the hand lever 37 to adjust the switch as desired. By adjusting the screws 17, the shaft 11 may be adjusted with respect to the shaft 12, to properly set the switch tongue with relation to the main rail, and the clutch members 22 and 28.

Having thus described our invention, we claim:—

1. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, two clutch members mounted on the shaft one member having a movement toward and

from the other member longitudinally of the shaft and one member having a cam surface coacting with a part of the other member, a spring acting to press one member into engagement with the other member, means to prevent rotation of one of said members about said shaft, and means for locking the other member to and unlocking it from said shaft.

2. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, two clutch members on the shaft one member having a movement toward and from the other member longitudinally of the shaft and one member having a cam surface coacting with a part of the other member, a spring acting to press one member into engagement with the other member, a lever support connected to turn with said shaft, a lever pivoted to the lever support and movable into and from locking engagement with one of said clutch members, and means to prevent rotation of the other clutch member about said shaft.

3. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member surrounding the shaft and connected to turn therewith, a sliding clutch member surrounding the shaft and movable longitudinally thereof toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means to prevent rotation of the sliding clutch member with the shaft, and a spring acting to press the sliding clutch member into engagement with the rotatable clutch member.

4. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft, a sliding clutch member movable toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means for guiding the sliding clutch member, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, and means for locking the rotatable clutch member to and unlocking it from the shaft.

5. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft, a sliding clutch member surrounding the shaft and movable longitudinally thereof toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means to prevent rotation of the

sliding clutch member with the shaft, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, and means for locking the rotatable clutch member to and unlocking it from the shaft.

6. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft, a sliding clutch member movable toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means for guiding the sliding clutch member, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support connected to turn with said shaft, and a lever pivoted to the support and movable into and from locking engagement with the rotatable clutch member.

7. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft, a sliding clutch member surrounding the shaft and movable longitudinally thereof toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means to prevent rotation of the sliding clutch member with the shaft, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support connected to turn with said shaft, and a lever pivoted to the lever support and movable into and from locking engagement with the rotatable clutch member.

8. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft and having four equidistant lever-engaging portions, a sliding clutch member movable toward and from the rotatable clutch member, one of said clutch members having a cam surface provided with four equidistant retaining portions and the other of said clutch members having a part coacting with said surface, means for guiding the sliding clutch member, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support connected to turn with said shaft, and a lever pivoted to the lever support and movable into and out of engagement with said lever-engaging portions.

9. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the

shaft and having four equidistant lever-engaging portions, a sliding clutch member surrounding the shaft and movable longitudinally thereof toward and from the rotatable clutch member, one of said clutch members having a cam surface provided with four equidistant retaining portions and the other of said clutch members having a part coacting with said surface, means to prevent rotation of the sliding clutch member with the shaft, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support connected to turn with said shaft, and a lever pivoted to the lever support and movable into and out of engagement with said lever-engaging portions.

10. In a switch stand, the combination of a support, a rotatable shaft, means to connect the shaft with a switch tongue, a rotatable clutch member surrounding the shaft and connected to turn therewith, a sliding clutch member surrounding the shaft and movable longitudinally thereof toward and from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means to prevent rotation of the sliding clutch member with the shaft, and a spring encircling the shaft and pressing the sliding clutch member into engagement with the rotatable clutch member.

11. In a switch stand, the combination of a supporting standard, a rotatable shaft extending therethrough, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft and having a lever-engaging portion arranged above the standard and projecting beyond the outer edge of the top thereof, a sliding clutch member movable toward and

from the rotatable clutch member, one of said clutch members having a cam surface and the other of said clutch members having a part coacting with said surface, means for guiding the sliding clutch member, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support fixed to said shaft above said rotatable clutch member, and a vertically movable lever pivoted to the lever support and movable into and out of engagement with said lever-engaging portion.

12. In a switch stand, the combination of a supporting standard, a rotatable shaft extending therethrough, means to connect the shaft with a switch tongue, a rotatable clutch member rotatably mounted on the shaft and having four equidistant lever-engaging portions above the standard and projecting beyond the outer edge of the top thereof, a sliding clutch member movable toward and from the rotatable clutch member, one of said clutch members having a cam surface provided with four equidistant retaining portions and the other of said clutch members having a part coacting with said surface, means for guiding the sliding clutch member, a spring acting to press the sliding clutch member into engagement with the rotatable clutch member, a lever support fixed to said shaft above said rotatable clutch member, and a vertically movable lever pivoted to the lever support and movable into and out of engagement with said lever-engaging portions.

In testimony whereof we affix our signatures in the presence of two witnesses.

CHARLES W. REINOEHL.
MALCOLM W. LONG.

Witnesses:

B. A. HANKIN,
WM. R. MILLER.