

No. 679,153.

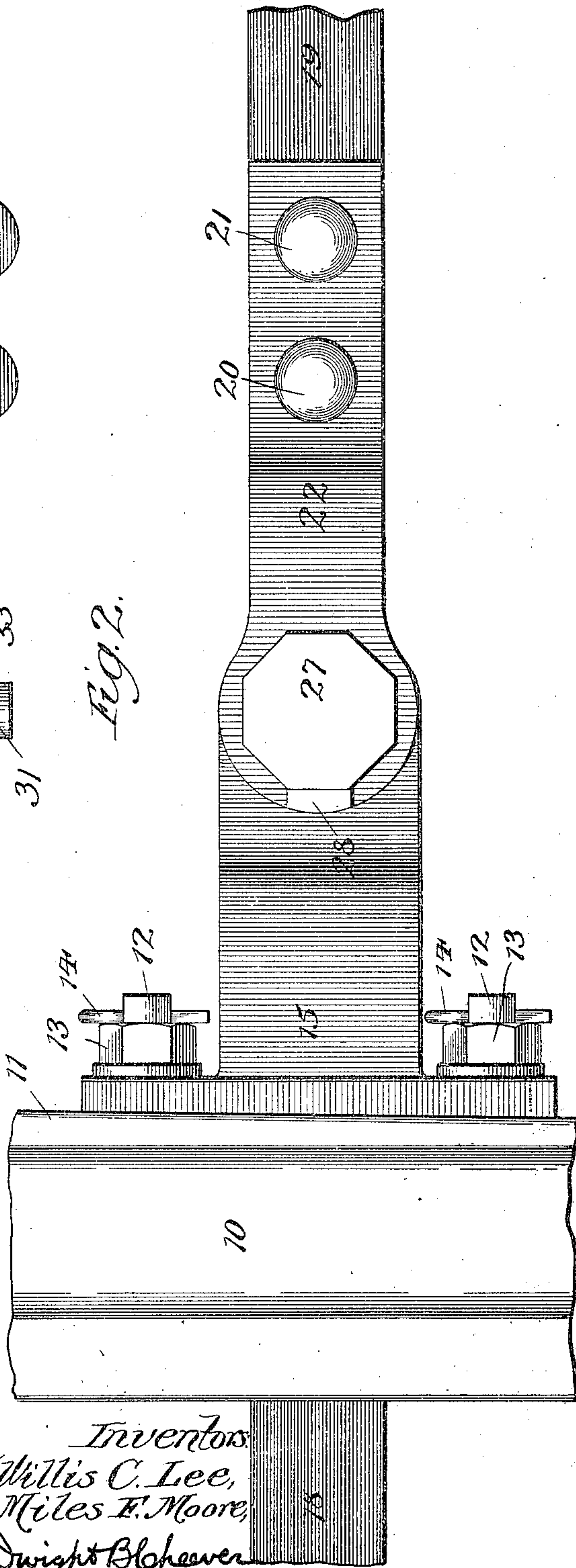
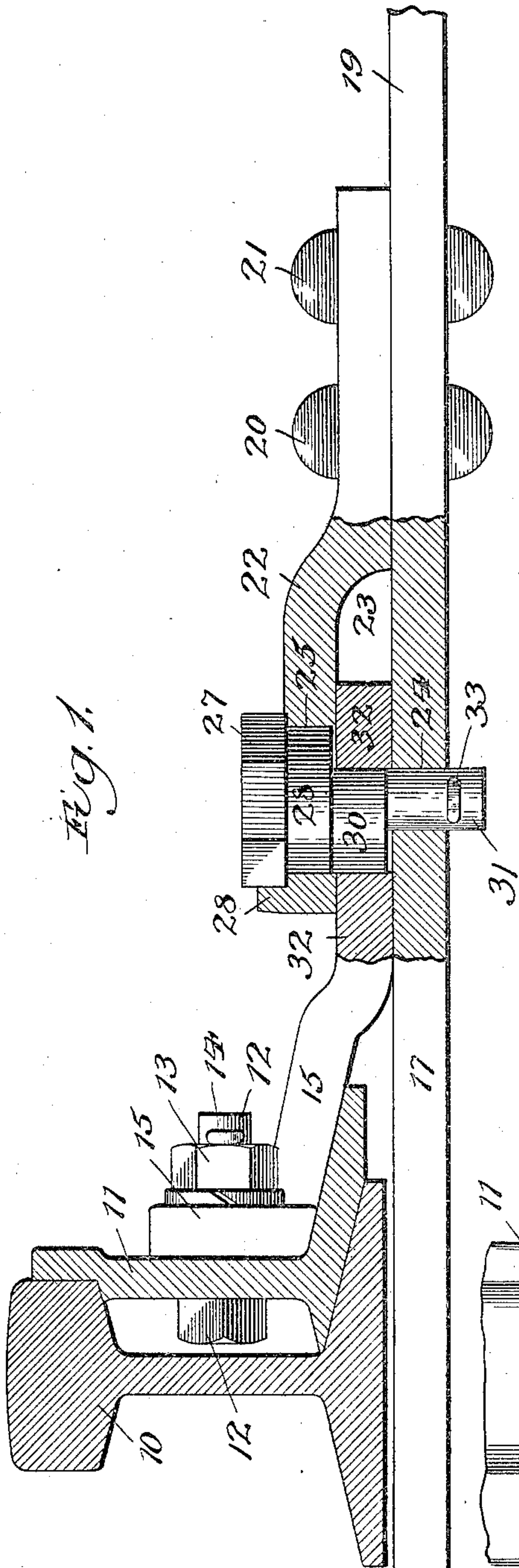
Patented July 23, 1901.

W. C. LEE & M. F. MOORE.  
ADJUSTABLE SWITCH ROD.

(Application filed Mar. 18, 1901.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:  
E. C. Gaylord,  
John Anders Jr.

By

Inventors  
Willis C. Lee,  
Miles F. Moore,  
Dwight Blochewer  
Attorney

(No Model.)

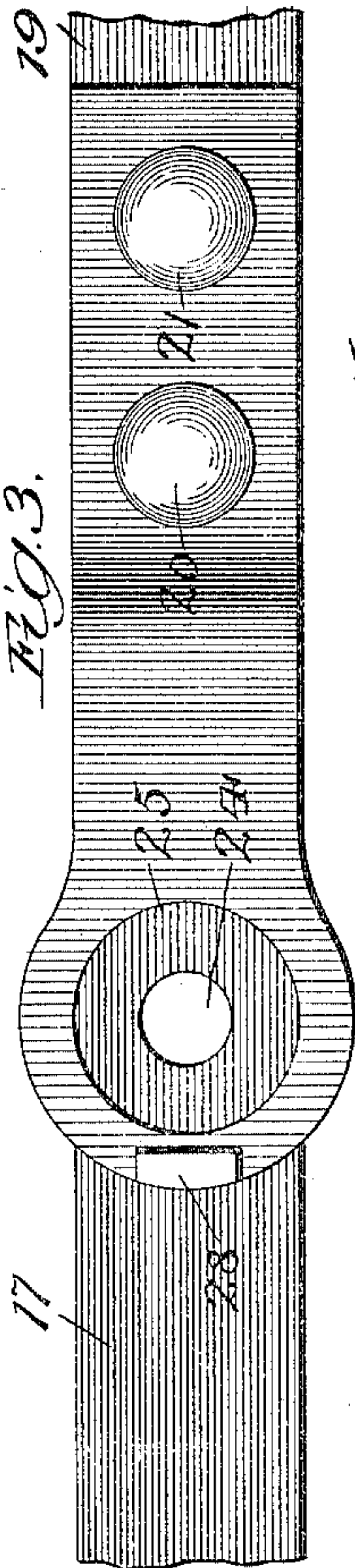


Fig. 3.

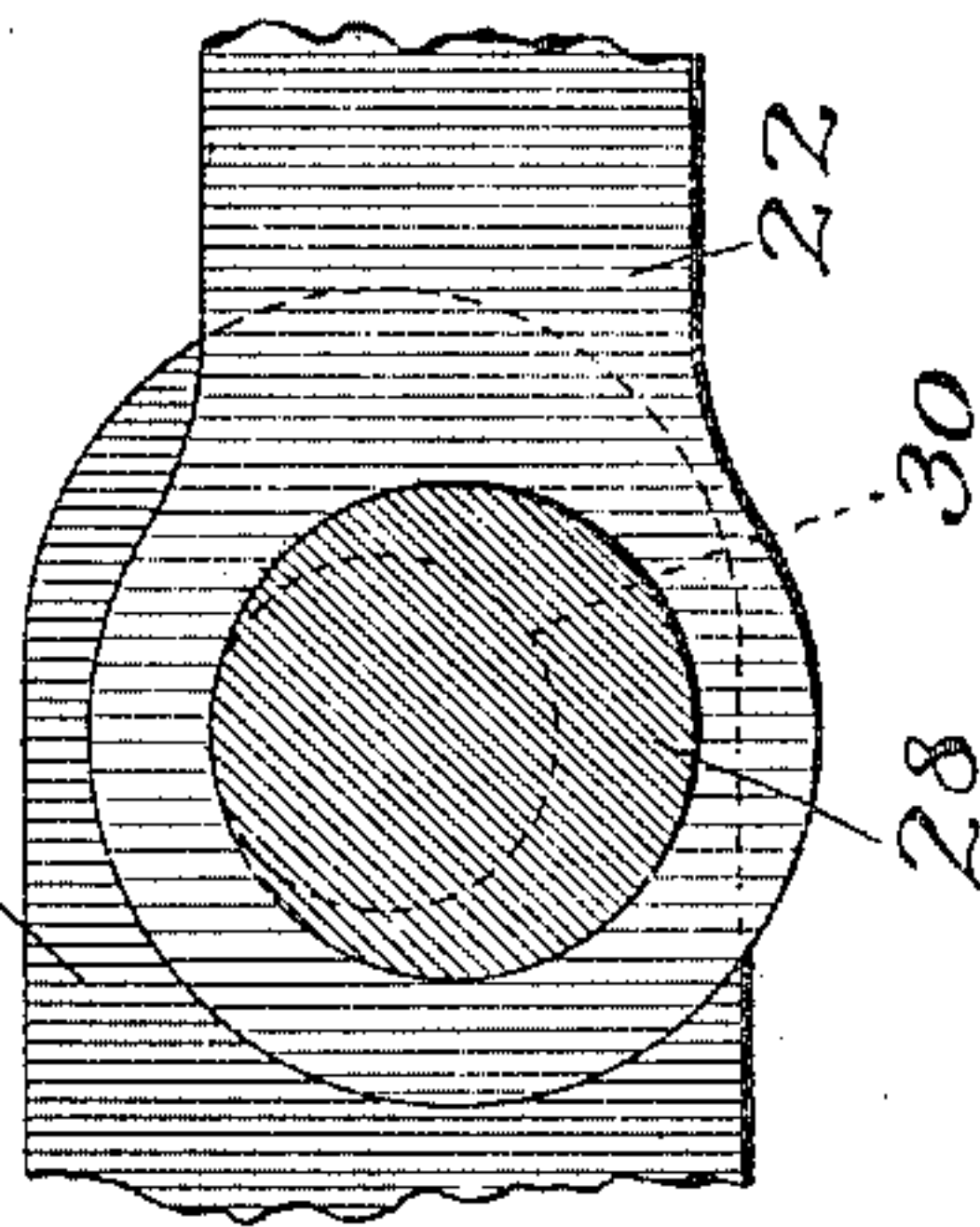


Fig. 9.

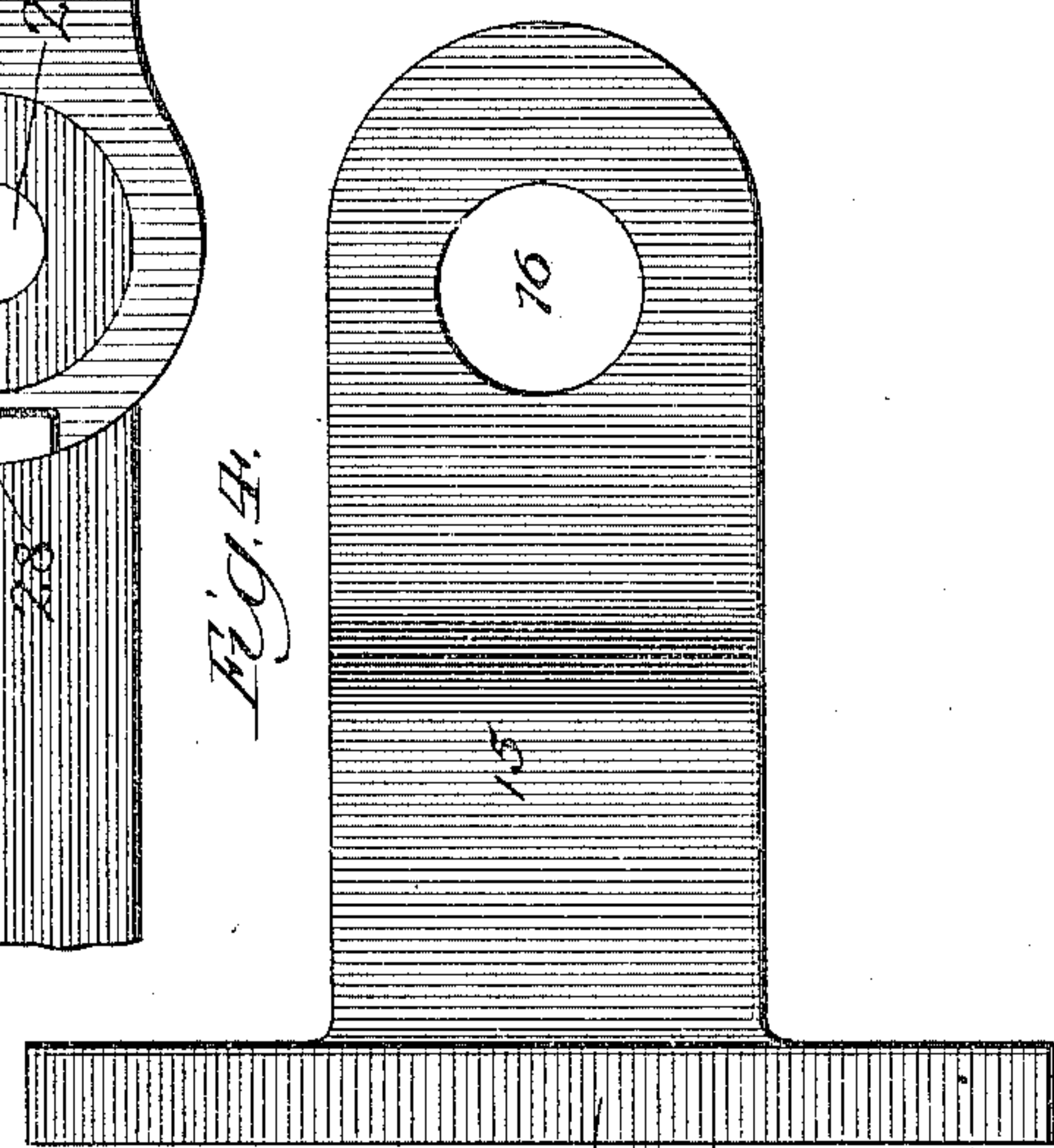


Fig. 4.

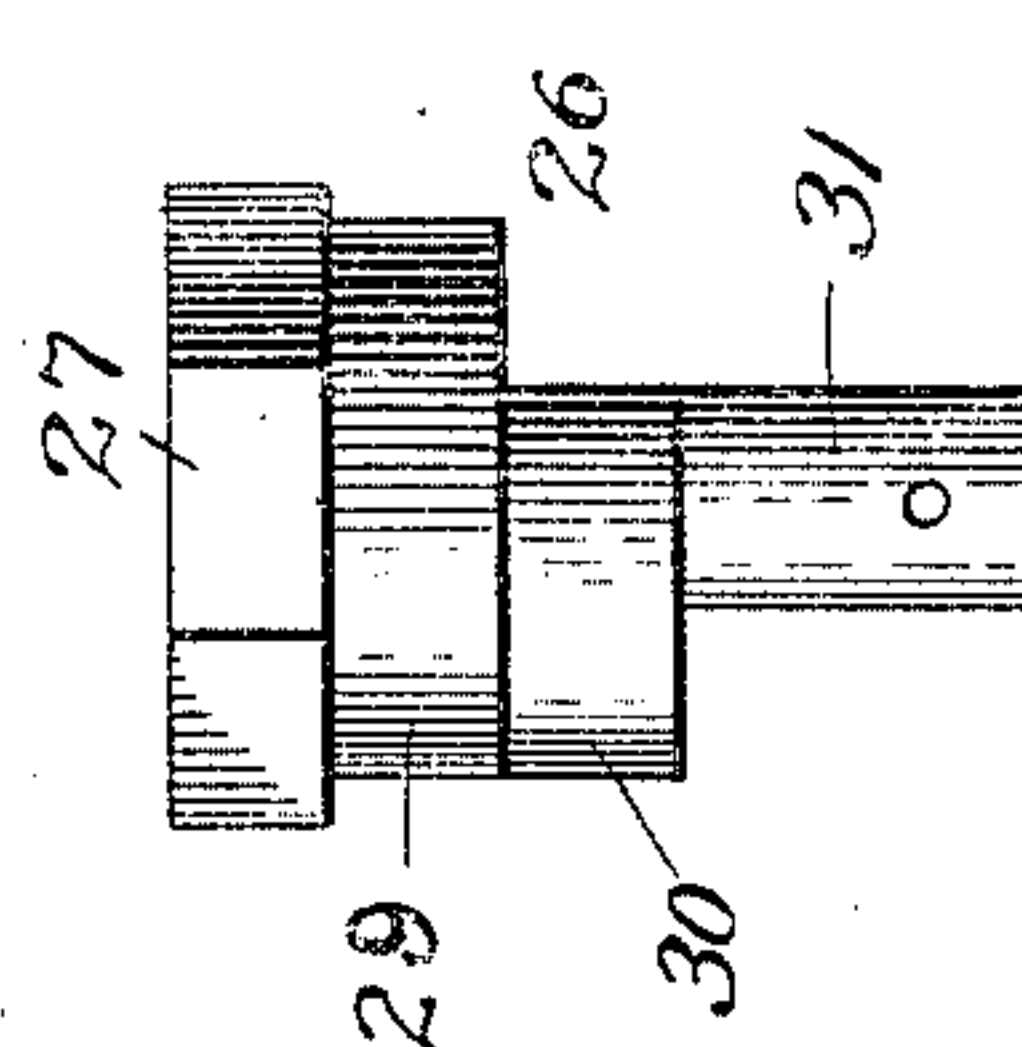


Fig. 5.

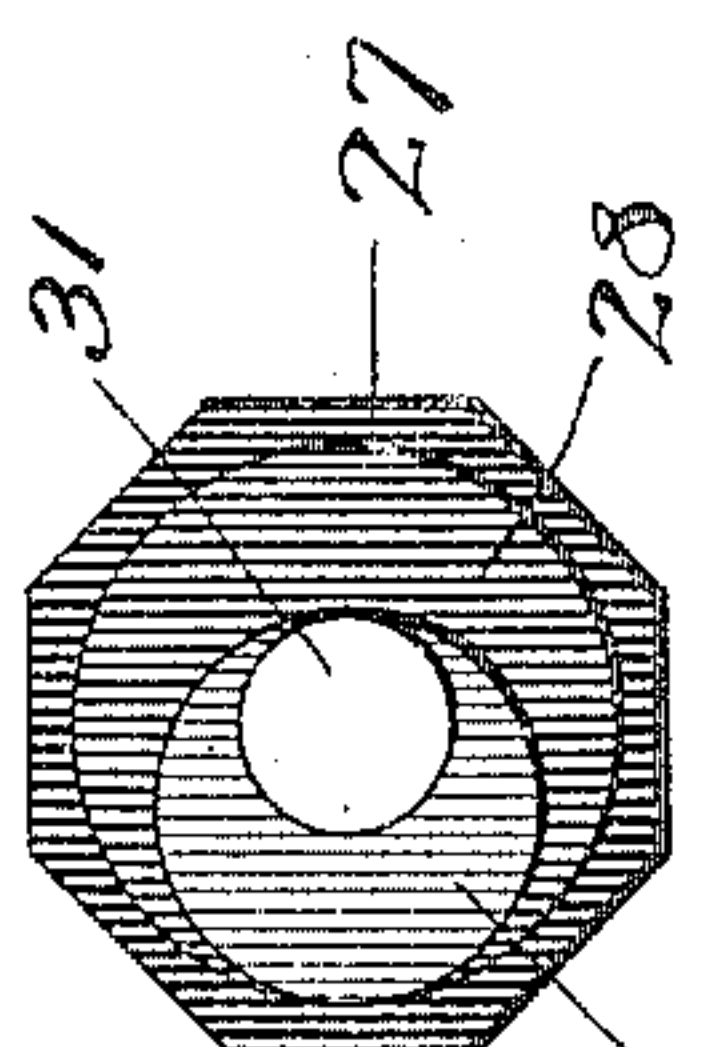


Fig. 6.

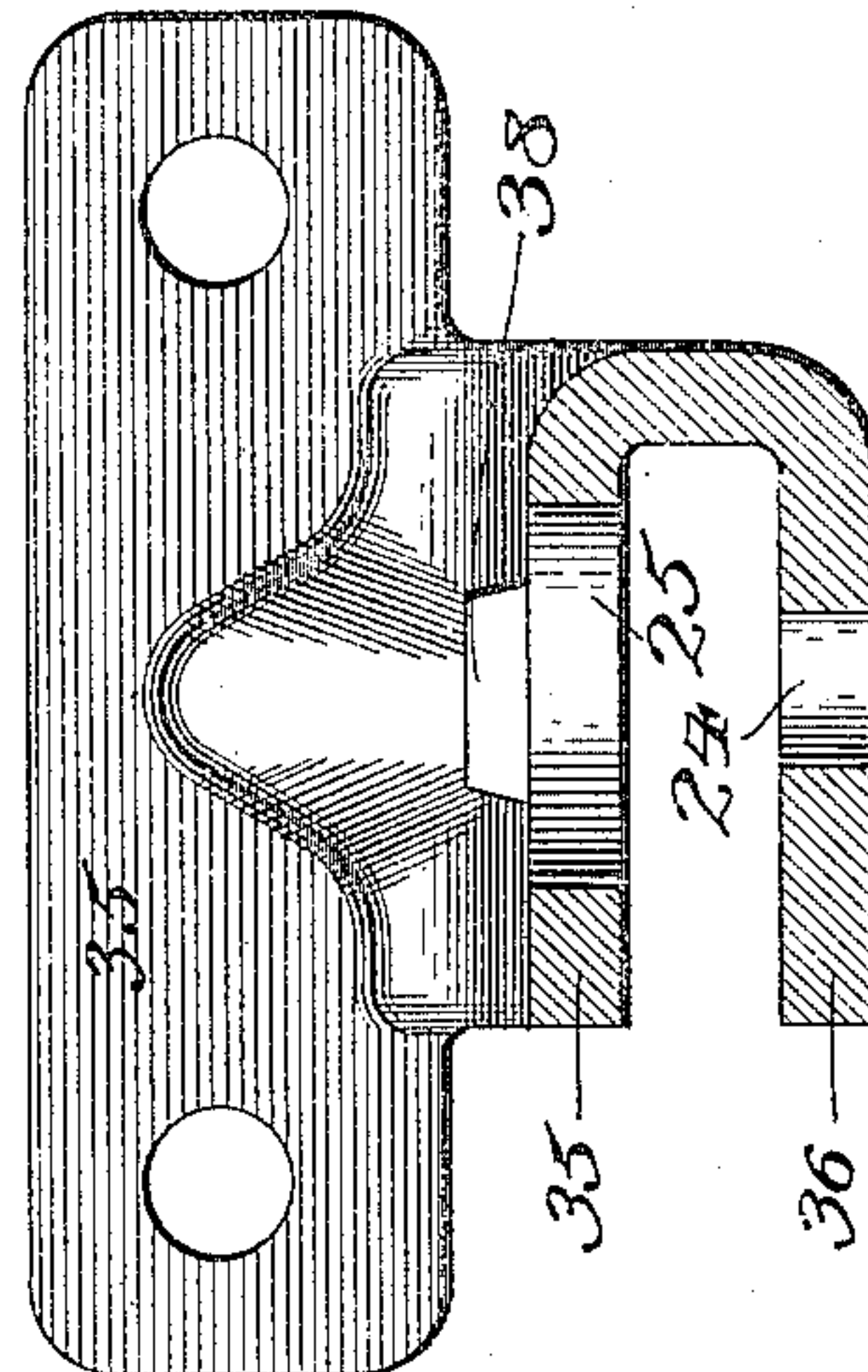


Fig. 8.

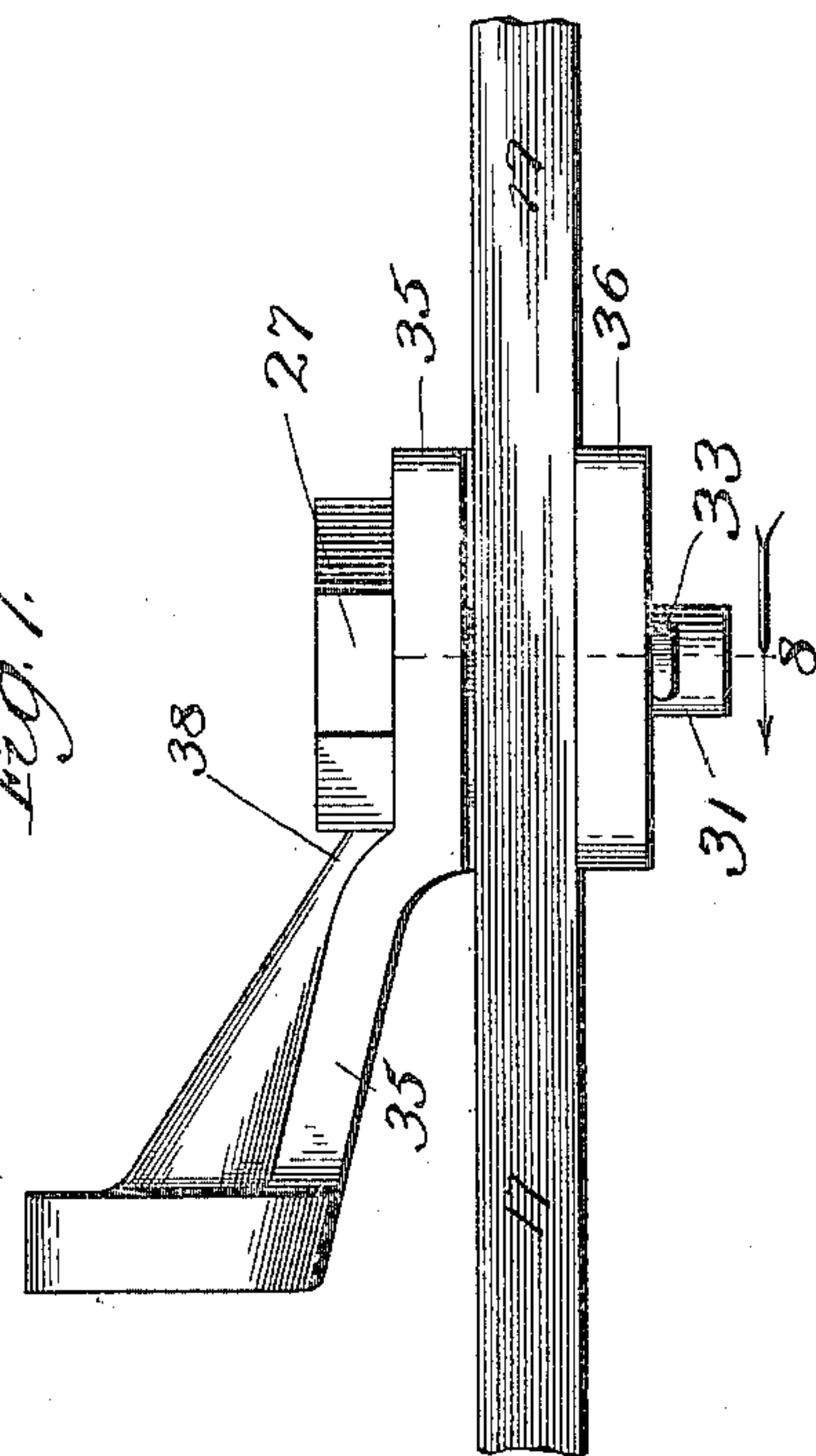


Fig. 7.

Witnesses:  
*Carl Paylad*  
*John Enders, Jr.*

Inventors:  
*Willis C. Lee,*  
*Miles F. Moore,*  
 By *Dwight Blewett*  
*Att'y*



# UNITED STATES PATENT OFFICE.

WILLIS C. LEE AND MILES F. MOORE, OF CHICAGO, ILLINOIS, ASSIGNORS TO  
MORDEN FROG & CROSSING WORKS, OF SAME PLACE.

## ADJUSTABLE SWITCH-ROD.

SPECIFICATION forming part of Letters Patent No. 679,153, dated July 23, 1901.

Application filed March 18, 1901. Serial No. 51,682. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIS C. LEE and MILES F. MOORE, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Adjustable Switch-Rod, of which the following is a specification in its best form now known to us, reference being had to the accompanying drawings, in which similar figures indicate the same parts throughout the several views.

Our invention relates to switch-rods, and particularly to adjustable ones.

The object of our invention is to provide a switch-rod which can be easily and cheaply constructed, which can be easily adjusted and rigidly locked in the desired position, and which shall possess the further advantages hereinafter more fully described and claimed.

In the drawings, Figure 1 is an end view of a split switch, showing a side view of our adjustable switch-rod, partly in section. Fig. 2 is a plan view of the same. Fig. 3 is a detail plan view of the tie-bar. Fig. 4 shows in detail a switch-lug. Fig. 5 shows a side and Fig. 6 a bottom view of the adjusting-bolt. Fig. 7 is a side view of a modified construction in which an open side socket is used. Fig. 8 is an end view of the open side socket. Fig. 9 is a detail view showing the adjusting-bolt in partially-turned position.

Referring again to Fig. 1, 10 indicates the main rail, and 11 the switch-rail. Rigidly secured to the switch-rail by means of the bolt 12, the nut 13, and cotter 14 is the switch-lug 15, having in its outer end a hole 16. Running under the rail 10 and switch-lug 15 is the tie-bar 17, having one end 18 connected to the switch-lever and the other end 19 connected to the other switch-rail. (Not shown.) Secured to the tie-bar 17 by rivets 20 and 21 is a clip 22, fitting over the switch-lug 15, as shown in Fig. 1. The fit of the parts is such that the switch-lug 15 is free to slide in the space 23 between the jaws formed by the bar 17 and the clip 22. In the bar 17 is a round hole 24, of smaller diameter than hole 16 in the switch-lug 15, and in the clip 22, concentric with the hole 24, is another round hole 25. The relation of the centers of hole

16 and hole 24, as shown in Fig. 1, is such that the distance between them is just half the maximum distance the switch-rod can be actuated, or, in other words, the switch-lug 15 moved with reference to the tie-bar 17.

We provide an adjusting-bolt 26, having a nut portion 27 adapted to be engaged by a wrench and also adapted to engage a lug 28 on the clip 22. The lower edge of this nut bears against the top of clip 22. The bolt 26 also has a round portion 29, adapted to fit in the hole 25, another circular portion 30, adapted to fit in hole 16, and a pin portion 31, adapted to fit in the hole 24. As shown, the circular portion 30 is made eccentric to the other parts of the bolt, the eccentricity being one-half the maximum adjustment distance of the switch-rod. The bottom of the bolt 26 is adapted to have the cotter 33 pass through it and secure it in position. A nut or other means may be used in place of the cotter.

In the operation of our device one end of the tie-bar 17 is secured to one rail (not shown) of the switch and the switch-lug 15 to the other rail 11 in such a way that when the rails are as far apart as it is desired they ever shall be the holes 16 and 24 are eccentric to each other, as shown in Fig. 1. The bolt 26 is now inserted, as shown in Fig. 1, and secured by the cotter 33 or other suitable means. As one side of nut 27 of bolt 26 now engages lug 28 and the portion 30 of bolt 26 is eccentric to the center of the bolt, (and portions 29,) the parts are now locked in position. When it is desired to adjust the switch-rod and bring the rails nearer together, the operator removes the cotter 33 and raises the bolt 26 out of engagement with lug 28, taking the bolt entirely out and away from the apparatus, if desired. The operator now moves the switch-points toward each other, thereby changing the relative position of hole 16 to holes 24 and 25. When a sufficient adjustment has been made, the operator replaces the bolt in its new position—as, for instance, in Fig. 9—and turns it a little one way or the other until one side of the polygonal part 27 is in line with lug 28, when he drops the bolt into place again in its lowest position and replaces the cotter 33. These adjustments may be continued until the bolt 26 has been turned half-way around



from the position shown in Figs. 2 and 5, when the eccentric 30 will be on the left instead of the right side of the center of the bolt and the switch-rails will be as near together as they can be brought.

As the workmen who are ordinarily employed around railroads who would be required to adjust switch-rods are not mechanics, we have designed an apparatus so that it can be used by them in the simplest possible manner and have described above the operation of the device best suited to the intelligence of these men. The apparatus is, however, capable of another and easier method of operation, and for this purpose we make the height of the lug 28 substantially less than the thickness of the part 23 of the switch-lug. The operator first removes the cotter 33, and then raises the bolt 26 until the polygonal portion 27 just clears the lug 28. As the lug 28 is of less height than the thickness of the switch-lug 32, the eccentric portion 30 is still partly within the hole 16 and the pin 31 still has a bearing within the hole 24. The operator now applies a wrench to the top of the bolt 26 and turns it any desired amount thereby, turning the eccentric 30 and moving the switch-lug 15 in the space 23. When the desired adjustment has been made, the bolt is shoved down into engagement with the lug 28 and the cotter 33 is inserted in the manner heretofore described.

Instead of using the construction heretofore described we may use the ordinary open side socket 35 and let the tie-bar 17 pass between the jaws 35 and 36 of the socket, the hole 25 being cut in the upper jaw 35 and the hole 24 in the lower jaw 36, while a hole 37, corresponding to hole 16 of the switch-lug 15, above described, is cut in the tie-bar 17. The bolt 26 is inserted through the open side socket and tie-bar, as shown in Fig. 7, and operated as heretofore described, the rib 38 performing the functions of the lug 28. Manifestly the open side socket 35 may be made in the form of a sleeve entirely surrounding the bar 17 without departing from our invention.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured

to one rail, a switch-rod adapted to be secured to the other rail, a bolt passing through said lug and bar having an eccentric portion engaging one of said members, a polygonal head upon said bolt adapted to bear against a rigid portion of one of said members whereby said lug and bar may be secured in different positions.

2. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws, having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt of greater diameter than said eccentric adapted to bear against a rigid portion of one of said jaws whereby said lug and bar may be secured in different positions.

3. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt, a lug on one of said jaws adapted to engage said head of the bolt, substantially as described.

4. In an adjustable switch-rod, the combination of an arm or lug adapted to be secured to one rail, a switch-rod adapted to be secured to the other rail, jaws on one of said members inclosing two opposite sides of the other member, a bolt passing through said jaws having an eccentric portion engaging the member between the jaws, a polygonal head upon said bolt, a lug on one of said jaws adapted to engage said head of the bolt, the proportions of said lug, the eccentric on the bolt and the member between the jaws being such that when the bolt-head is lifted clear of the lug the eccentric will still engage the member between the jaws, substantially as described for the purposes set forth.

WILLIS C. LEE.  
MILES F. MOORE.

Witnesses:

DWIGHT B. CHEEVER,  
CHARLES L. HINE.