

No. 724,657.

PATENTED APR. 7, 1903.

A. B. BELLOWS.
SWITCH STAND.

APPLICATION FILED MAY 29, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

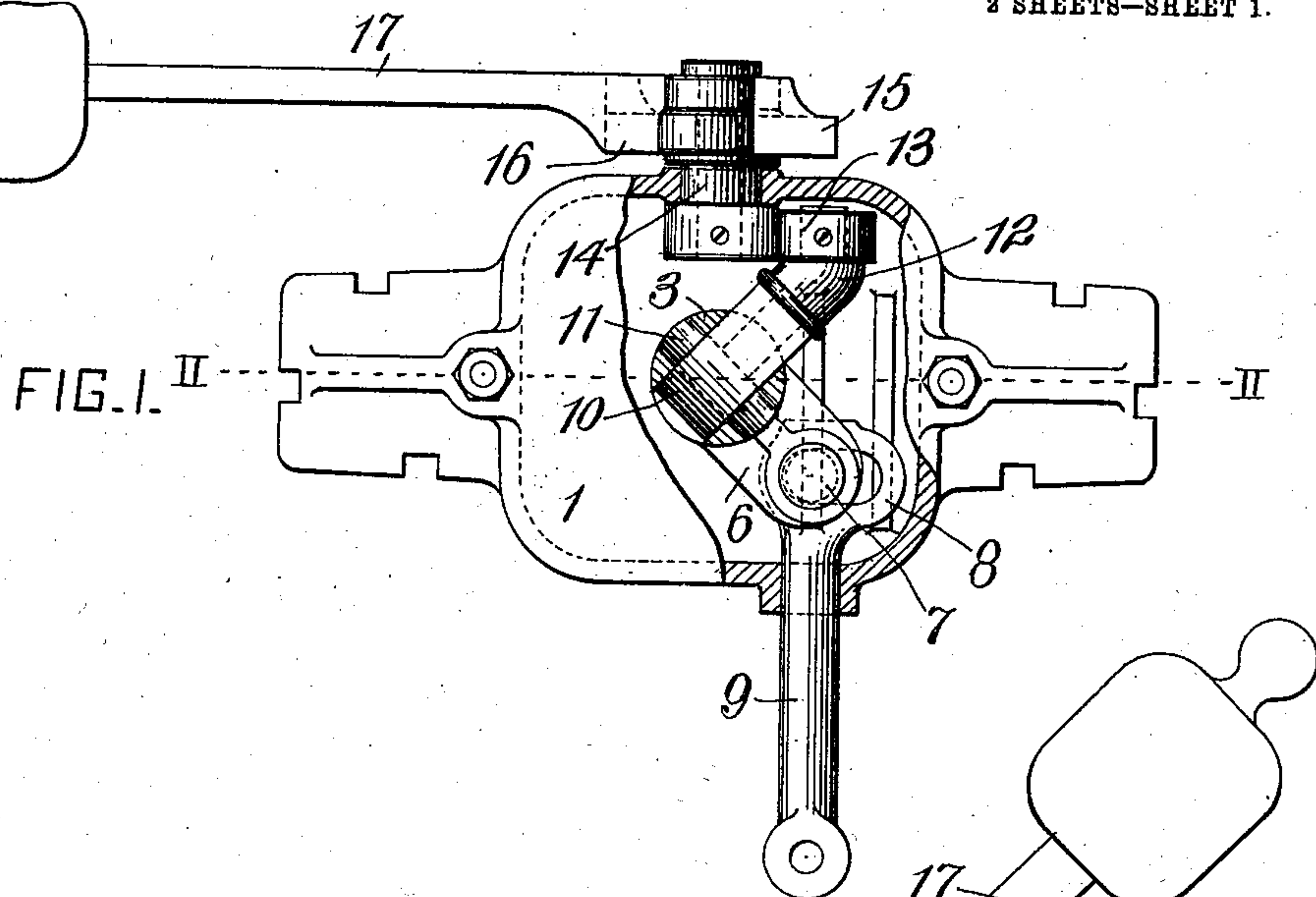


FIG. 2.

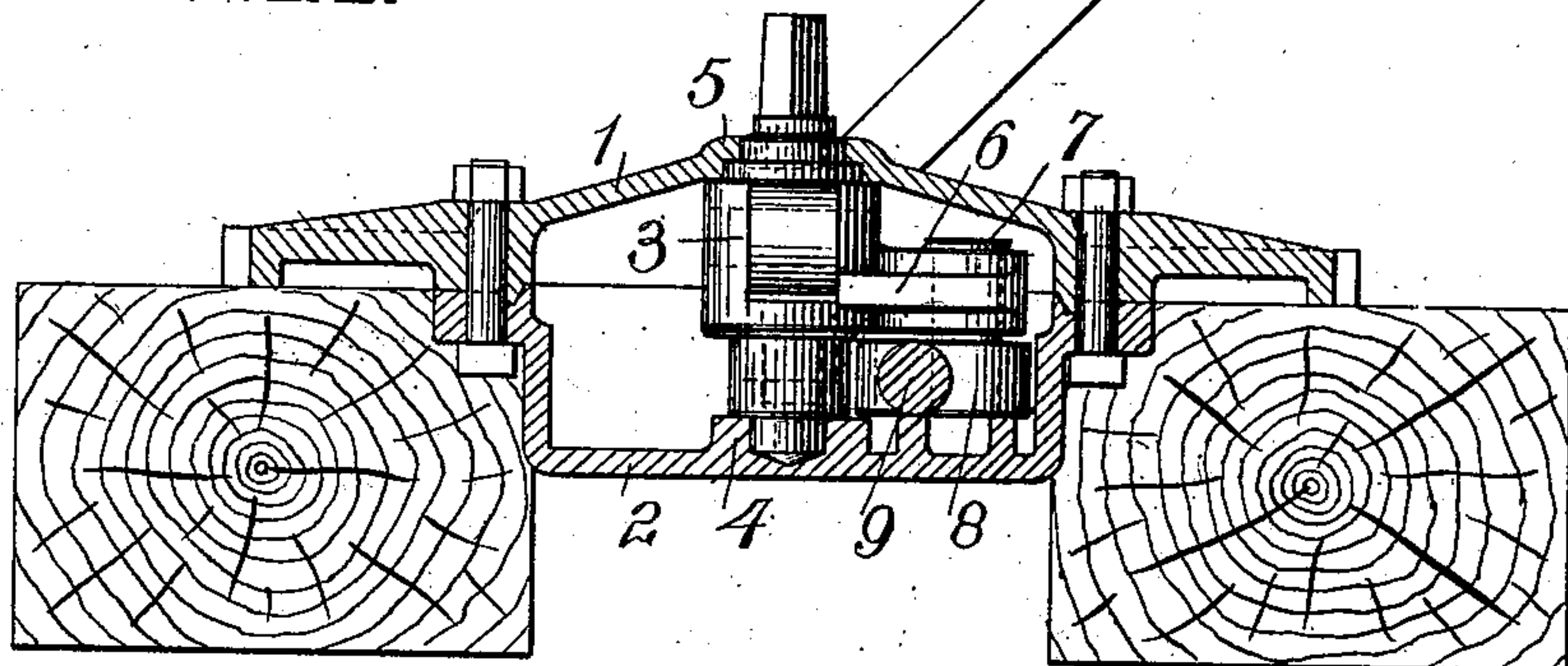
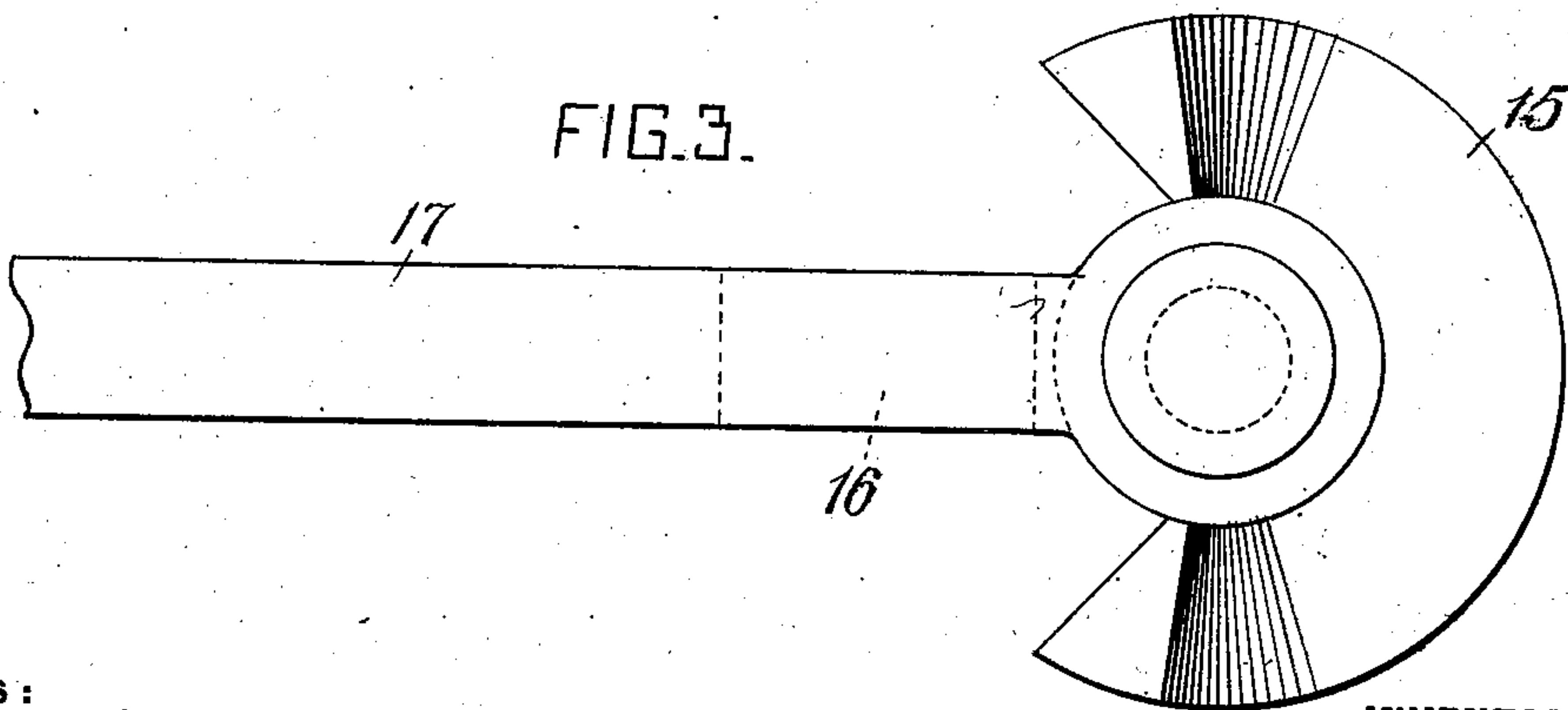


FIG. 3.



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Arthur B. Bellows
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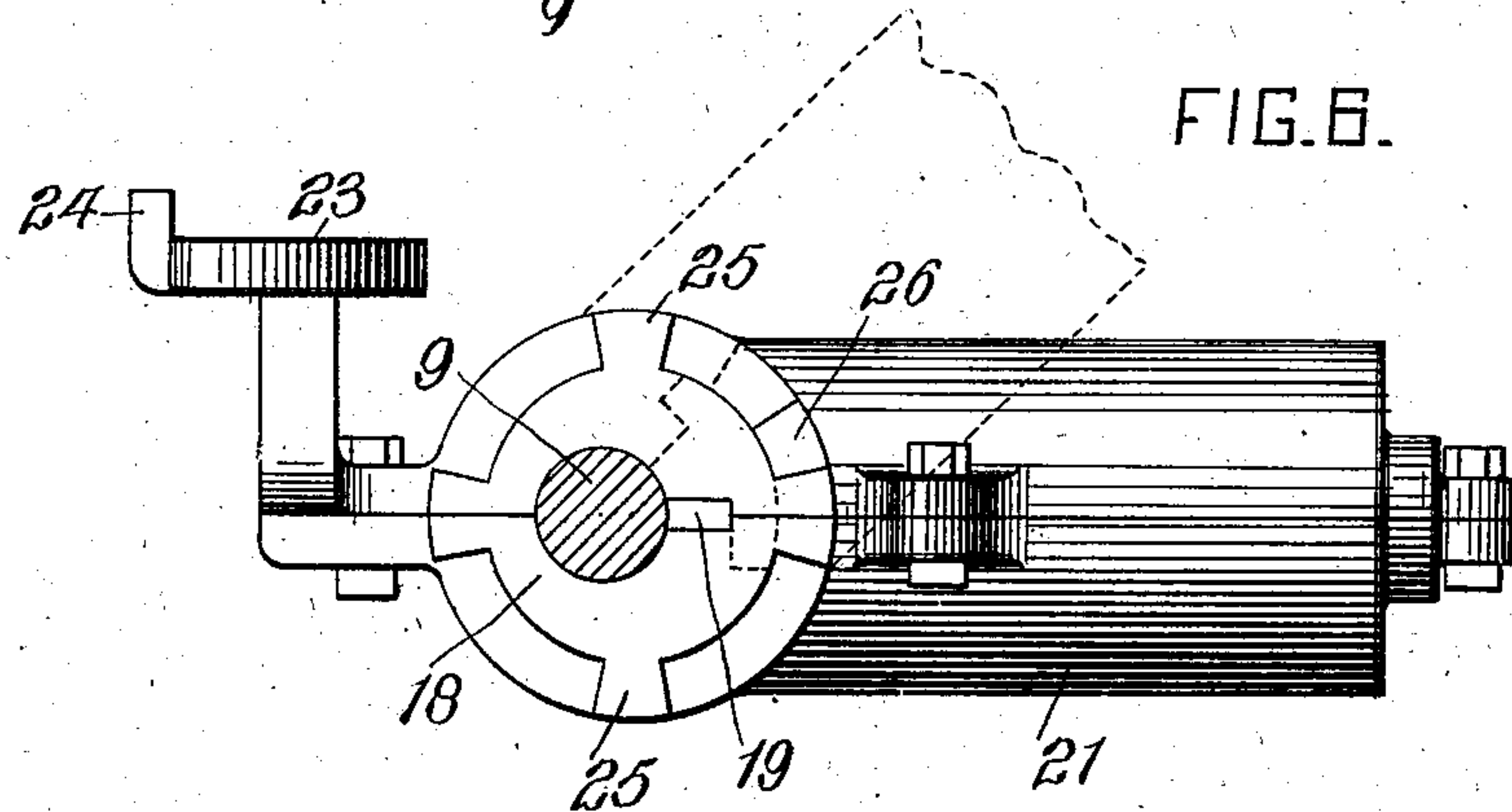
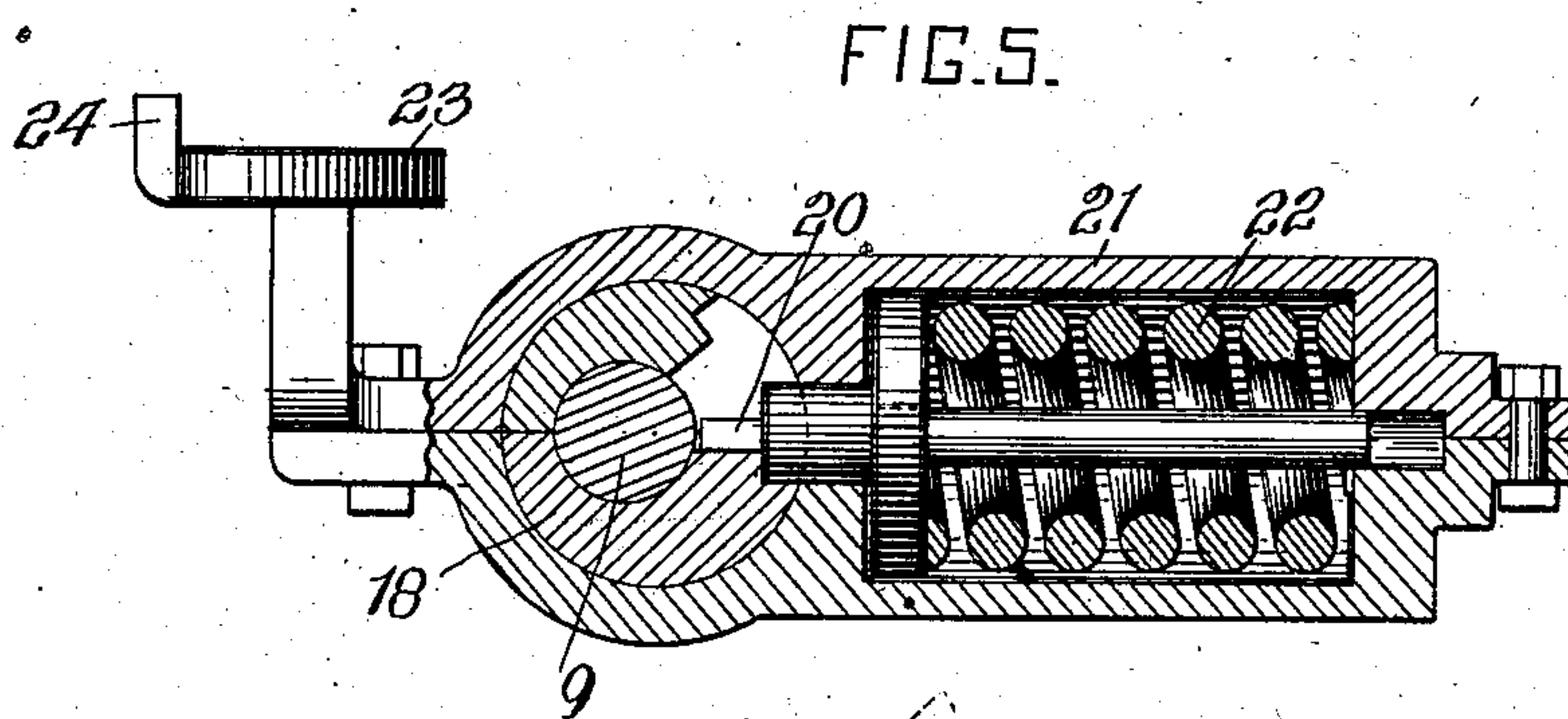
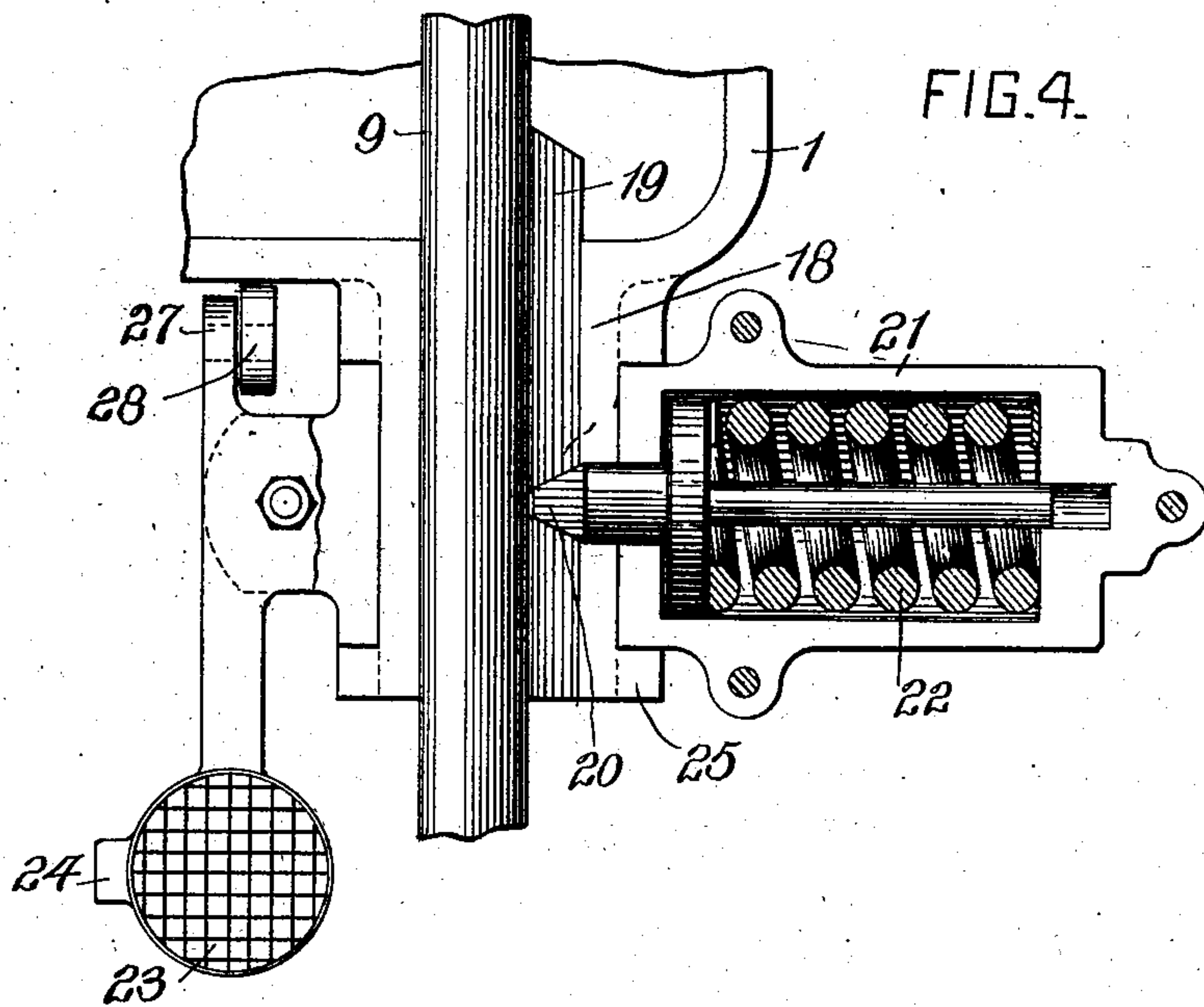
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2 SHEETS—SHEET 2.



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Fred Kirchner

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UNITED STATES PATENT OFFICE.

ARTHUR B. BELLOWS, OF PITTSBURG, PENNSYLVANIA.

SWITCH-STAND.

SPECIFICATION forming part of Letters Patent No. 724,657, dated April 7, 1903.

Application filed May 29, 1902. Serial No. 109,412. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR B. BELLOWS, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered certain new and useful Improvements in Switch-Stands, of which improvements the following is a specification.

The invention described herein relates to certain further and additional improvements on the form or construction of switch-stand shown and described in application Serial No. 109,411, filed May 29, 1902.

The improvements described herein have for their object a construction whereby the operating-lever may be given a certain amount of movement prior to effecting the switch-rails, so that the principal work to be done will be assisted or facilitated by the downward movement of the weight on the end of the operating-lever and whereby, under conditions hereinafter stated, the switch-rails may be shifted by car-wheels independent of the operating-lever.

It is a further object of the invention described herein to so construct and arrange the parts of the mechanism that all but the operating-lever and its direct connection may be arranged within the case or shell.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a top plan view of my improved switch-stand, part of the cover being removed. Fig. 2 is a sectional elevation of the same on a plane indicated by the line II II, Fig. 1, the lever being shifted to an angle of forty-five degrees and the other parts correspondingly moved. Fig. 3 is a detail view, on an enlarged scale, of the operating-lever and its connection to the other mechanisms. Figs. 4 and 5 are sectional views of a switch-lock mechanism adapted to be employed in connection with the constructions shown in Figs. 1 and 2 or those illustrated in the application above referred to, and Fig. 6 is a side elevation of the locking mechanism.

In the practice of my invention I employ a case or shell consisting of upper and lower portions 1 and 2, adapted to be secured to-

gether by bolts or other suitable means, the upper portion being provided by preference with laterally-projecting wings having notched edges for the reception of spikes employed for securing the case or shell to the cross-ties or other foundation. A vertical shaft 3 is provided at its ends with journals having bearings 4 and 5 in the upper and lower portions of the case or shell and provided with an extension on its upper end preferably angular in cross-section for the reception of a banner or lantern. An arm 6 is formed integral with or secured to the vertical shaft and is provided with a pin 7, engaging a slot formed in an enlargement 8 transverse of the switch-rod 9, so that by the rotation of the shaft the switch-rod may be moved back and forth as required. The vertical shaft is also provided with a longitudinal slot for the reception of the end of an arm 10, loosely mounted on a pin 11, passing through the shaft. The outer end of the arm 10 is provided with a socket for the reception of a stem formed on a block 12, secured to an arm 13, which in turn is secured to a short counter-shaft 14, mounted in suitable bearings formed in the sides of the case or shell. As this shaft 13 is rotated the arm and block 10 and 12 are carried around and describing the surface of a cone and imparting an axial rotation to the vertical shaft 3, thereby effecting a longitudinal movement of the switch-rod 9. On the shaft 14 outside of the case or shell is secured a disk 15, having a portion cut away, and into this recess or opening in the disk projects a lug 16, formed on the operating-lever 17. It is preferred that the cut-away portion of the disk should be so proportioned as to peripheral length that the operating-lever can move up through an arc of ninety degrees before the lug 16 thereon will engage the disk or effect any movement of the switch-shifting mechanism, so that the operator will not be required to do any work beyond lifting the lever, which is weighted, until the latter begins its downward movement, at which time the weight on the lever will assist and facilitate such downward movement and shifting of the switch mechanism.

The several parts of the switch-stand, especially the arms 10 and 13 in block 12, are

so constructed and adjusted that the parts 10, 12, and 13 do not move through an arc of one hundred and eighty degrees and that a horizontal plane passing through the axis of the pin on the block 12 will pass to one side, either above or below a horizontal plane passing through the axis of the shaft 14, so that there will be no dead-center in the movements of the parts, and pressure upon the switch-rails, as by the running of a train through a closed switch, can move the parts of the switch-stand without any injury thereto.

In order to lock the switch-rails in the different positions, a case or shell 18, which may be made in the form of a tubular extension on the portions 1 and 2 of the main case or shell, as shown in Fig. 4, is employed, and through this case or extension passes the switch-rod 8, which is provided with shoulders which may be formed by the ends of a fin or rib 19, having its ends beveled, as shown. The distance between the shoulders corresponds approximately to the movement of the switch rod and rails, and the shoulders are adapted to bear against the inclined edges at the inner end of a pin 20, carried by a tubular block 21, mounted on the case or tubular extension of the case or shell and adapted to rotate around the same. This pin is normally forced inward by a spring 22 in the tubular block, as clearly shown in Figs. 4 and 5. The shoulders on the switch-rod and the portion of the pin in contact therewith are inclined or beveled, so that when the switch-rod is subjected to unusual tension or pressure, as by the running of a train through a closed switch, the pin will be forced backward, thereby permitting a movement of the switch-rails without any injury to the switch-operating mechanism. A treadle 23, provided with a foot-retaining lug 24, is connected with a tubular block, so that by placing his foot on said treadle the tubular block may be swung around the case or tubular extension, thereby shifting the pin out of alinement with the shoulders on the switch-rod, so as to permit a free movement of the switch-operating mechanism. As soon as the foot is removed from the treadle the weight of the block will bring the pin back into normal or locking position, provided the switch-rails have been fully shifted in either direction. The movement of the tubular block around the case or tubular extension is limited by means of lugs 25, formed on such case or extension, and lugs 26 on the tubular block, projecting between those on the case or extension, as clearly illustrated in Fig. 6. In order to lock the switch mechanism, the swinging block 21 is provided with a lug 27, which in normal position of the switch mechanism overlaps a fixed lug 28, preferably formed on the case or shell. These lugs are provided with holes for the passage of a hasp or bolt whereby they may be locked in alinement with each other.

I claim herein as my invention—

1. A switch-stand having in combination, a vertical shaft provided with an arm, a switch-rod connected to the shaft-arm, an arm pivotally mounted in the vertical shaft, a counter-shaft provided with an arm and a block connected to the arm on the counter-shaft and having a pivoted connection with the arm from the vertical shaft, substantially as set forth.

2. A switch-stand having in combination, a case or shell, a vertical shaft mounted in the case or shell and provided with an arm, a switch-bar having a transverse slot for the reception of a pin on the shaft-arm, an arm provided with a socket and pivotally connected to vertical shaft with the case or shell, a counter-shaft having a bearing on the case or shell and provided with an arm, and a block connected to said arm and having a pin fitting within the socket on the arm connected to the vertical shaft, substantially as set forth.

3. A switch-stand having in combination, a switch-bar, an operating-lever pivotally mounted in a plane at right angles to the switch-bar, and connections interposed between the lever and switch-bar constructed to permit of a movement of the switch-bar independent of the operating-lever, substantially as set forth.

4. A switch-stand having in combination a vertical shaft provided with an arm and having a longitudinal slot, a switch-rod connected to the shaft-arm, an arm pivotally mounted in the slot in the shaft, an operating-lever and a loose connection between said lever and the arm mounted in the shaft, substantially as set forth.

5. A switch-stand having in combination, a vertical shaft provided with a slot or recess, a switch rod or bar, connections from the shaft to the switch-bar, an operating-lever, an arm pivotally mounted in the slot in the shaft and connections from said arm to the operating-lever, substantially as set forth.

6. The combination of a switch-bar provided with shoulders, a movably-supported pin arranged in the plane of the shoulders and means for shifting the pin around the switch-rod, substantially as set forth.

7. The combination of a switch-bar provided with inclined shoulders, a movably-supported pin yieldingly held in the plane of the shoulders and means for shifting the pin around the switch-rod to unlock the latter, substantially as set forth.

8. A switch-stand having in combination a case or shell provided with a tubular extension, a switch-rod provided with inclined shoulders movable through said extension, a tubular block mounted upon said extension, a spring-actuated pin arranged within the block with its end normally in the plane of the shoulders on the switch-rod and means for

shifting the block around the extension there-
by unlocking the switch-rod, substantially as
set forth.

plate with a retaining-lug connected to the
tubular block, substantially as set forth. 10

In testimony whereof I have hereunto set
my hand.

9. In a switch mechanism the combination
5 of a tubular bearing, a switch-rod movable
through said bearing and provided with
shoulders, a tubular block carrying a pin ar-
ranged in the line of the shoulders, a foot-

ARTHUR B. BELLOWS.

Witnesses:

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DARWIN S. WOLCOTT.