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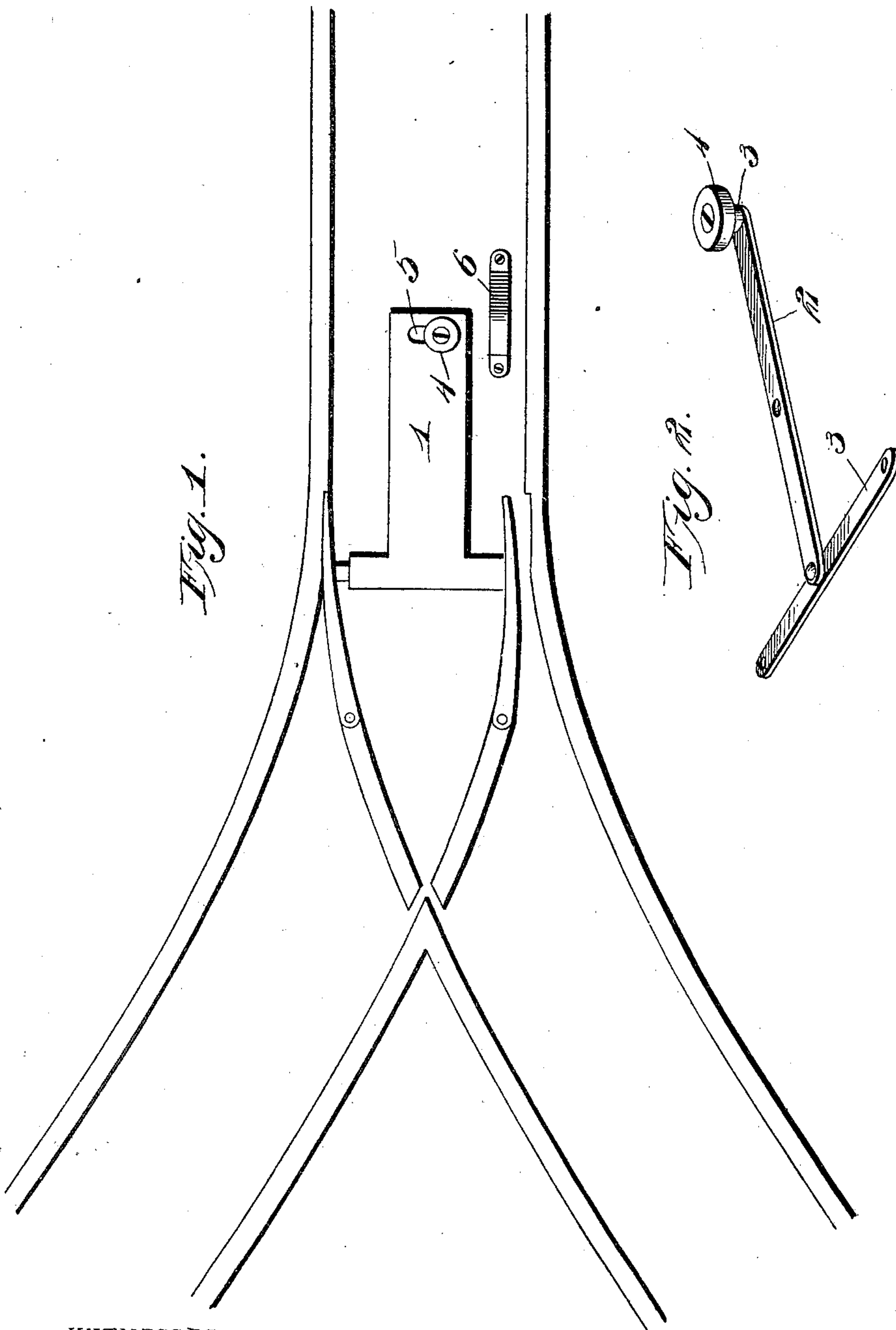
Patented May 28, 1901.

J. R. BOWLES.  
RAILWAY SWITCH.

(Application filed Sept. 1, 1900.)

(No Model.)

3 Sheets—Sheet 1.



WITNESSES

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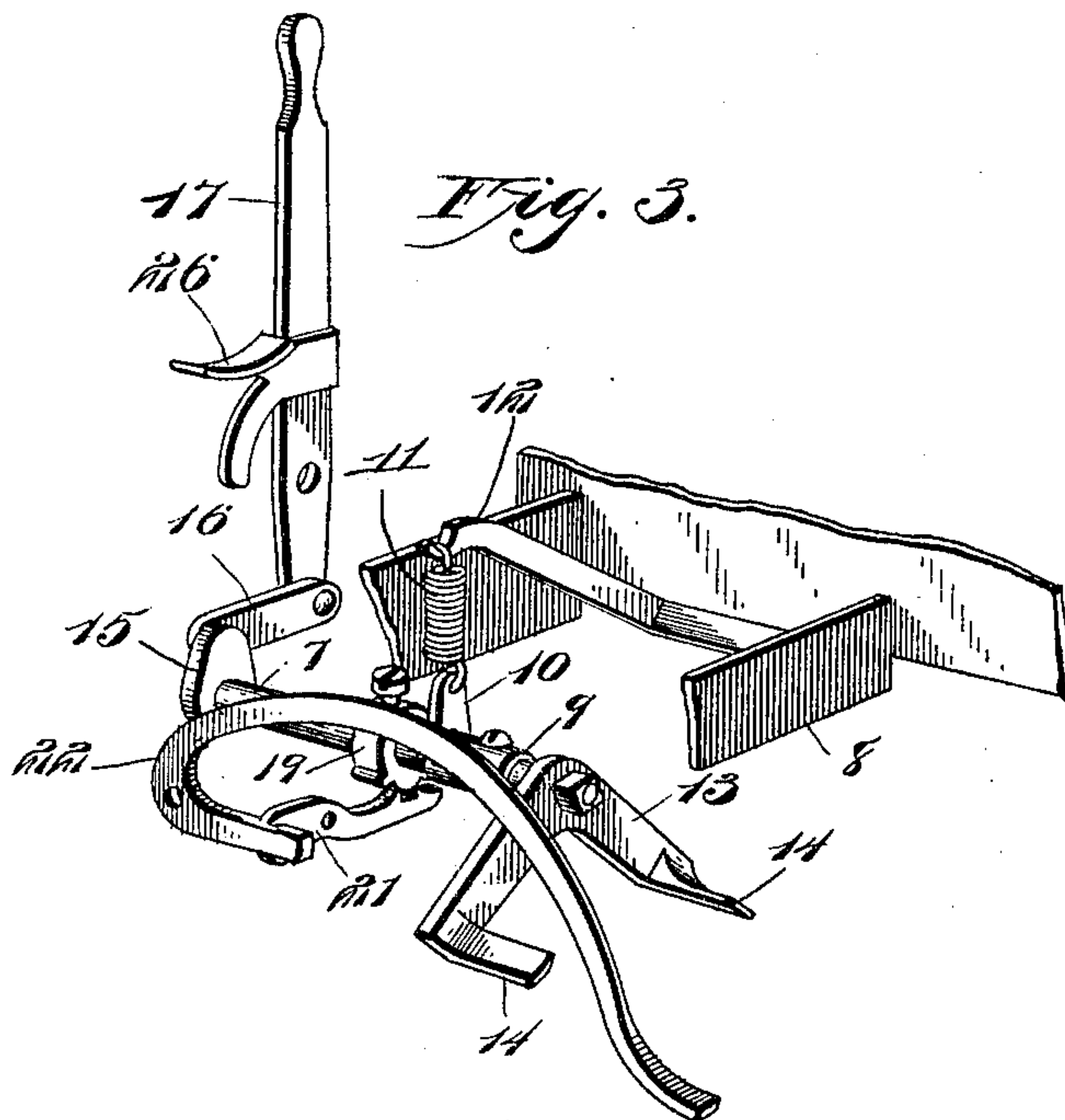
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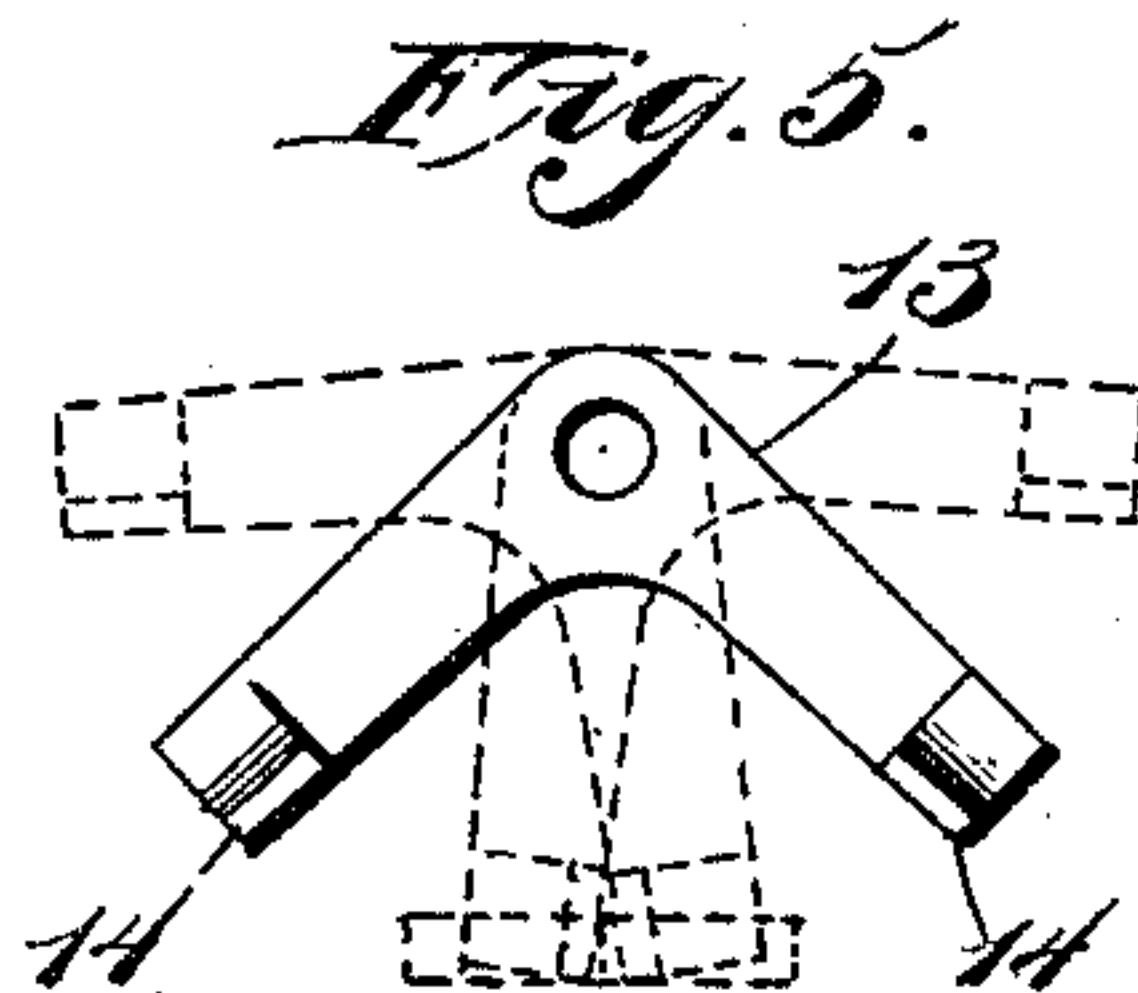
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*Fig. 3.*



Fig. 4



*Fig. 5.*

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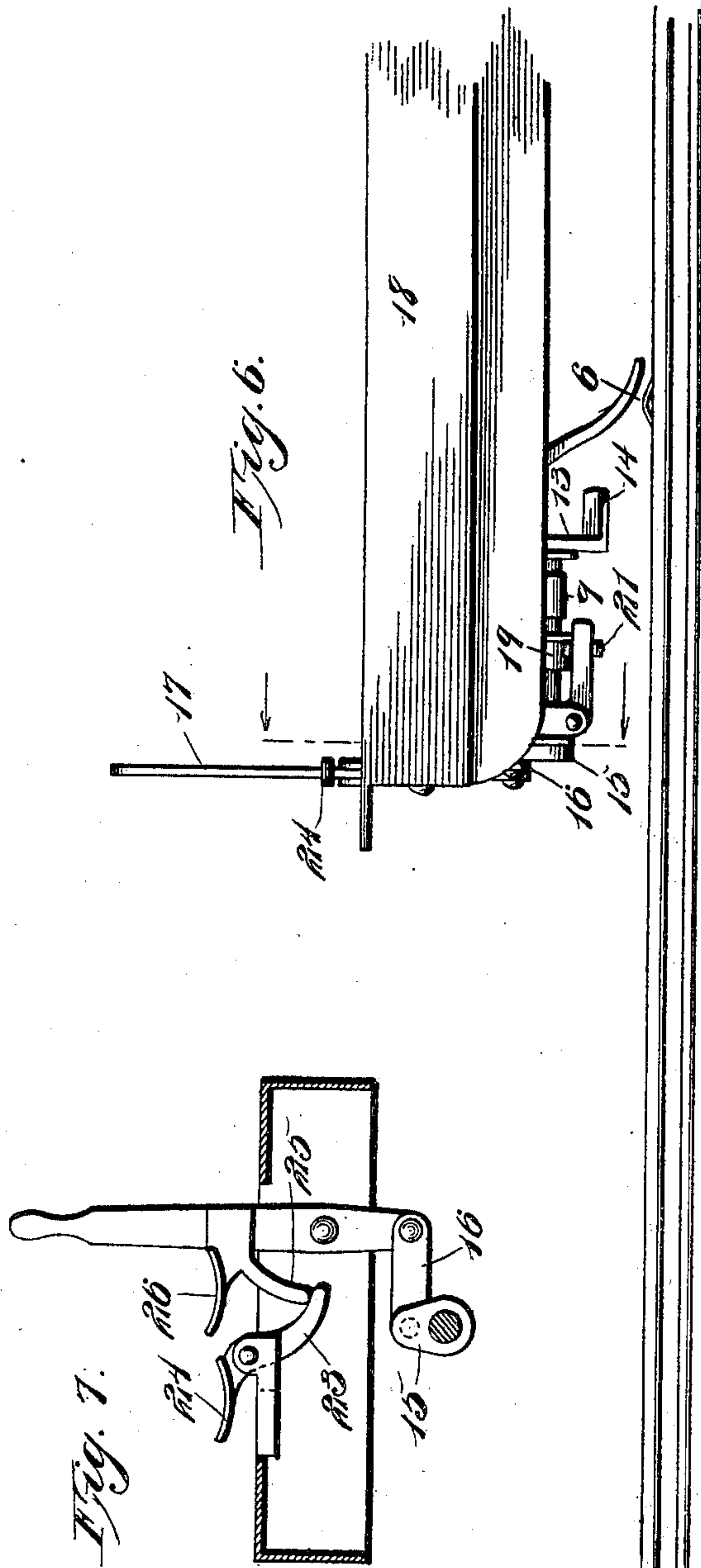
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# UNITED STATES PATENT OFFICE.

JOSEPH R. BOWLES, OF SALEM, VIRGINIA.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 674,955, dated May 28, 1901.

Application filed September 1, 1900. Serial No. 28,825. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH R. BOWLES, a citizen of the United States, residing at Salem, in the county of Roanoke and State of Virginia, have invented new and useful Improvements in Railway-Switches, of which the following is a specification.

This invention relates to new and useful improvements in railway-switches and means for operating the same; and its primary object is to provide a switch which may be readily operated from a car or other vehicle approaching the same.

To these ends the invention consists in providing a lever which is pivotally secured between the rails of the track and to a switch-plate. This lever may be suitably housed and is provided at the end farthest removed from the switch with a projection adapted to be moved laterally when a bell-crank lever of peculiar construction contacts therewith. This lever is mounted upon the vehicle, which travels upon the track, and is provided with means whereby the same may be rocked so as to contact with the projection upon the switch-lever at either side. Suitable locking means are provided for the bell-crank lever, and they are so constructed and arranged as to be released automatically after the shifting of the switch.

The invention also consists in the further novel construction and combination of parts hereinafter more fully described, and illustrated in the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a plan view of the switch and the mechanism secured thereto. Fig. 2 is a detail view of the switch-lever and its attachments. Fig. 3 is a similar view of the operating mechanism. Fig. 4 is a side elevation of the locking device detached. Fig. 5 is an elevation of the bell-crank lever. Fig. 6 is a side elevation of the mechanism applied to a car, and Fig. 7 is a view of a device for operating the mechanism by foot.

Referring to said figures by numerals of reference, 1 is a casing, within which is pivoted a lever 2. This lever is provided at one of its ends with a cross-strip 3, which is pivoted thereto and secured at its end or ends to the switch-plates. The opposite end of the

lever 2 has a stud 3 thereon, upon which is loosely mounted a roller 4. This stud is adapted to project through a slot 5, formed within the top of the casing 1, and is obviously movable laterally therein. A projection 6, which is preferably V-shaped in elevation, is secured between the tracks at a point adjacent to the roller 4.

The roller upon the lever 2 is adapted to be forced to one side or the other by operating mechanism of peculiar construction, which is mounted upon the car or other vehicle, at the front thereof. This mechanism comprises a shaft 7, which is journaled within the front of the car and within a suitable cross-strip or bracket 8. Secured to this shaft 7 is a sleeve 9, having an arm 10 extending upward therefrom, said arm being connected, by means of a spring 11, to a hooked bracket 12, located in vertical alinement therewith. It will be seen that this spring will retain the arm 10 normally in an upright position.

Secured to the inner end of the shaft 7 is a bell-crank lever 13, having arms 14 extending rearward therefrom at the ends. These arms are so located as to contact with one side or the other of the roller 4 when either of said arms is swung into the position shown in dotted lines, Fig. 5.

The front end of shaft 7 is provided with a crank 15, said crank being connected, by means of a pitman 16, to the lower end of a lever 17, which is pivotally secured at a point between its ends to the car 18.

A collar 19 is secured to the shaft 7 and provided with two longitudinally-extending ribs or teeth 20. Either of these is adapted to be engaged by the recessed end of a lever 21, which is pivotally mounted to the frame of a car in a desired manner and is engaged by a recurved lever 22. This lever is pivoted to the car-frame in front of the lever 21, and its rear end extends downward, so as to contact and ride upward upon the projection 6 after the roller 4 has been shifted by the lever 13. It will be obvious that this upward movement of the arm 22 will depress the recessed end of lever 21, disengaging the same from a tooth of collar 19 and permitting spring 11 to return the bell-crank lever to normal position.

When it is desired to switch to the right, the lever 17 is pulled in that direction, caus-



ing the right-arm lever 13 to swing downward. The same will be held in this position by the lever 21, which will engage with one of the teeth 20. This lever is held in engagement  
 5 with the tooth by the weight of the arm 22. When the arm 14 is lowered, it will come into alinement with the roller 4 at one side of the center thereof, carrying lever 2 therewith and shifting the switch-plates. Arm 22 will then  
 10 be raised by projection 6 as the vehicle continues in its movement, and the spring 11 will promptly return lever 13 to normal position.

It will be understood that when it is desired to shift the switch to the left it is merely nec-  
 15 essary to reverse the above operation.

Instead of providing the roller projection upon the lever 2 a wedge may be secured thereon and contacted by rollers mounted upon the arms 14.

20 In Fig. 7 I have shown means whereby the lever 17 may be operated by foot. In said figure I employ a short lever 23, having a treadle 24 at the upper end. This lever is curved and adapted to contact with the lower end of  
 25 an arm 25, projecting from lever 17, and a second treadle 26 is also provided upon this lever 17. It will be seen that by pressing upon one treadle 26 the mechanism will be shifted in one direction and by depressing treadle 24  
 30 the movement will be reversed.

While I have shown and described the device as employing locking and unlocking means of peculiar construction for holding the bell-crank lever in adjusted position and  
 35 for releasing the same after the switch has been operated, I do not desire to restrict myself to the use of this means, as, if desired, any suitable mechanism may be provided whereby the bell-crank lever and its shaft  
 40 may be thrown from one side to the other by a lever or other suitable means operated by the motorman.

In the foregoing description I have shown the preferred form of my invention; but I do  
 45 not limit myself thereto, as I am aware that modifications may be made therein without departing from the principle or sacrificing any of the advantages thereof, and I therefore reserve the right to make such changes as fairly  
 50 fall within the scope of my invention.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

55 1. The combination with a switch-plate and a pivoted lever secured thereto and having a projection thereon; of a vehicle having a shaft

thereto, a lever secured to the shaft, an arm to the lever, means for shifting said arm into the path of the projection, an arm to the shaft, a spring connection between said arm and  
 60 the vehicle, means for locking the shaft at the limit of its movement, and means for automatically unlocking said shaft.

2. The combination with a switch-plate and a pivoted lever secured thereto, and having a  
 65 projection thereon; of a vehicle having a shaft thereto, a bell-crank lever secured to the shaft, arms to the lever, means for shifting either of said arms into the path of the projection, an  
 70 arm to the shaft, a bracket, a spring connection between said arm and bracket, and means for locking the shaft at the limit of its movement.

3. The combination with a switch-plate and a pivoted lever secured thereto, and having a  
 75 projection thereon; of a vehicle having a shaft thereto, a bell-crank lever secured to the shaft, arms to the lever, means for rocking either of said arms into the path of the projection, an  
 80 arm to the shaft, a bracket, a spring connection between the arm and bracket, a toothed sleeve upon the shaft, a lever adapted to engage the sleeve when it reaches the limits of its movement, an arm engaging the  
 85 lever, and means for automatically raising the arm and releasing the lever.

4. The combination with a switch-plate and a pivoted lever secured thereto, and having a  
 90 projection thereon; of a vehicle having a shaft thereto, a bell-crank lever to the shaft, means for rocking said shaft, a toothed collar upon the shaft, a recessed lever adapted to engage  
 95 said teeth, and means for holding the lever in engagement.

5. The combination with a switch-plate and  
 95 a pivoted lever secured thereto, and having a projection thereon; of a vehicle having a shaft thereto, a bell-crank lever to the shaft, means for rocking said shaft, a toothed collar upon the shaft, a recessed lever adapted to engage  
 100 said teeth, a recurved pivoted arm secured to said lever and retaining the same in engagement with the teeth, and a projection adapted to engage the arm and release the  
 105 lever.

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

JOSEPH R. BOWLES.

Witnesses:

F. H. CHALMERS,  
 J. H. DUNCAN.