

A. R. BRETT.  
 AUTOMATIC SWITCH FOR STREET RAILWAYS.  
 APPLICATION FILED JULY 9, 1910.

988,857.

Patented Apr. 4, 1911.

3 SHEETS—SHEET 1.

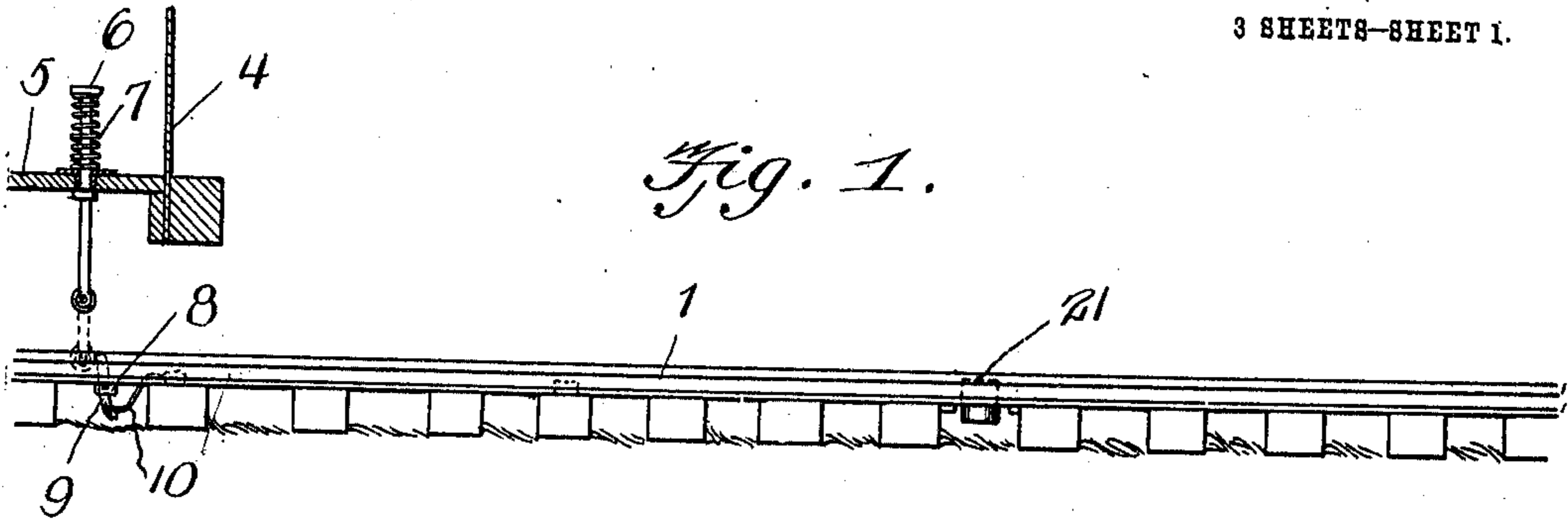


Fig. 1.

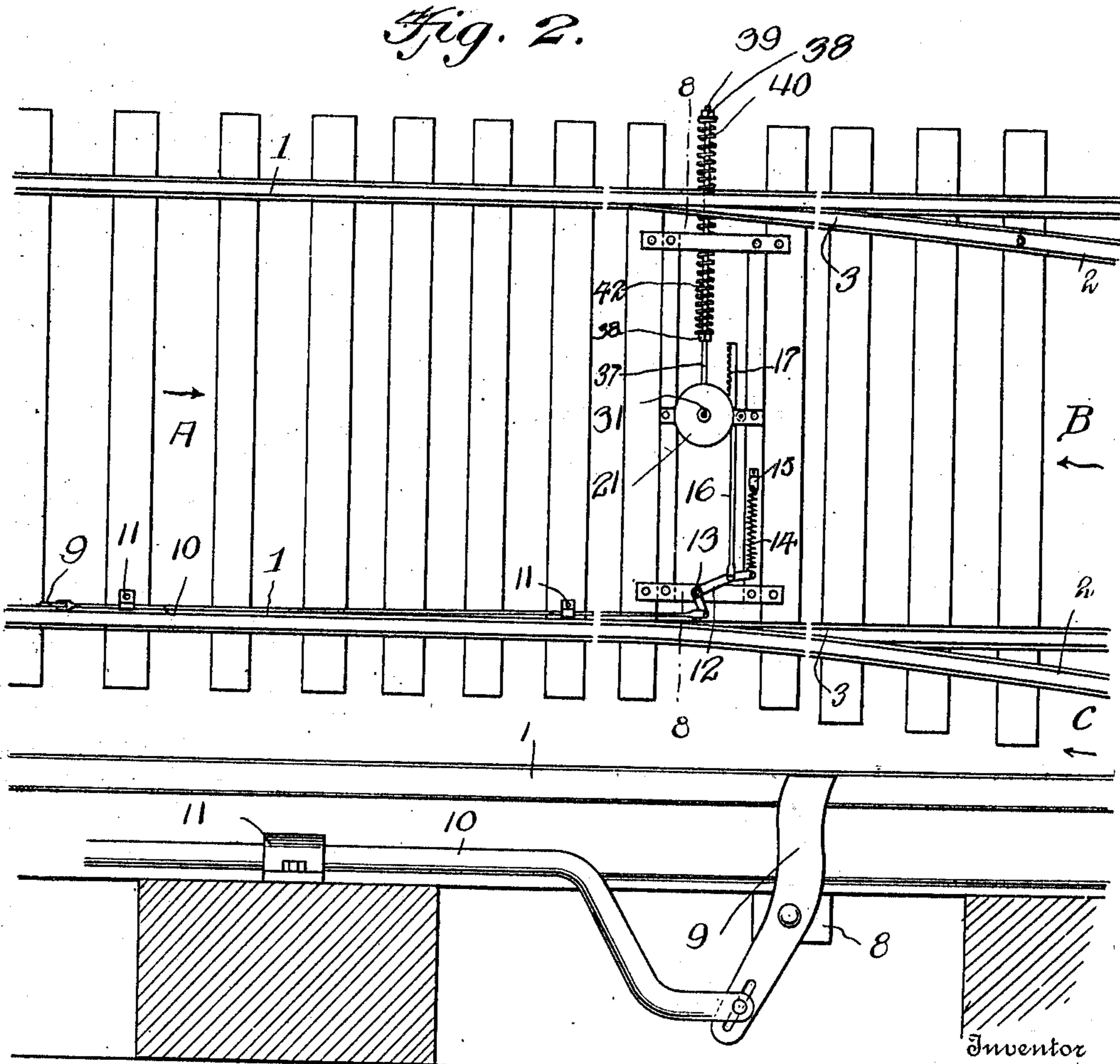


Fig. 2.

Witnesses  
 Frank B. Hoffman  
 Wm. North

Fig. 5.

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3 SHEETS—SHEET 2.

Fig. 8.

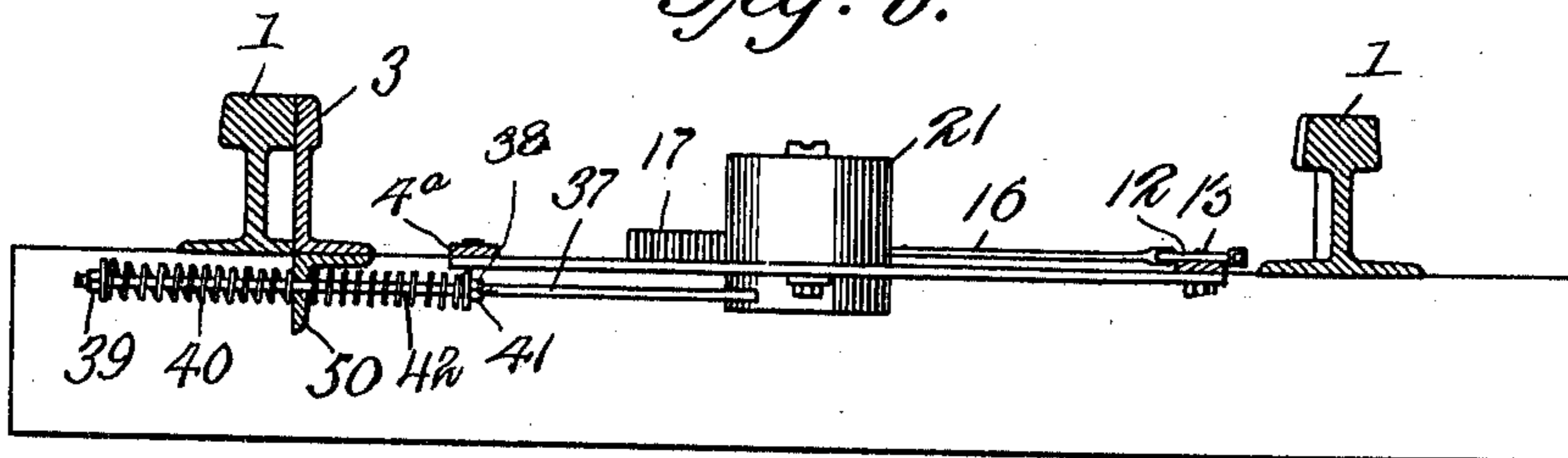


Fig. 6.

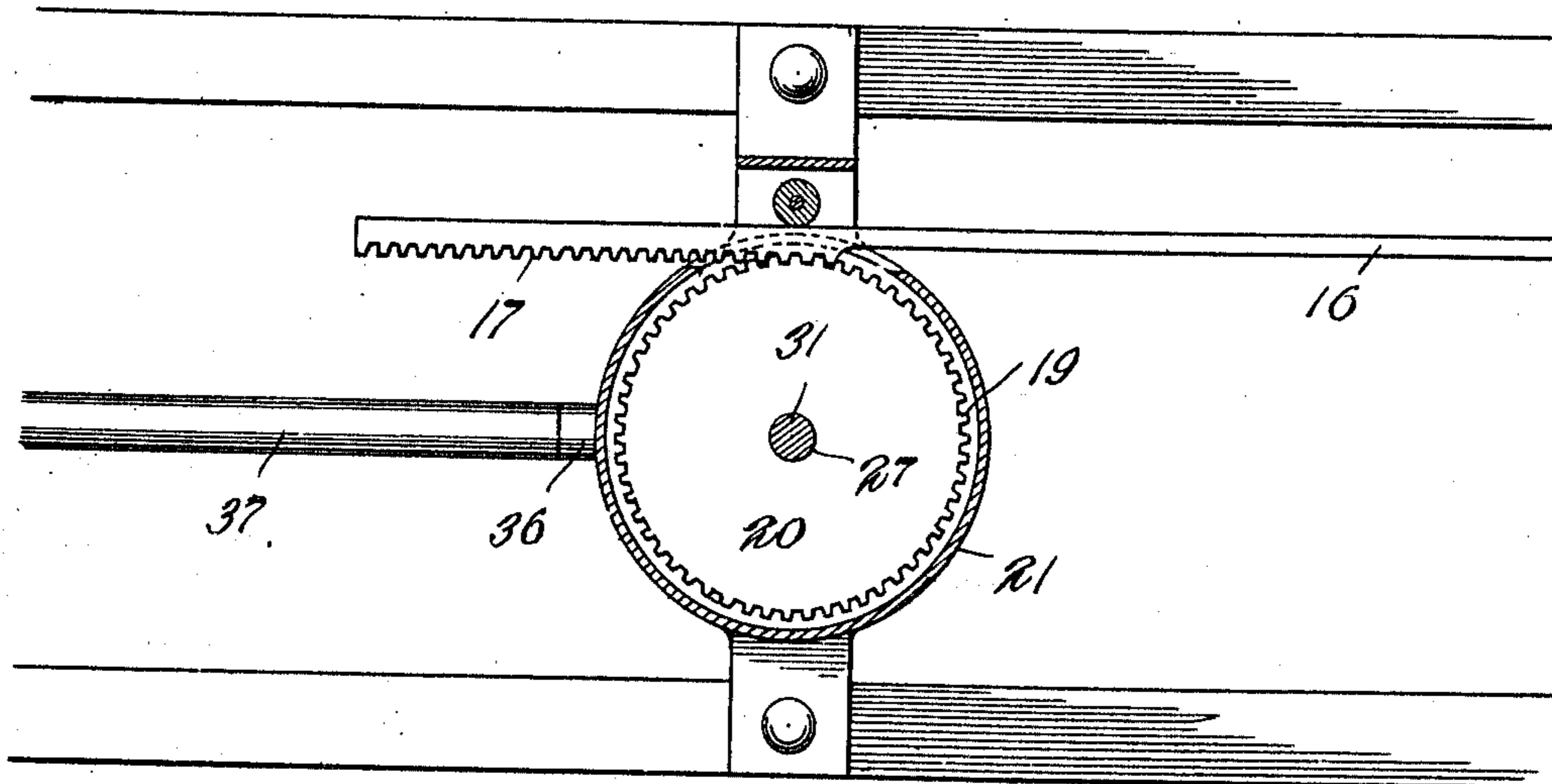
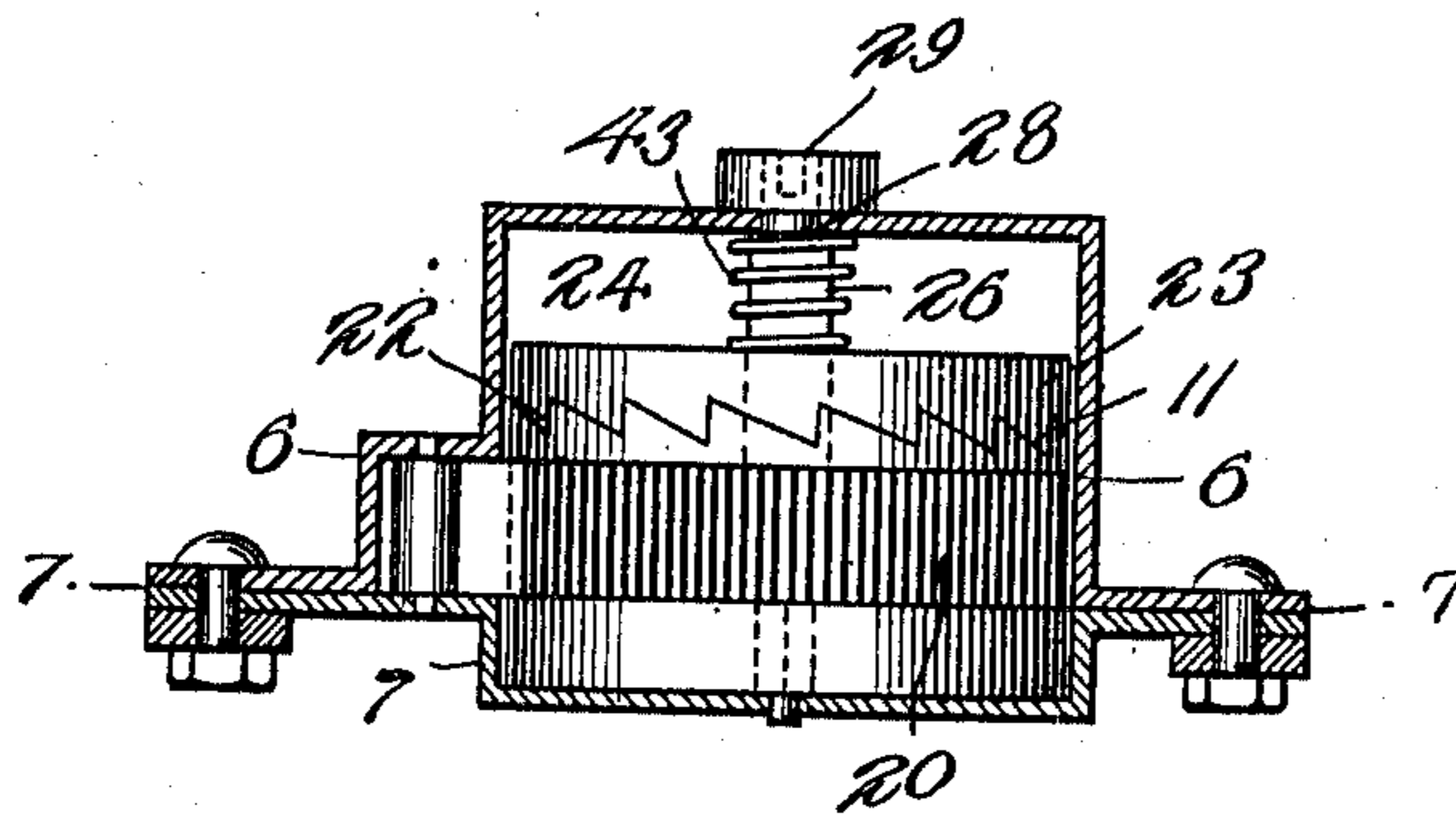


Fig. 3.



Witnesses

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3 SHEETS—SHEET 3.

Fig. 7.

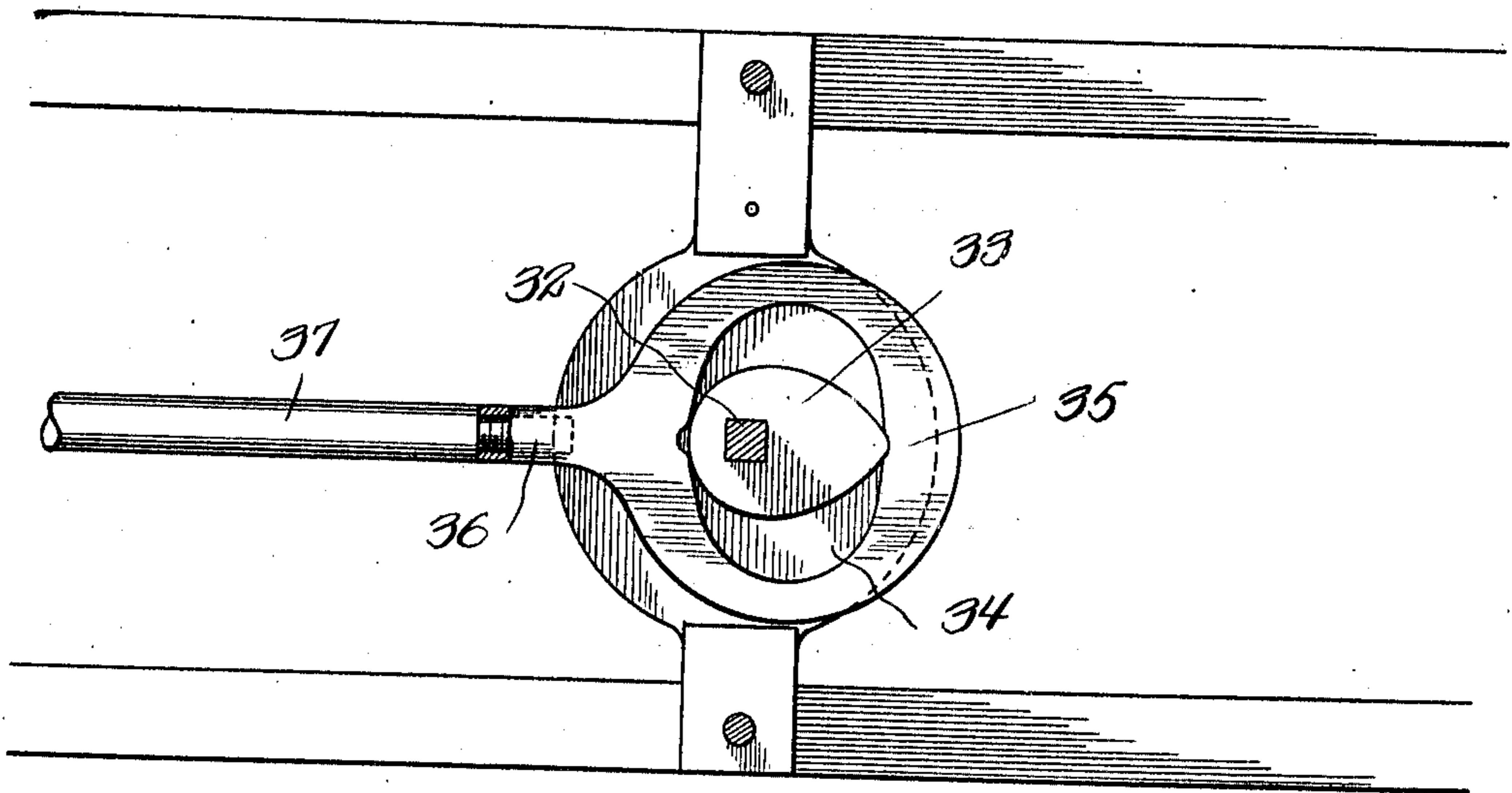


Fig. 4.

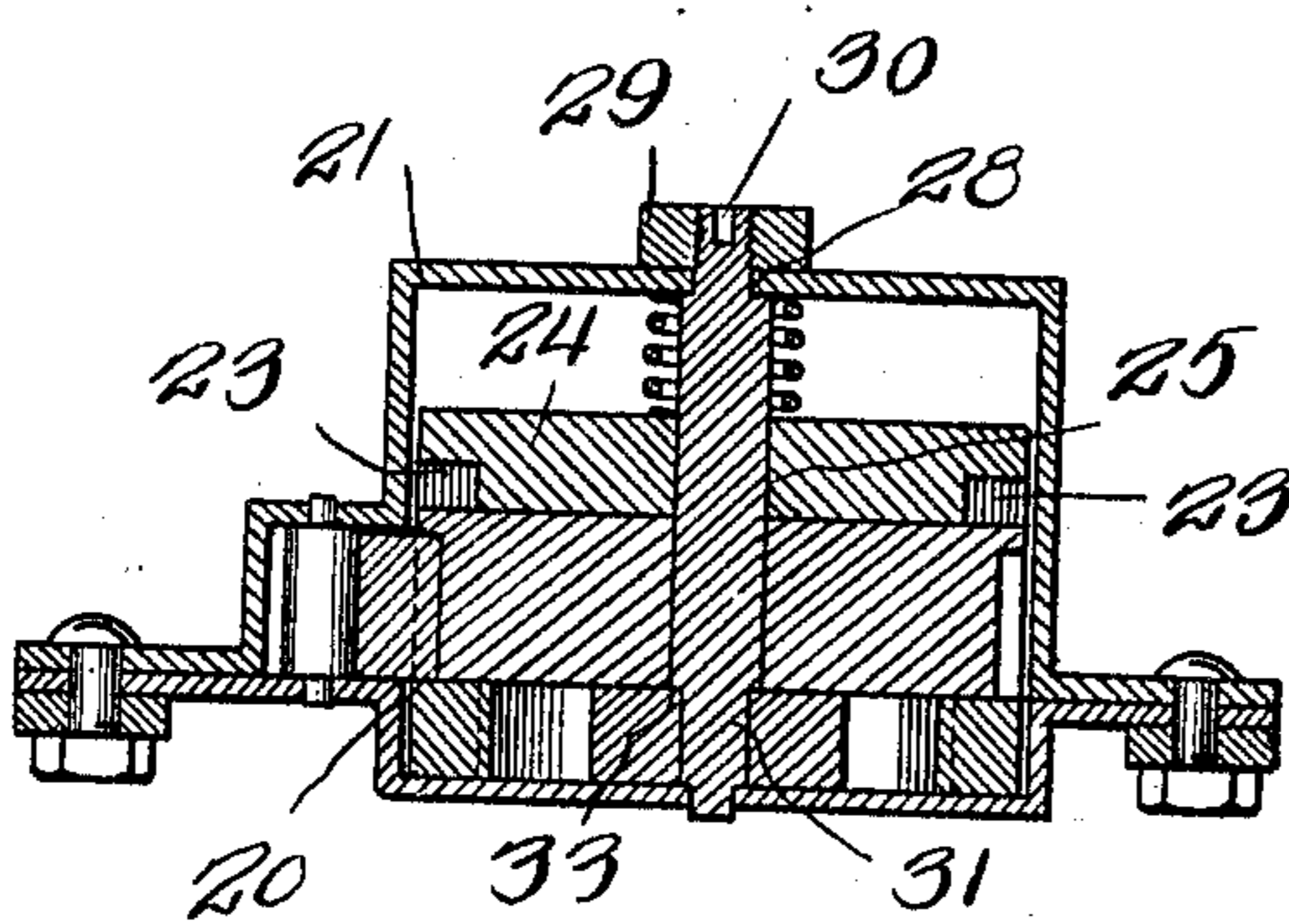
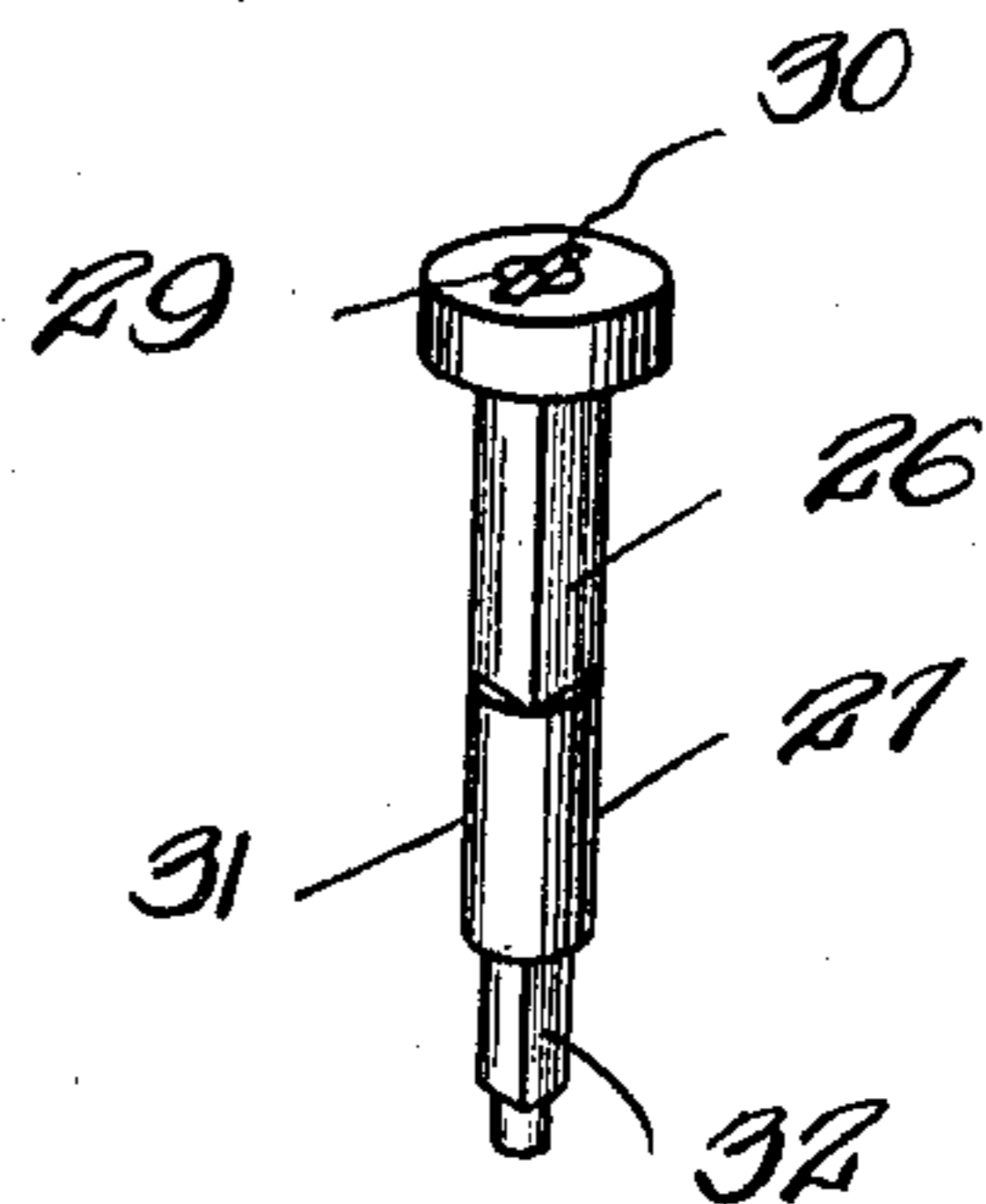


Fig. 9.



Witnesses

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# UNITED STATES PATENT OFFICE

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AUTOMATIC SWITCH FOR STREET-RAILWAYS.

988,857.

Specification of Letters Patent.

Patented Apr. 4, 1911.

Application filed July 9, 1910. Serial No. 571,122.

*To all whom it may concern:*

Be it known that I, ADOLPH R. BRETT, a citizen of the United States, residing at Portland, in the county of Multnomah and State of Oregon, have invented new and useful Improvements in Automatic Switches for Street-Railways, of which the following is a specification.

This invention relates to operating mechanism for railway switches, and the primary object of the invention is to provide a comparatively simple and cheap mechanism, whereby the switch may be readily opened through the mechanism contained upon a car and retained in said open position, the said switch being also closed through the medium of similar mechanism contained upon a second car going in the same direction.

With the above, and other objects in view, which will appear as the description progresses, the invention resides in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of a railway switch showing my improved apparatus applied thereto and also showing a car provided with the apparatus for throwing the switch. Fig. 2 is a top plan view of the main rails and switch rails with my improvement applied thereto. Fig. 3 is an enlarged side elevation of the throwing mechanism, the casing containing the mechanism being in section. Fig. 4 is a similar view, the mechanism being also shown in section. Fig. 5 is a detail side elevation of the contact lever, showing its position adjacent the track. Fig. 6 is an enlarged sectional view on the line 6—6 of Fig. 3. Fig. 7 is a sectional view upon the line 7—7 of Fig. 3. Fig. 8 is a transverse sectional view upon the line 8—8 of Fig. 2. Fig. 9 is a perspective view of the bolt 27.

In the accompanying drawings the numerals 1 designate the main rails of the track, 2 the switch rails and 3 the switch point.

The numeral 4 designates an ordinary electric railway car. This car 4 has its platform 5 provided with a depressible operating rod 6, and is normally retained in an elevated position out of the path of the obstacles through the medium of a suitable spring 7. The rod 6 is positioned within easy reach of the motorman of the car and is adapted to be depressed when the switch

point 3 is to be drawn in either direction in a manner hereinafter to be described. Positioned adjacent one of the main rails 1 and connected with a bracket 8 secured to the said rail is a trip lever 9. This lever 9 is connected with a longitudinally extending rod 10, the same being mounted in suitable brackets 11 to prevent the lateral movement of the rod. The forward extremity of the rod 10 is connected with a bell crank lever 12, the same being pivotally connected as at 13 with one of the ties or with other suitable supporting devices. The extremity of the bell crank lever 12 is engaged by a helical spring 14, the same being connected with a suitable bracket 15, so as to normally swing the longer arm of the bell crank lever 12 upon its pivot 13 and to retain the trip lever 9 in a substantially elevated or vertical position. Connected with the longer arm of the bell crank lever 12 between its pivot and its point of connection with the spring 14 is a longitudinally extending arm 16, the same being provided for a portion of its length with suitable teeth 17. These teeth 17 of the arm 16 are adapted to engage with teeth 19 provided upon a circular member 20, which is positioned for rotation within a housing 21. The housing 21 is preferably arranged directly between the tracks and is also in a direct alinement with the end of the switch point 3. The circular member 20 has its upper face provided with substantially V-shaped teeth 22 and these teeth are adapted to be engaged by similar teeth 23 provided upon a disk 24. The disk 24 has its upper face provided with a non-circular opening 25, and this opening 25 is adapted for the reception of a non-circular portion 26 provided upon a bolt member 27. This bolt member 27 has a circular portion 28 directly above the non-circular portion 26, the same projecting through a suitable opening within the top of the casing 21 and the extremity of this reduced portion is provided with a head 29 which normally rests upon the top of the casing 21. The head 29 is provided with a slot or opening 30, the same being adapted for the reception of a suitable instrument whereby the mechanism within the casing 21 may be removed when desired. The bolt member 27 is provided with a circular portion 31 which is adapted to engage with an opening provided centrally of the circular member 20 and is also provided with a non-circular

portion 32, the same being adapted to engage with a cam or eccentric 33 which plays within a cam-shaped opening 34 provided within the head 35 of a rod 36. This rod 36 may constitute the operating rod if desired, or if preferable, the member 36 may be hollow and adapted for the reception of a main operating rod 37. This rod 37 passes through an opening provided in a depending finger 50 connected with the switch point 3 and projects below the main rail 1. The rod is provided with a nut 38 which normally contacts the inner face of the switch point 3, and for a purpose presently to be set forth. The outer extremity of the rod 37 is provided with a nut 39, and positioned between this nut and the rail 1 is a helical spring 40. The rod 37 is further provided with a collar 41, and positioned upon the rod and adapted to bear between the switch point and the said collar is a helical spring 42. The casing 21, as clearly illustrated in the drawing, comprises a pair of sections so that the same may be readily supported to allow for the removal of the parts within the said casing.

The operation of the device may be briefly described as follows: We will suppose that a train is going in the direction of the arrow A. The contact member 6 is thrown downward so as to engage the trip lever 9. The lever 9 will swing, causing the rod 10 to move and the bell crank lever 12 to be swung upon its pivot 13 against the tension of the spring 14. This movement will cause the teeth 17 of the rod 16 to engage with the teeth 19 of the circular member 20, and the V-shaped teeth of the said member contacting the teeth of the disk 24 will cause the bolt 27 to rotate the cam or eccentric 33, the said eccentric working within the cam opening for exactly one-half of a complete revolution will move the rod 36 and the rod 37 connected therewith to cause the nut 38 to contact and to swing the switch point 3. Through the medium of the cam or eccentric 33 the switch point 3 will be retained in its open position, while the spring 14 will cause the toothed rod 17 to rotate the circular member 20 in an opposite direction. The bolt 27 is provided with a pressure spring 43 which normally contacts the head of the disk 24, and this spring permits the disk to ride upwardly upon the teeth 23 of the circular member 20 without rotating the bolt 27 or the cam connected therewith, allowing the rod 10 and the trip lever 9 to return to their initial positions. It is to be understood that the cam 33 is rotated precisely one-half of a revolution each time the trip lever 9 is contacted, and we will now suppose that a car wishing to round the curve 2 is proceeding in the direction of the arrow B. The motorman of this car applies the contact member 6 so as to engage the trip lever 9, and the operation

of the mechanism is repeated, the cam 33 thus completing a revolution and causing the switch point 3 to assume its normal position. In case cars are going in an opposite direction, as designated by the arrows B and C; the flanges upon the car going in the direction of the arrow B will engage between the main track 1 and the switch point 3, which will be swung against the pressure of the spring 42 without interfering with any of the mechanism. This is also true of a car rounding the switch and going in the direction of the arrow C.

From the above description, taken in connection with the accompanying drawings, it will be noted that I have provided an extremely simple and thoroughly effective device for the purpose intended, and while I have illustrated and described the preferred embodiment of the improvement, as it now appears to me, minor details of construction, within the scope of the following claims may be resorted to if desired.

Having thus described the invention, what I claim as new, is:—

1. In a railroad switch operating device, a switch rod, said rod being provided with a head having a cam opening, a toothed wheel provided with an eccentric head for the cam opening, a toothed rod engaging the toothed wheel, a bell crank lever for the rod, a trip lever connected to the bell crank lever, and means for returning the toothed rod, bell crank lever and trip lever to their initial positions without interfering with the switch point after the trip lever has been contacted.

2. In a switch throwing mechanism, an operating rod loosely connected with the switch point, a spring member carried by the rod and contacting the switch point, said operating rod having a cam head, an eccentric adapted to engage the cam head, a toothed wheel connected with the eccentric, said toothed wheel having its upper face provided with V-shaped teeth, a spring pressed non-rotatable disk provided with teeth engaging the V-shaped tooth of the toothed wheel, a toothed arm engaging the peripheral teeth of the wheel, a bell crank lever connected with the arm, a rod connected to the bell crank lever, a trip lever for the rod, and means for returning the toothed arm and trip lever to their initial operative position without interfering with the switch point.

3. In a switch operating device, a rod loosely connected with the switch point, said rod projecting beyond the main rail, the rod engaging the inner face of the switch point, spring members upon the rod contacting the switch point and the main rail, a cam head upon the rod, an eccentric engaging the cam head, a bolt connected with the eccentric, a toothed wheel mounted for rotation upon the bolt, said toothed wheel having its upper

face provided with V-shaped teeth, a disk  
having V-shaped teeth adapted to engage  
the teeth of the toothed wheel non-rotatably  
positioned upon the bolt, the bolt being pro-  
5 vided with a head, a spring between the  
head and the disk to force the said disk  
upon the toothed wheel, a toothed arm en-  
gaging the toothed wheel, a bell crank lever  
having one of its arms connected with the  
10 toothed arm, a helical spring connected with

the bell crank lever, a rod also connected  
with the bell crank lever, and a pivoted trip  
lever connected with the rod.

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

ADOLPH R. BRETT.

Witnesses:

W. H. COUNTERMAN,  
W. M. CONKLIN.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,  
Washington, D. C."

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