

No. 750,925.

PATENTED FEB. 2, 1904.

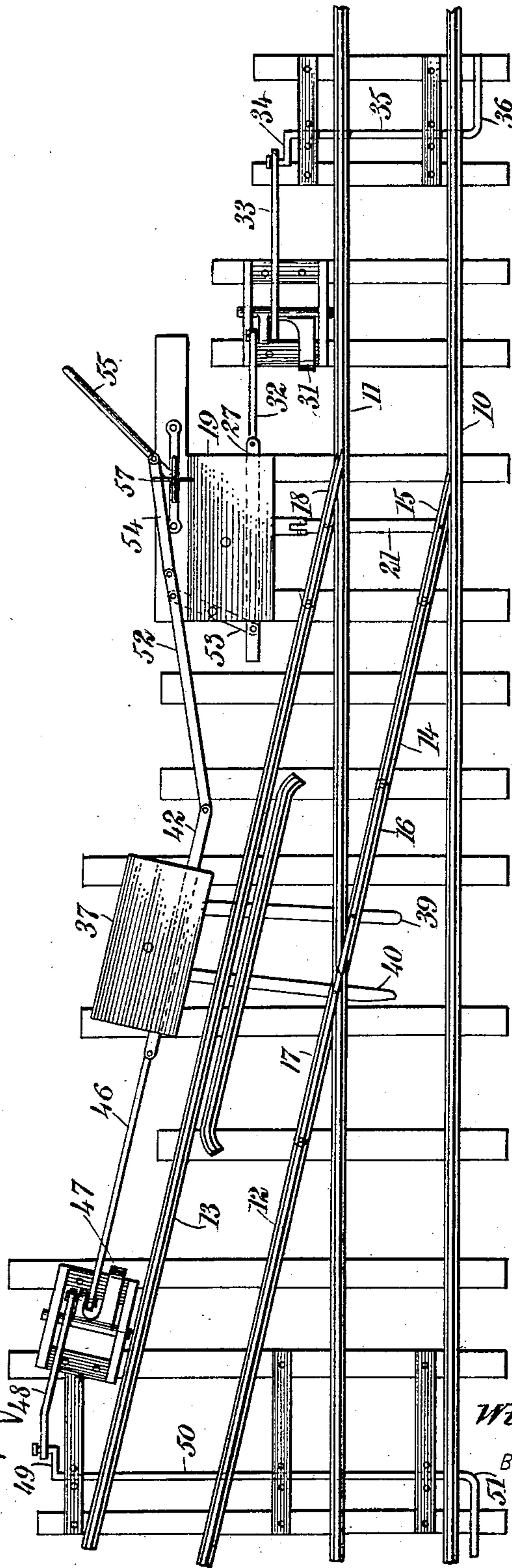
W. L. WILLIAMS.  
RAILWAY SWITCH.

APPLICATION FILED MAR. 25, 1903.

NO MODEL.

4 SHEETS—SHEET 1.

Fig. 1



WITNESSES:

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INVENTOR

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ATTORNEYS.

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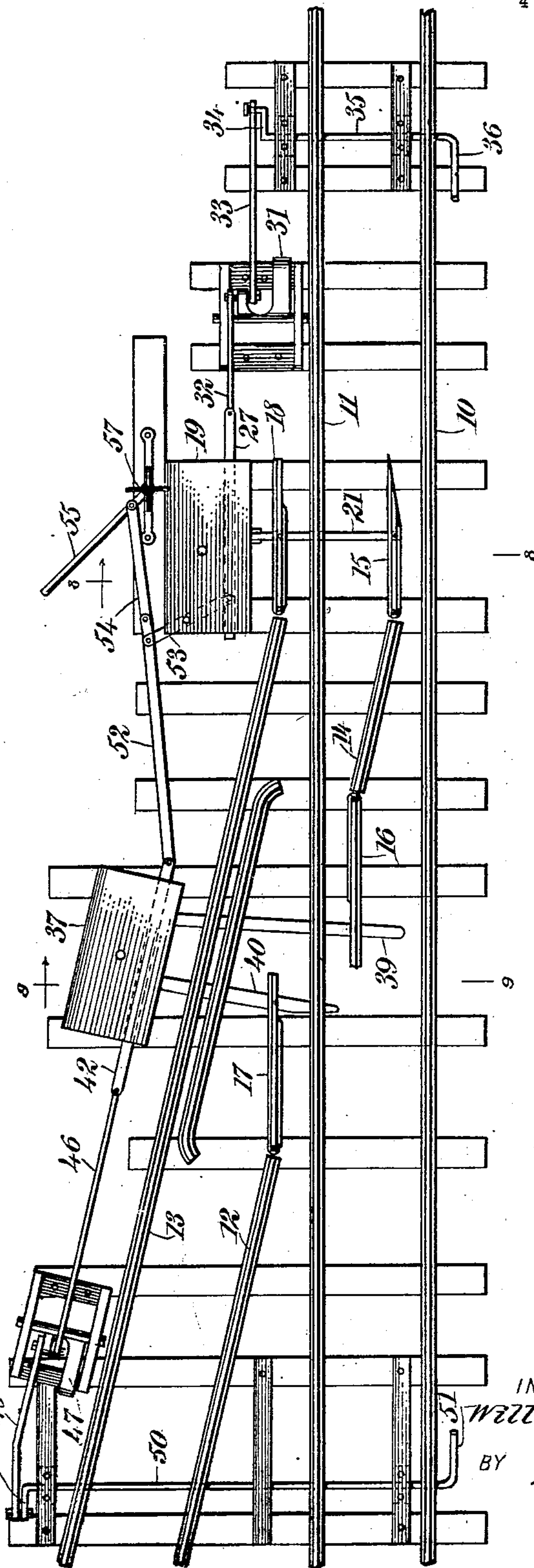
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NO MODEL.

4 SHEETS—SHEET 2.

Fig. 2



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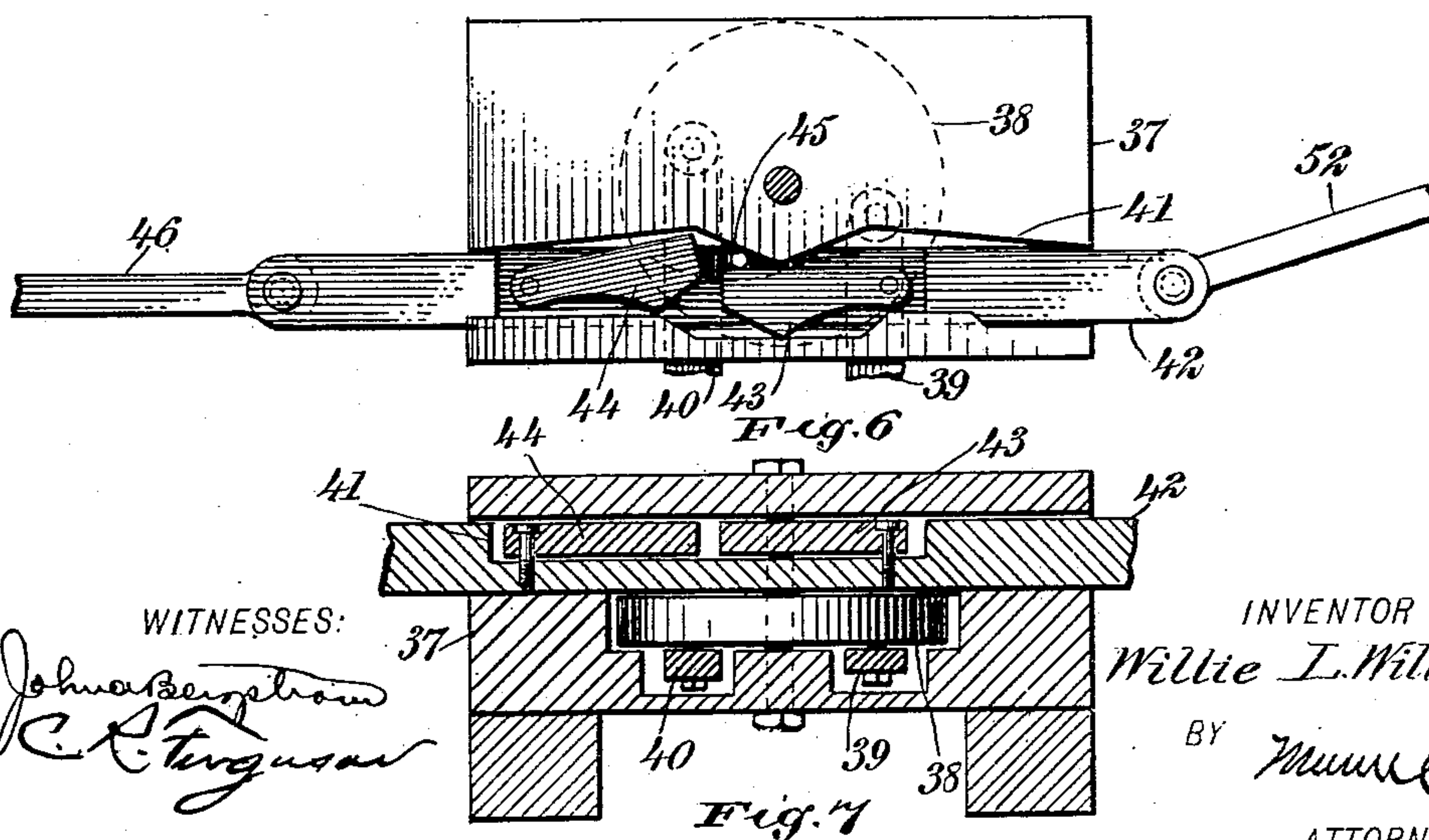
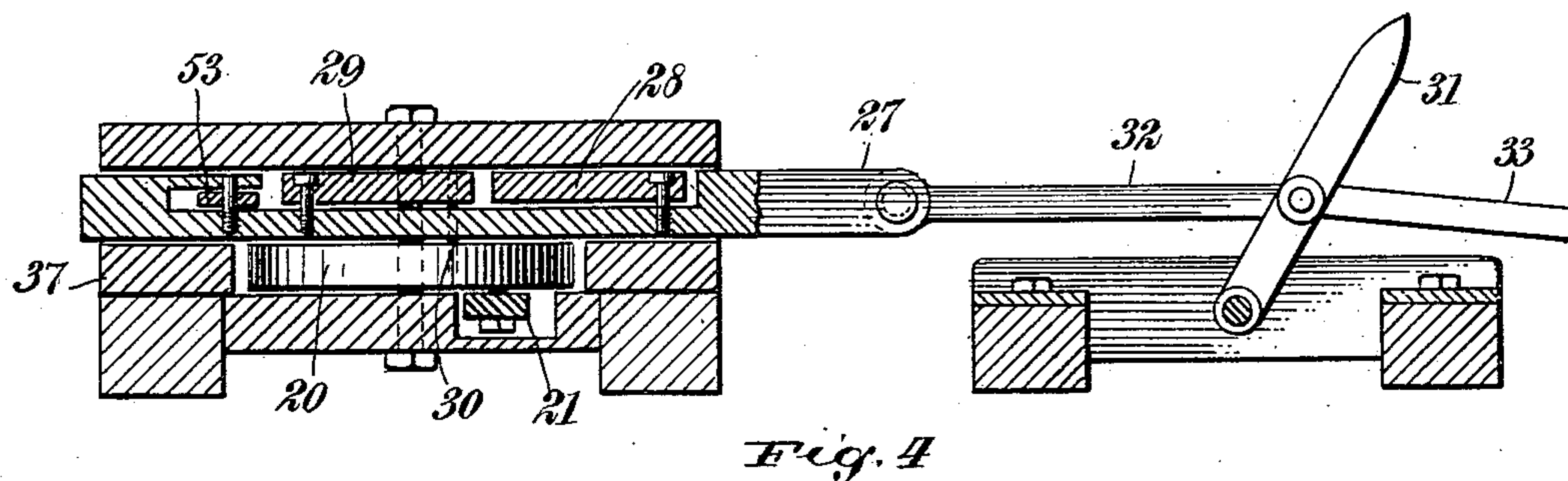
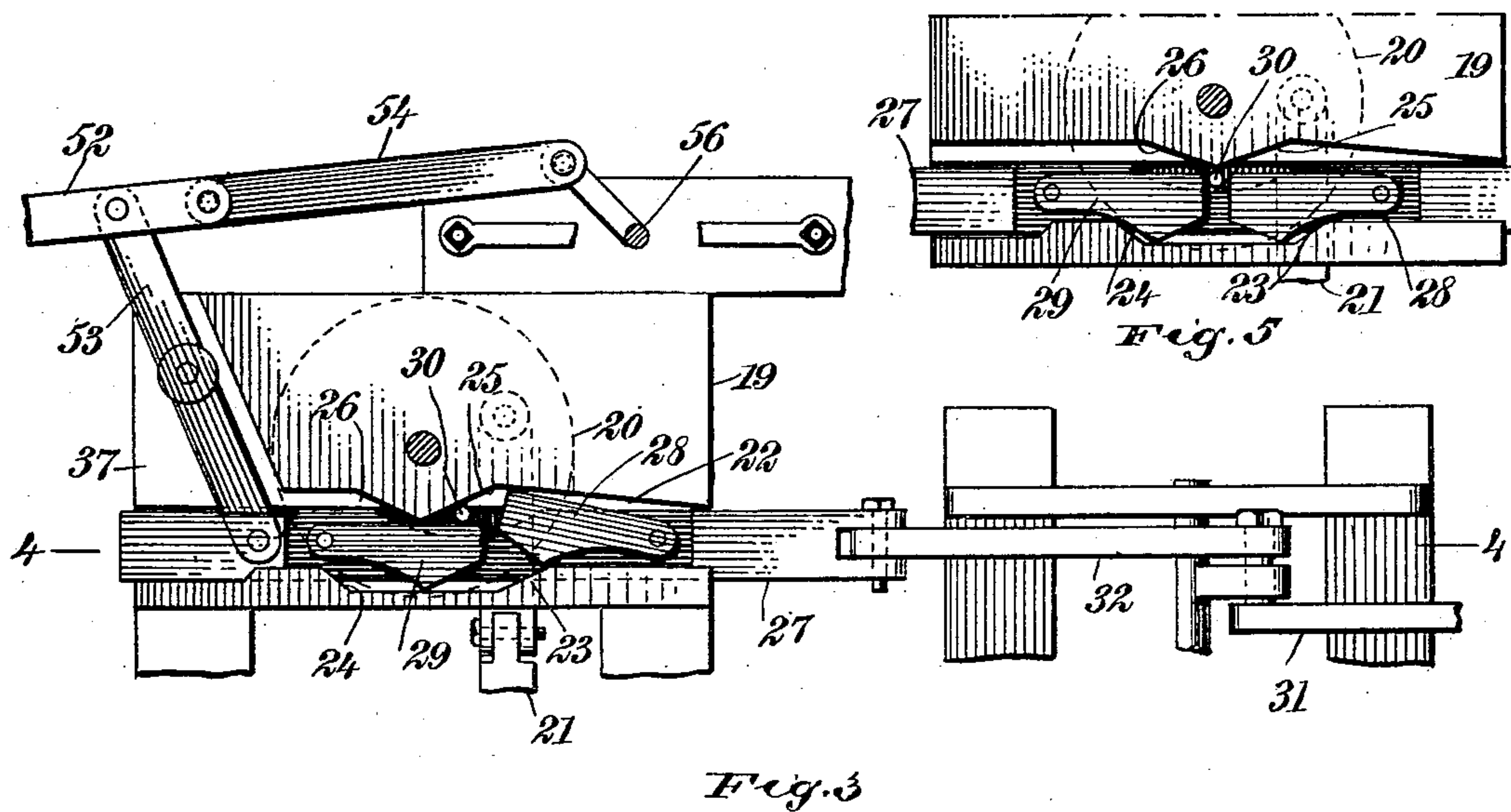
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4 SHEETS—SHEET 3.



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No. 750,925.

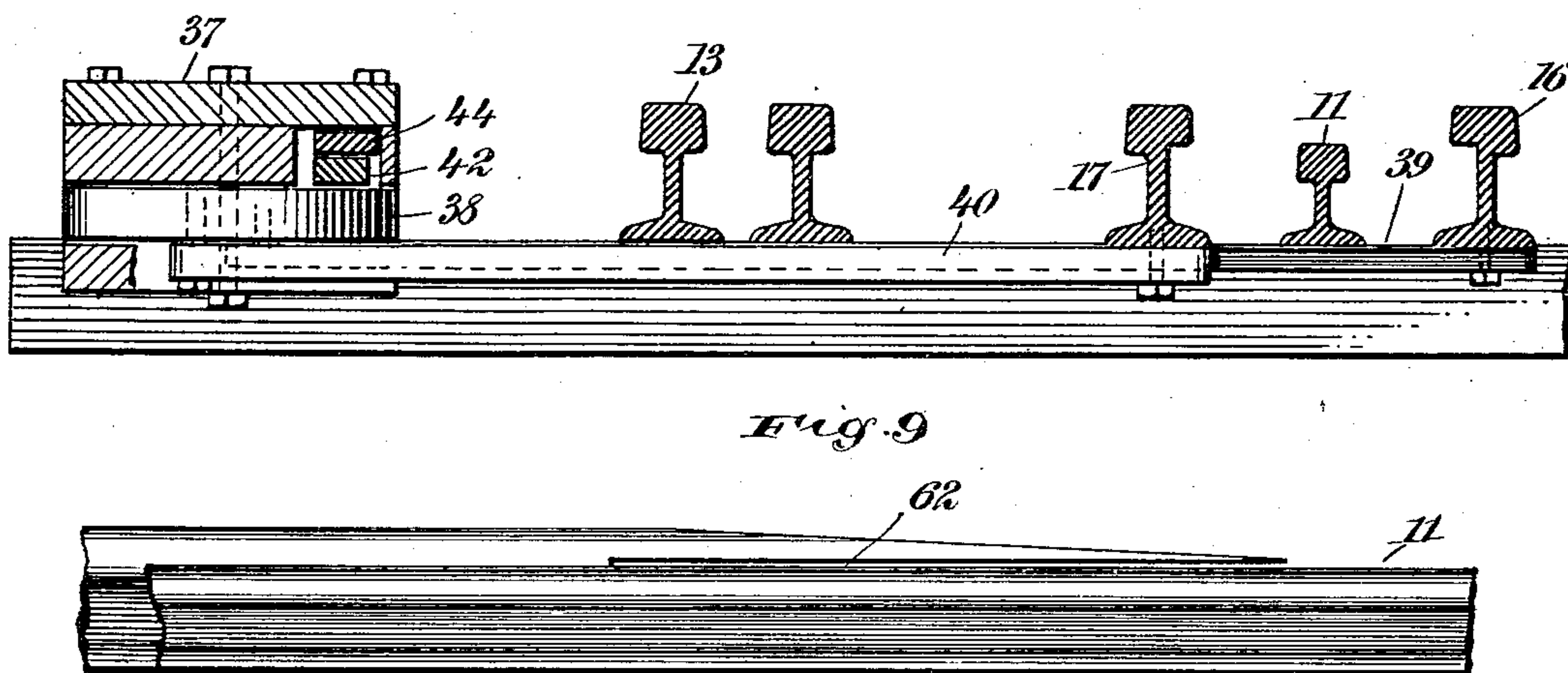
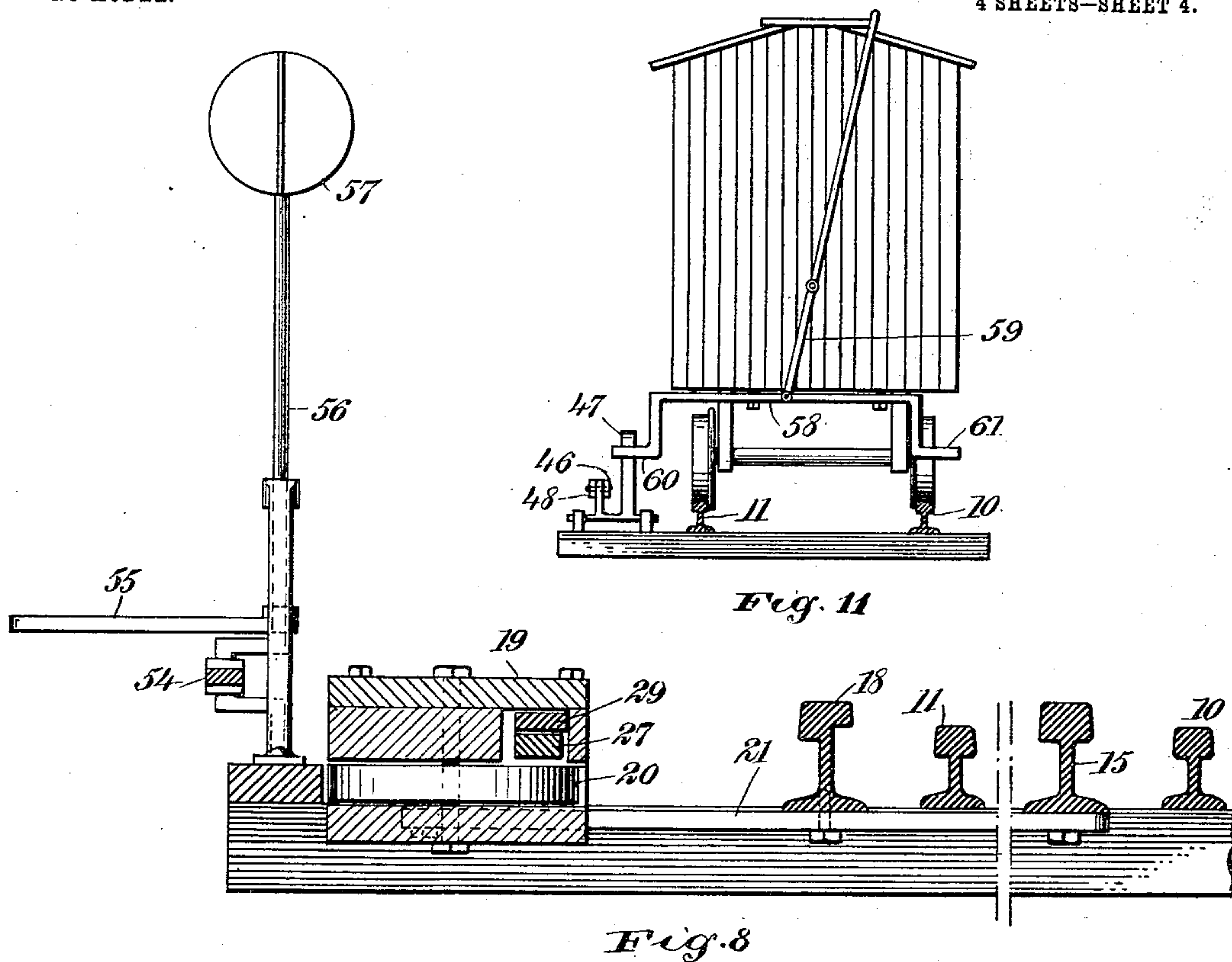
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NO MODEL.

4 SHEETS—SHEET 4.



WITNESSES:  
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Fig. 10

INVENTOR  
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# UNITED STATES PATENT OFFICE.

WILLIE LEMUEL WILLIAMS, OF JEFFERSONVILLE, GEORGIA, ASSIGNOR  
OF ONE-HALF TO THOMAS S. JONES, OF JEFFERSONVILLE, GEORGIA.

## RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 750,925, dated February 2, 1904.

Application filed March 25, 1903. Serial No. 149,503. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIE LEMUEL WILLIAMS, a citizen of the United States, and a resident of Jeffersonville, in the county of Twiggs and State of Georgia, have invented a new and Improved Railway-Switch, of which the following is a full, clear, and exact description.

This invention relates to improvements in railway-switches, an object being to provide a switch mechanism of simple construction having no parts liable to get out of order and that may be operated from a moving train.

I will describe a railway-switch embodying my invention and then point out the novel features in the appended claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a switch mechanism embodying my invention, showing the switch-tongues in closed position. Fig. 2 is a similar section, but showing the tongues in open position. Fig. 3 is a plan view of one of the shifting devices employed with the top of the casing removed. Fig. 4 is a section on the line 4 4 of Fig. 3. Figs. 5 and 6 are plan views of the shifting device, showing the parts in different position. Fig. 7 is a sectional elevation of the construction shown in Fig. 6. Fig. 8 is a section on the line 8 8 of Fig. 2. Fig. 9 is a section on the line 9 9 of Fig. 2. Fig. 10 is a side view showing the end of a switch-tongue as overlapping a main rail; and Fig. 11 is an end view of a car, showing the form of shifting device that may be carried thereon.

Referring to the drawings, 10 11 indicate the rails of the main track, and 12 13 indicate the switch-rails. Arranged between the rails 10 and 11 is a short switch-section 14, at one end of which is a swinging switch-tongue 15, designed to be engaged with the rail 10. At the other end of the section 14 is a switch-tongue 16, designed to be placed in connection with the rail 11 and in alinement with a switch-tongue 17 at the end of the switch-rail

12, and at the end of the rail 13 for coacting with the main rail 11 is a switch-tongue 18. 50

Arranged at one side of the track in alinement with the switch-tongues 15 and 18 is a casing 19, in which is arranged a rotary part 20, here shown as a disk arranged to oscillate or slightly rotate in opposite directions on a horizontal plane, and extended from this rotary part 20 and having connection with the switch-tongues 15 and 18 is a draw-bar 21, the pivotal connection of said draw-bar with the rotary part being at one side of the center. 60 The casing 19 is provided in its upper portion with a longitudinal channel 22, one wall, here shown as the outer side wall, being provided with oppositely-inclined cam-surfaces 23 24, and the opposite wall of the channel is provided with divergent cam-surfaces 25 26. Movable lengthwise in the channel 22 is a bar 27, and this bar 27 is pivotally connected within the channel with dogs 28 29. The said dogs have lateral projections, one for engaging 70 with the cam-surface 23 and the other for engaging with the cam-surface 24, as will be hereinafter described, and the adjacent free ends of said dogs are designed to slide on the cam-surfaces 25 26 and to engage with a pin 75 30, extended from the rotary part 20, the side of the bar 27 being cut away to permit said pin to pass into the line of movement of the dogs.

Arranged to swing at one side of the track 80 is a tappet-arm 31. This tappet-arm has a rod connection 32 with the bar 27, and it also has a rod connection 33 with a crank portion 34 of a rock-shaft 35, which passes underneath the track-rails and is provided at the 85 end opposite the crank with an upwardly-extended portion 36, designed to be engaged by a device carried on a car, locomotive, or any other part of the rolling-stock.

Opposite the switch-tongues 16 17, and of course at the outer side of the switch-rails, is a casing 37, in which a rotary part 38, similar to the rotary part 20, is arranged. From one side of this rotary part 38 a draw-rod 39 extends to a connection with the switch-tongue 95 16, and a similar rod 40 extends from the ro-



tary part to a connection with the tongue 17. As the connections between the parts 39 and 40 with the rotary part are at opposite sides of its center, it is obvious that when said rotary part is operated the switch-tongues 16 17 will be moved in opposite directions. The casing 37 is provided with a slot 41, having opposite cam-surfaces, as described, in connection with the casing 19, and movable in this slot is an operating-bar 42, carrying the dogs 43 44, similar to those first described and adapted for engagement with a pin 45 on the rotary part. One end of this bar 42 has a rod connection 46 with a swinging tappet-arm 47, and also extended from this tappet-arm is a rod 48, connecting with a crank portion 49 of a rock-shaft 50, passing under the main-track rails and the switch-rails and having at its opposite end an upwardly-turned portion 51. It is to be understood that these tappet-arms and the rock-shafts may be located at any desired distance from the switch-tongues. From the opposite end of the bar 42 a rod 52 extends to a connection with a lever 53, pivoted between its ends with the casing 19. This lever 53 has pivotal connection with the bar 27. A link 54 connects the end of the rod 52 with a hand-lever 55, extended outward from the staff 56 of a signal 57.

Any suitable device may be carried on a car or the like for engaging the tappet-arms with the upwardly-extended parts 36 and 51. In Fig. 11 I have shown a bar 58, mounted to slide underneath a car at the end and having connection at about its center with a shifting-rod 59, pivoted to the car and extended up to the roof thereof, so that a brakeman may move the bar 58 in either direction, whereby a crank portion 60 on one end may engage with the tappet-arm or a crank portion 61 on the opposite end engage with the rock-shafts.

It may be here stated that the free ends of the several switch-tongues are cut away somewhat on the under side below the tread, so that the tread portions may engage over the tops of the main rails, thus practically making the main rails and switch-rails continuous when the switch-tongues are closed. This cut-away portion is shown at 62 in Fig. 9.

In the operation, assuming that a train is running on a switch or siding and it is desired to pass onto the main track, the tappet-arm 47 is to be engaged by the part carried by a car or locomotive, thus moving the parts in the casings to close the several switches. During this movement the dog 29 will engage its end with the pin 30, imparting a slight rotary movement to the part 20. Upon a slightly further movement of the dog it will be moved out of engagement therewith by the cam-surface 26, and then the pin 30 by engaging against the edge of the dog will cause the rotary part 20 to be locked, thus preventing

any accidental opening of the switch-tongues. The same operation takes place in the other casing to operate the tongues 16 17, and obviously the signal will be turned to indicate that the switch-tongues are in closed or in safety connection with the main rails. After passing the switch-tongues and if it is desired to move the train in the opposite direction on the main track the device carried by a car is to be engaged with the upward projection 36 of the rock-shaft 35, thus reversing the movements of the bars 27 and 42, consequently opening the switch-tongues, as indicated in Fig. 2. If a train is passing from right to left on the main track and desires to pass onto the siding, of course the tappet-arm 31 will be engaged by the part carried by a locomotive or car, operating the parts to close the several switch-tongues, and the tongues may again be thrown to open position through the medium of the rock-shaft 50.

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

1. A switch mechanism comprising switch-tongues, a rotary part, connections between said rotary part and the tongues, a casing having a cam-channel, a bar movable in said channel, opposite dogs pivoted to the bar within the channel, a projection on the rotary part adapted to be engaged by either one of the dogs, and means for operating the bar.

2. In a switch mechanism, a casing arranged at one side of the track, a part mounted to swing in a horizontal plane in said casing, the said casing having a longitudinal channel, the opposite walls of the channel being provided with reverse cam-surfaces, a bar movable in said channel, dogs pivoted to said bar and having lateral projections for engaging with the cam-surfaces, switch-tongues having connection with the said swinging part, a pin on the said swinging part adapted to be engaged by either one of said dogs, a switch tappet-arm arranged at one side of the track, and a rod connection between said arm and said bar movable in said channel.

3. In a switch mechanism, the combination with main rails and switch-rails, of two switches, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the switches, and means for simultaneously operating said rotary parts.

4. In a switch mechanism, the combination with main rails and switch-rails, of two sets of switch-tongues, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the tongues, a signal, and means for simultaneously operating the rotary parts to open or close the two sets of switch-tongues to operate said signal.

5. In a switch mechanism, the combination



with main rails and switch-rails, of switch-tongues, casings arranged at the sides of the railway, rotary parts arranged in said casings, connections between said rotary parts and the tongues, bars mounted to slide in the casings, devices carried by said bars for engaging with projections or pins on the rotary parts, operative connections between the two bars of the casings, and devices at opposite sides of the casings for moving said bars.

6. In a switch mechanism, the combination with main rails and switch-rails, of a pair of tongues arranged at the end of the switch-rail, a casing arranged opposite the tongues, a rotary part in said casing, a draw-rod having connection with the tongues and eccentric connection with the rotary part, the said casing having a channel provided with cam-surfaces in its opposite walls, a bar mounted to slide in said channel, dogs mounted to swing on said bar, a pin extended from the rotary part adapted to be engaged by either one of

said dogs, the said dogs each having a lateral projection at one side, a signal, a connection between said signal and the slide-bar, and means operated by a part carried on a car or the like, for operating the slide-bar.

7. The combination with main rails and switch-rails, of a pair of oppositely-moving switch-tongues arranged in one of the switch-rails for engaging with one of the main rails, a casing, a rotary part in said casing, bars extended from opposite sides of the pivotal point of said rotary part and connecting with the switch-tongues, and means actuated from a moving train for operating said rotary part.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIE LEMUEL WILLIAMS.

Witnesses:

J. W. GROOVER,  
O. GROOVER.