

No. 620,928.

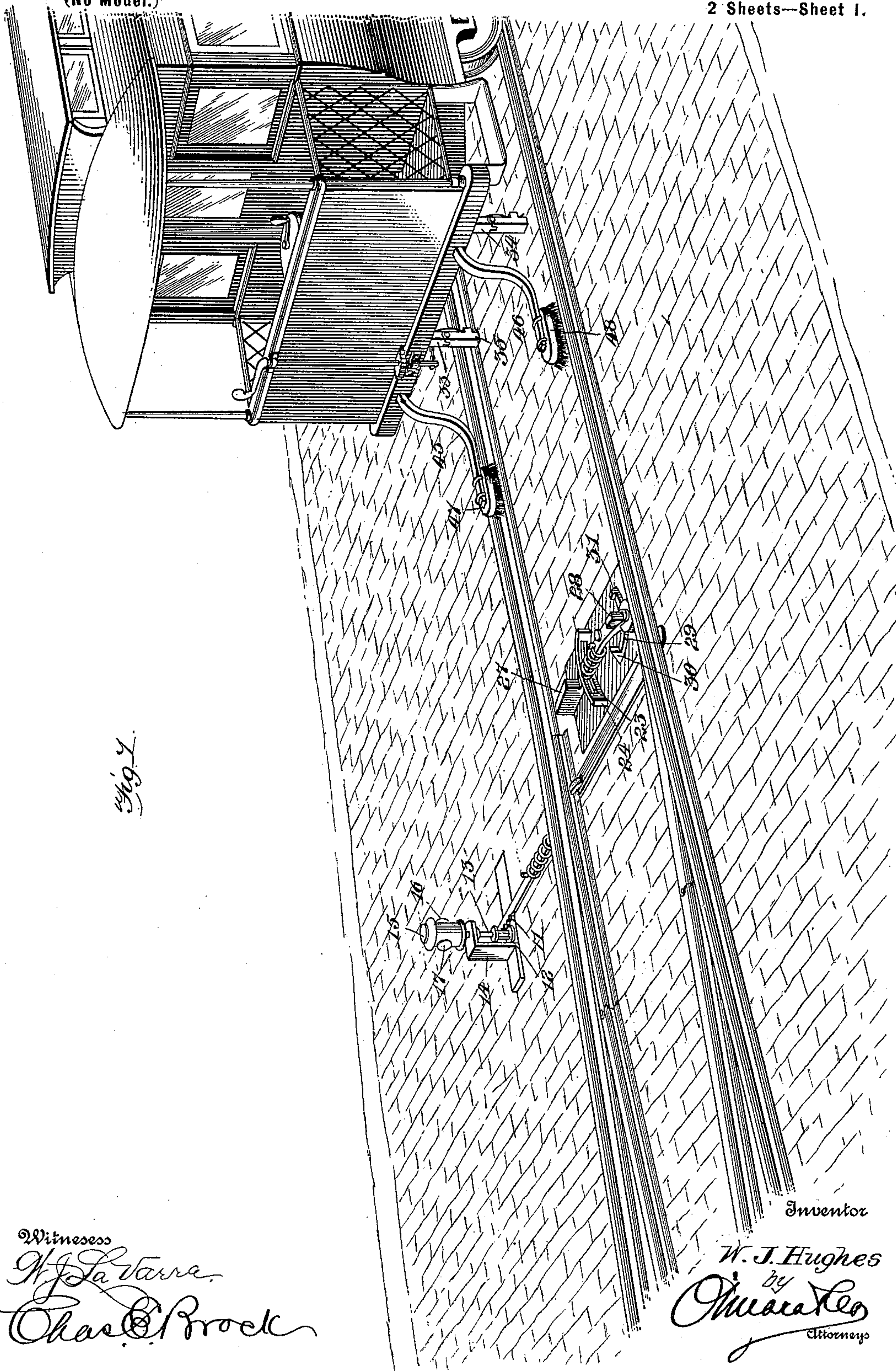
Patented Mar. 14, 1899.

W. J. HUGHES.  
STREET RAILWAY SWITCH.

(Application filed Oct. 29, 1897.)

(No Model.)

2 Sheets—Sheet 1.



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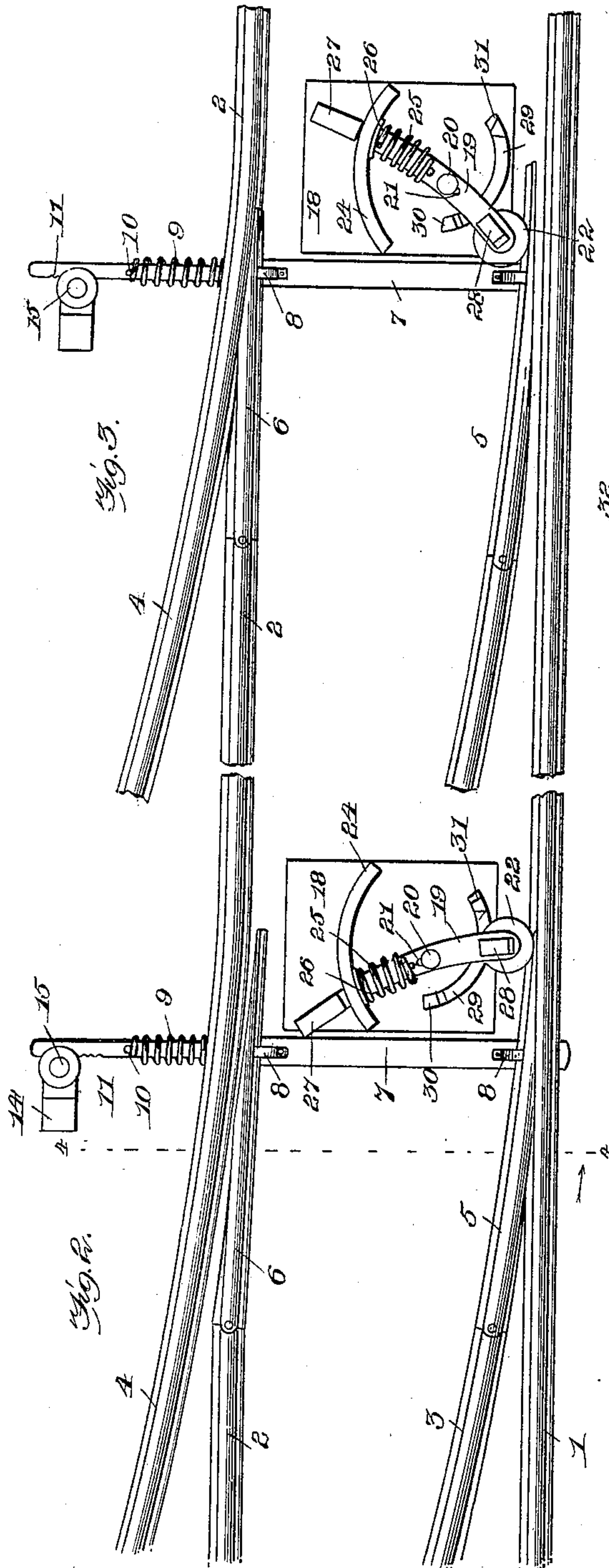
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Witnesses  
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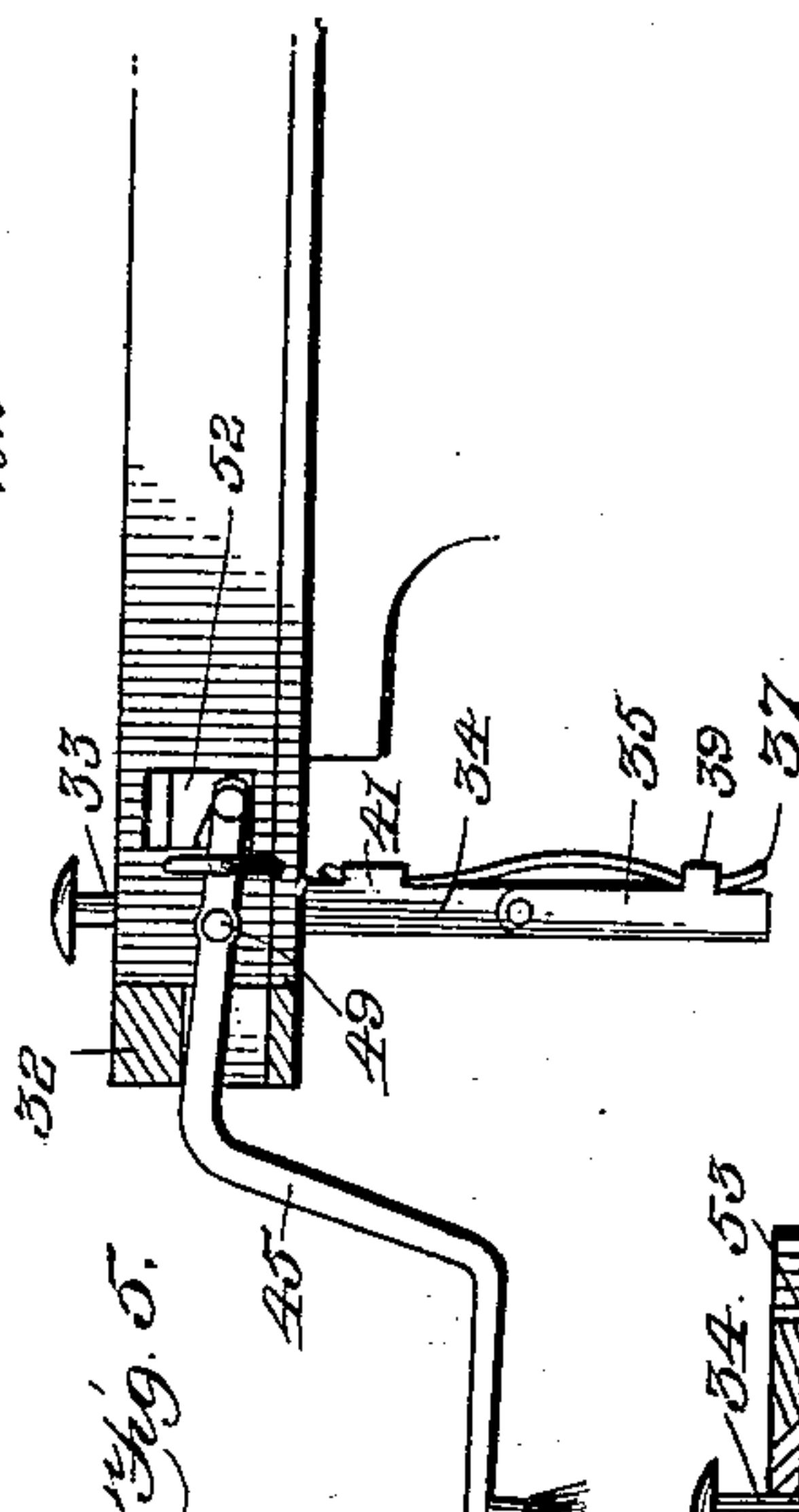


Fig. 4.

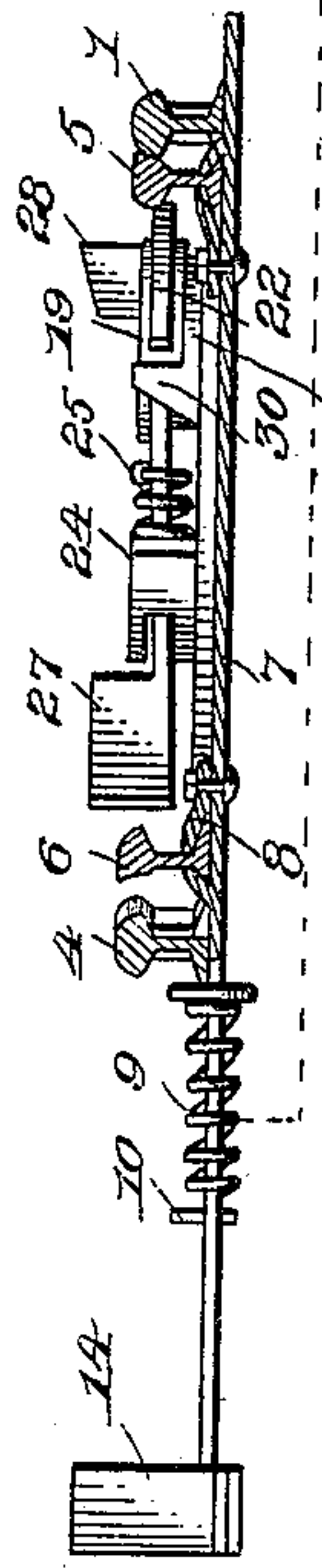


Fig. 6.

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# UNITED STATES PATENT OFFICE.

WILLIAM J. HUGHES, OF OSYKA, MISSISSIPPI.

## STREET-RAILWAY SWITCH.

SPECIFICATION forming part of Letters Patent No. 620,928, dated March 14, 1899.

Application filed October 29, 1897. Serial No. 656,838. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM J. HUGHES, residing at Osyka, in the county of Pike and State of Mississippi, have invented a new and useful Street-Railway Switch, of which the following is a specification.

My invention relates to street-railway switches and means for operating the same, and has for its object to provide a railway-switch with devices for operating the same so arranged and located as to be operated by the depression of a bar by the foot of the motorman.

A further object of my invention is to provide a street-railway car with means for cleaning the space between the switch-tongues and the rail, such means to be brought into operation by the pressure of a lever by the motorman.

With these objects in view my invention consists in the improved construction, arrangement, and combination of parts hereinafter fully described and afterward specifically pointed out in the claims.

In order to enable others skilled in the art to which my invention most nearly appertains to make and use the same, I will now proceed to describe its construction and operation, having reference to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view illustrating my invention in position for practical operation. Fig. 2 is a top plan view of the switch mechanism, the switch being opened. Fig. 3 is a similar view of the same parts with the switch closed. Fig. 4 is a transverse section on the line 4 4 of Fig. 2, looking in the direction of the arrow. Fig. 5 is a longitudinal section through the platform of the car, illustrating the brush-operating mechanism. Fig. 6 is a transverse section through the platform of the car on the plane of the operating-rods, looking outward from under the car.

Like numerals of reference mark the same parts wherever they occur in the various figures of the drawings.

Referring to the drawings by numerals, 1 and 2 indicate the rails of the main track, 3 and 4 the switch-rails, and 5 and 6 the switch-tongues. The normal position of the switch-tongues when the switch is closed is illus-

trated in Fig. 3, in which the switch-tongue 5 is out of contact with the main rail 1 and the switch-tongue 6 in contact with the main rail 2, while in Fig. 2 the switch is shown opened with the switch-tongue 5 in contact with the rail 1 and the switch-tongue 6 out of contact with the rail 2. In order that the switch-tongues shall move together, I have connected them by the cross-bar 7, which is provided with brackets 8, engaging the inner flanges of switch-tongues 5 and 6, the cross-bar being located below the switch-tongues and passing out laterally beyond the switch-rail 4. In order that the switch may be held normally closed, its spring 9 is coiled around the cross-bar 7, with its inner end bearing against the outside of rail 4 and its outer end against the pin 10 of the cross-bar. The outer end of the cross-bar is provided with rack-teeth 11 on one side, which engage the teeth of a wheel 12 on a vertical shaft 13, and journaled in a bracket 14, and carrying at its upper end a lantern 15 with a red lens 16 and a white lens 17. When the switch is opened, as illustrated in Figs. 1 and 2, a red light will be shown from the lantern; but when closed a white light is shown, the movement of the cross-bar 7 in opening and closing the switch serving to rotate the lantern through the medium of the rack-teeth 11 and wheel 12. As before stated, the spring 9 holds the switch normally closed, and to open the switch I have provided the following mechanism:

18 is a plate set between the tracks, to which is pivoted a lever 19 by means of a pin 20, passing through a longitudinal slot 21 in said lever. On its forward end the lever 19 is provided with a roller 22 to bear against the inner side of a switch-tongue 5. The rear end of the lever projects through a horizontal slot 23 in a curved cam-bar 24, set vertically on the plate 18, the left-hand end of said bar being closer to the center on which the lever 19 moves than is the right-hand end, as illustrated. A spring 25, coiled about the lever 19, has a front bearing against the pin in said lever and its rear bearing against a washer 26 around the lever and bearing against the cam-bar 24. Projecting upward from the opposite ends of the lever 19, above all the mechanism described and the rails, are contact-bars 27 and 28 and a curved bar 29, hav-



ing stops 30 and 31 at its ends, resting under the forward end of the lever 19, whereby its oscillatory movement of the lever is regulated.

32 indicates the platform of a car, through which projects downward two upright rods 33 and 34, each extending below the platform and provided with hinged lower ends 35 and 36. Springs 37 and 38 are passed under loops 39 and 40 in the hinged ends 35 and 36 and similar loops 41 and 42 of the bars 33 and 34. Springs 43 and 44, coiled around the bars 33 and 34, tend to hold them in their normal upper position, in which the lower ends of the spring-hinged extensions 35 and 36 are high enough to pass over the contact-blocks 27 and 28.

When a car is approaching the switch, the motorman, observing the lamp, can at once tell the position of the switch. The switch being closed, the lamp will show a white light and the motorman will be aware of the necessity of opening the switch before passing it. To do this, he presses his foot on top of the bar 33, which throws the lower hinged section 35 thereof downward in the path of the contact-block 27. When this block is reached, it will be pushed forward by the hinged end 35 of the rod 33 until the lever 19 reaches the position shown in Fig. 2, in which the switch will be opened and the lamp turned to exhibit a red light. After having moved the contact-block 27 until the lever 19 strikes the stop 31 the lower end 35 of the rod 33 will give and bend backward on its hinge against the action of the spring 37 and pass over the block 27, the spring causing it to resume its vertical position after it has passed over the block. During the movement of the lever 19 the roller 22 at its forward end will bear against the inner side of the switch-tongue 5, it being kept in contact therewith by a longitudinal movement of the lever caused by the spring 25 pressing in that direction against the lever, which pressure is increased during the movement of the lever by the washer 26 in its movement on the inside of the cam-bar 24, the slot 21, in which the pivotal pin 20 of the lever operates, permitting of this longitudinal movement.

When a car approaching in the same direction is to be continued on the main line and the motorman observes the red light, indicating that the switch is opened, as shown in Fig. 2, he will press his foot upon the upper end of rod 34, pressing its hinged end 36 downward in the position to contact with block 28. When the hinged end 36 reaches the block 28, it will move the lever in the opposite direction from that hereinbefore described, and all the operations will be reversed until the switch-tongue 5 is relieved of the pressure of the roller 22, when the cross-bar 7, actuated by the spring 9 will press the switch-bars laterally into the position shown in Fig. 3, in which the switch is closed, and the car will be permitted to pass along the main line.

In the foregoing description it has been shown how the switch will be closed when opened by operating the rod 33 and opened when closed by operating the rod 34; but it will be obvious that on a car coming in the opposite direction it will be necessary to change this order of procedure.

45 and 46 are levers projecting forward from the platform 32 of the car, each of which is provided with a brush, as at 47 and 48, the bristles of which are preferably composed of wires, said levers being pivoted by pins 49 and 50 to the platform and projected a short distance inward beyond said pivot. Two rods 50' and 51 are pivotally secured to the inner ends of these levers and after passing through vertical plates 52 and 53 are pivotally secured together and to a vertical rod 54 at 55. A spring 56 normally holds this rod 54 in its upper position, in which the brushes will be raised above the track. Should it be desired to lower the brushes so that their bristles will pass along in the openings between the switch rails and tongues and the main rails, the motorman will press his foot downward on the rod 54, which will depress the inner ends of the rods 50' and 51 and raise their outer ends, as a consequence also raising the inner ends of the levers 45 and 46 and depressing their outer ends until the brushes are in the positions desired. By means of these brushes, which set in advance of the switch-operating mechanism, the motorman will be enabled to clear any dirt or small stones out of the switch which might interfere with its proper working.

The advantages attending the use of my invention will be obvious from the foregoing description. When a railway and its cars are equipped with my improved devices, the motorman will be informed at a considerable distance from the switch of its position, whereby he may take the necessary steps to change it from that position, if desired. All that will be necessary to open or close the switch will be for the motorman to press his foot upon one of the vertical rods projecting through the platform within easy reach. Should it be necessary, he can by similar means operate the cleaning devices, as aforesaid.

While I have illustrated and described the best means now known to me for carrying out my invention, I wish it to be understood that I do not restrict myself to the exact forms and constructions shown, but hold that any such slight changes or variations as might suggest themselves to the ordinary mechanic will properly fall within the limit and scope of my invention.

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

1. The combination with the switch-tongue 5, of the lever 19 provided with a roller 22 to engage the inner side of said switch-tongue, the plate 18 secured between the tracks, the pivotal pin 20 by which the lever is attached



to the plate, and the contact-blocks 27 and 28 projecting upward from said lever on opposite sides of the pivot, substantially as described.

5 2. The combination with the switch-tongue 5, of the plate 18 secured between the tracks, the lever 19 provided with a longitudinal slot, the pivotal pin 20 passing through said slot and into the plate, the curved cam-bar 24 se-  
10 cured on the plate and provided with a slot through which the lever passes, a roller 22

pivoted to the lever and adapted to engage the switch-tongue, and a spring having a bearing against the inside of the curved cam-bar 24 and adapted to normally press the 15 roller 22 into contact with the switch-tongue, substantially as described.

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