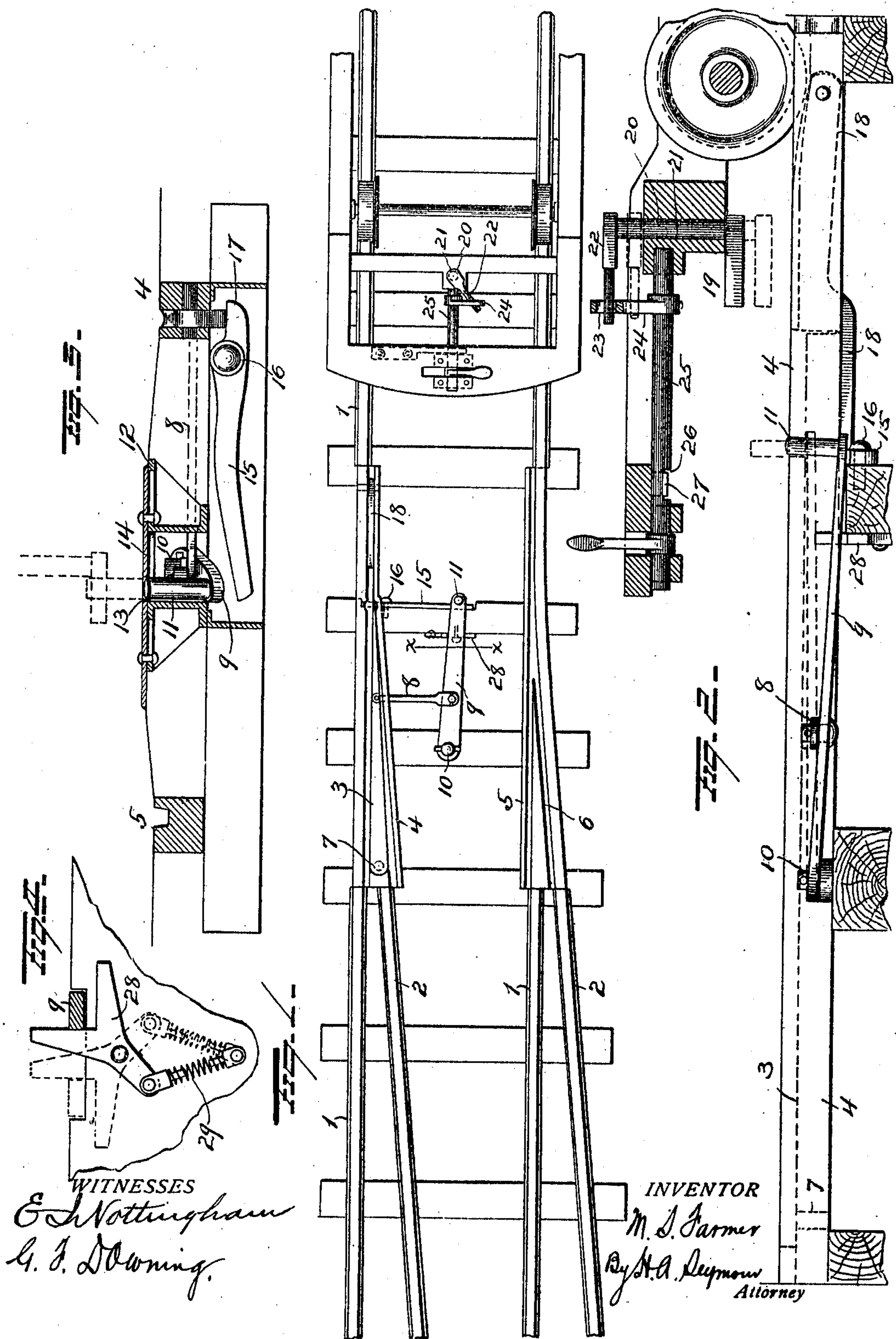


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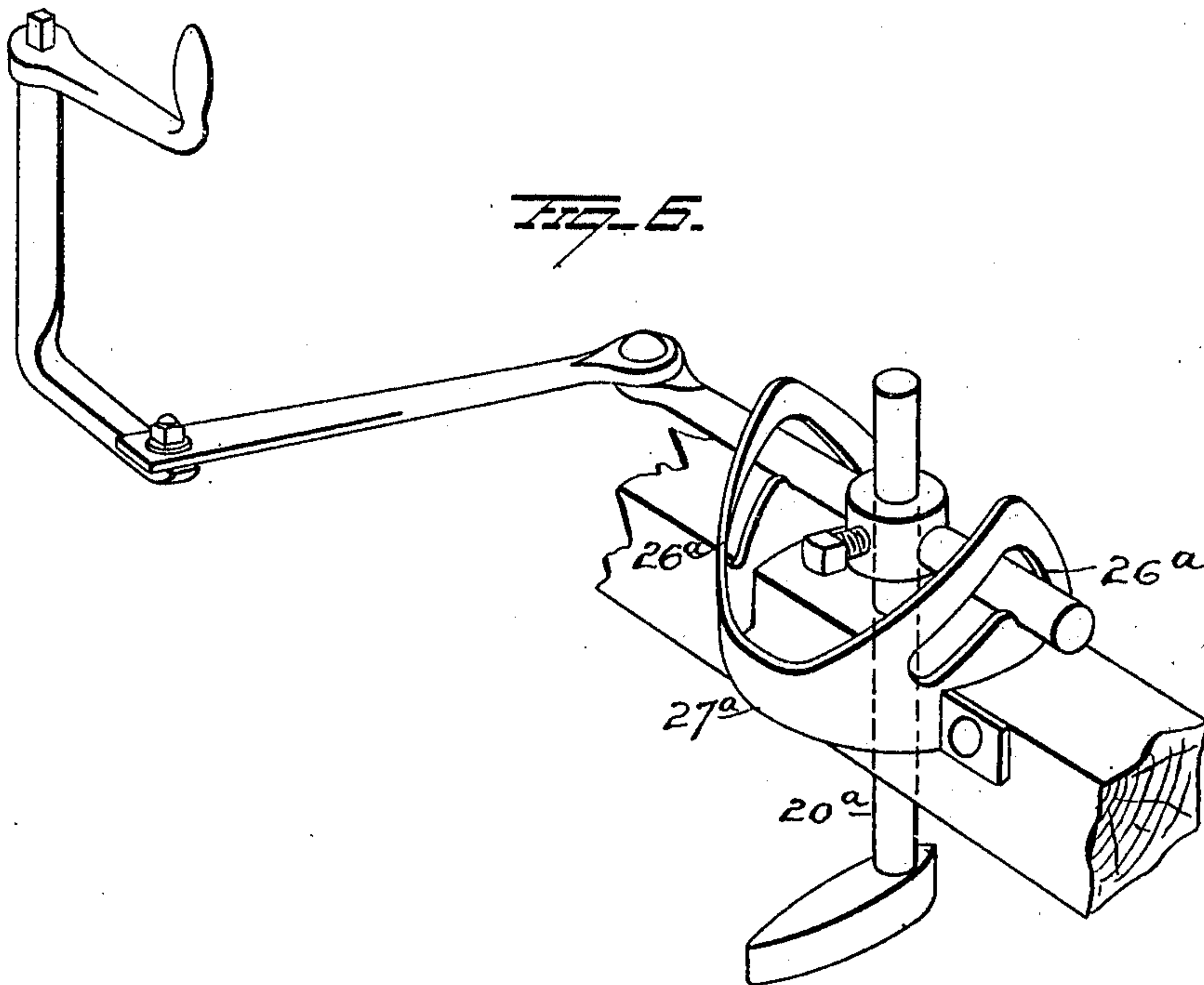
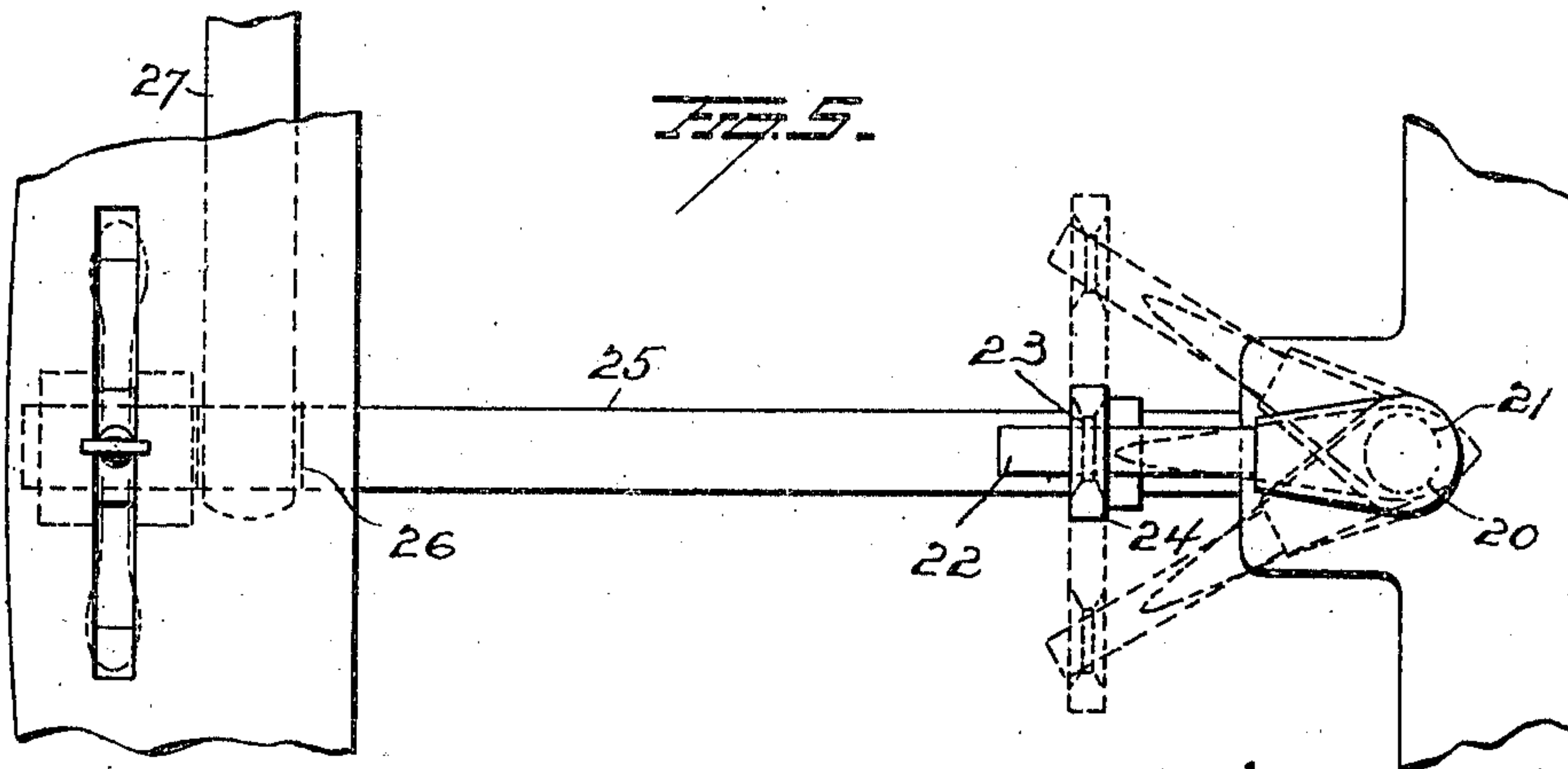
Patented Jan. 4, 1910.  
2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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MESNE ASSIGNMENTS, TO AMERICAN AUTOMATIC RAILWAY SWITCH CO., OF  
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## RAILROAD-SWITCH.

945,156.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed November 16, 1908. Serial No. 462,864.

*To all whom it may concern:*

Be it known that I, MATTHEW S. FARMER, of Washington, in the District of Columbia, have invented certain new and useful Improvements in Railroad-Switches; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an improvement in switches for street car tracks, the object being to provide means, under the control of the motorman or driver, for automatically shifting a switch point, and my invention consists in the parts and combinations of parts and in the details of construction as will be more fully described and set forth in the claims.

In the accompanying drawings Figure 1 is a view in plan of my improvement, the cover plate being removed to show the operative parts. Fig. 2 is a view in longitudinal section showing a car truck with the switch throwing plow thereon. Fig. 3 is a view in transverse section of same. Fig. 4 is a view in section on the line  $x-x$  Fig. 1, showing the yielding stop for the operating lever 9. Fig. 5 is a view of the switch operating plow showing it in full lines in its normal position and in dotted lines in its two throwing positions. Fig. 6 is a view of a modified form of plow actuating means.

1 represents the main track, 2, a turn out or siding, and 3 a movable switch point mounted on the switch rail 4, the switch rail 5 on the opposite side of the track having a fixed switch point 6.

The switch point 3 is pivoted at 7 and is connected at a point intermediate its ends, to one end of the pitman 8, the opposite end of said pitman being pivotally connected to the switch point operating lever 9. Lever 9 is pivoted at one end to the pin 10 secured to a tie, or to any suitable foundation or support, and is provided at its free end, with an upwardly projecting pin 11 the upper end of which rests approximately in the plane of, or below the plane of the cover plate 12 or surface of the road bed so as to be protected, and not form a projecting obstruction that would interfere with free traffic over the switch. The cover plate 12 is provided with a slot 13 in which the pin 11 rests and moves, the upper end of the pin

being mounted in a sliding plate 14 which covers the slot 13.

The end of lever 9 carrying pin 11, rests on the end of the longer member of lever 15 pivoted to the tie 16 which latter also forms a seat or rest for the free end of the lever 9. Lever 15 rests parallel with the tie 16 with its shorter member 17 under the switch rail 4. This shorter member forms a support for the free end of the track lever 18, which latter is pivotally mounted in a slot in the switch rail 4 in the path of the flange of the car wheel, with its free end resting on the shorter member 17 of lever 15.

Track lever 18 is grooved on the upper face of that portion thereof which lies in the path of the wheel flange, and its end farthest removed from its pivot is bent downwardly and then horizontally under switch rail 4, to a point over the shorter member 17 of lever 15 and rests thereon. The free end of the grooved portion of lever 18, or that end thereof nearer the lever 15, normally rests in a position to be engaged and depressed by the flange of a car wheel moving over same, hence the movement of a car over the switch, operates to depress the free end of lever 18, which, acting against the shorter arm 17 of lever 15, turns the latter on its pivot, thus elevating the longer arm of lever 15, and as the latter rests under the free end of lever 9, it follows that the latter will be elevated, thus projecting the upper end of pin 11 above the cover plate 12, and into a position to be engaged by a plow projecting from the car and under the control of the motorman or conductor. The movement of a car in either direction, operates by the contact with its wheel flange to elevate the pin 11, and when the pin is elevated, the switch point 3 may be shifted by the motorman as hereinafter described.

There is no necessity for throwing the point switch for a car approaching the point rail from the pivoted end of the latter, as the contact of the wheel flanges with the point rail will shift the latter in the well known manner. When however a car is approaching the switch on the track adjacent the free end of the point rail, it is then necessary to throw the point rail in order to permit the car to proceed along the main track or turn out at the switch, as the case may be. This is done by the motorman



or driver through the medium of the plow 19. This plow is wedge shaped with its pointed end projecting forwardly, and is secured to the lower end of the shaft 20 mounted on the car or truck frame in any approved manner. This shaft 20 is free to turn, and move vertically in its bearing 21, and is provided at its upper end with the arm 22 the front end of which rests in the opening 23 in the upper end of arm 24, secured at its lower end to shaft 25, journaled in the frame of the car or truck below the front platform, with its axis in the direction of the length of the car. This shaft 25 is provided with a flattened underface 26, which may be formed by cutting away the shaft as shown, against which the spring 27 bears and operates to hold the shaft 24 vertical. The front end of shaft 25 is provided with a lever or other operating device, which, when shifted by the hand or foot operates to turn shaft 25 and swing the arm 24 sidewise. This sidewise movement of arm 24 rocks arm 22, and at the same time permits the vertical shaft 20 carrying the plow 19 to move downwardly thus carrying the plow into a position to engage the pin 11 on lever 9 which pin, has, as previously explained, been elevated into a position to be engaged by the plow. The shaft 20 is normally held in its elevated position by the arm 24, and when the arm 24 turns, the shaft 20 will ordinarily drop by gravity, but if it should stick, the movement of arm 24 will force the shaft downwardly and as before explained carry the plow into a position to engage pin 11.

Normally the plow is held up out of the way of stones or other obstructions that are liable to find their way onto a car track, and the pin 11 is normally below the surface of the road bed, or cover plate 12. As the car approaches the switch, the motorman, by the means before explained, drops the plow to its lowered position. If the car is to proceed on the straight track and the switch is set for the branch or turn out, the motorman by turning shaft 25 in the proper direction, will so turn the plow 19 to a position to engage the pin 11 on its side adjacent to the switch point. The plow in this position is at an inclination to the pin, and as the plow engages the pin, it forces the latter sidewise and through the medium of lever 9 and pitman 8, shifts the switch point laterally thus, closing the siding or turn out. If on the other hand, the siding or turn out is closed by the switch point, and the car is to enter the siding or turn out, the motorman shifts shaft 25 to its opposite side thus lowering the plow and turning it so as to engage the pin 11 on its side farthest removed from the switch point. This contact of the inclined surface of the plow with the

pin 11 forces the latter in the direction of the switch point, and through the medium of the lever and pitman before referred to, shifts the switch point in a direction to close the main track and open the siding. After the switch point has been thrown to the desired position it remains so until again shifted by the wheel flanges of a car traveling in the opposite direction, or by the plow of another car.

In the construction shown in Fig. 6, I have shown the plow carrying shaft 20<sup>a</sup> provided with two arms 22<sup>a</sup> resting in cam slots 26<sup>a</sup> in the brackets 27<sup>a</sup> the latter being secured to the car body or truck. The slots are highest at the transverse center and extend downwardly at the front and rear of the center so that when shaft 20<sup>a</sup> is turned the contact of the arms 22<sup>a</sup> with the walls of the cam slots force the shaft, and plow downwardly, the direction of rotation of the shaft and the inclination of the plow being under the control of the motorman.

The plow in the form shown in the preferred construction and also in the modification is elongated and when depressed points to one side or the other so as to present an inclined face to the pin 11. If the motorman through inadvertence turns the plow in the wrong direction, the plow will pass the pin without contact and hence without shifting the switch. When however the plow is properly presented to the pin, the inclined face of the plow moves in the plane of the pin, and hence operates to shift the latter sidewise as previously explained. With this construction, there are no projecting parts in the track to obstruct or interfere with traffic on the street, nor are there any parts depending from the car that will engage obstructions over which ordinary car or wheel fenders can pass, hence my improvement overcomes the objection to the use of systems employing parts projecting above the road-bed of the street or track or depending from the car.

As the switch point and its operating lever 9 are free to be moved laterally it is desirable, if not actually necessary to provide means for preventing accidental movement, and this I accomplish by the yielding stop 28 shown in Figs. 1 and 4. This stop is preferably Y-shape and is pivoted to a support below lever 9 with its two upper members straddling lever 9 and its lower member connected to the upwardly pressing spring 29. This stop normally rests with one of its upper members vertical and bearing against one side of the lever 9 and the other horizontal.

In the position shown in Fig. 4 it is holding the lever in the position shown in Fig. 1 with the switch point closing the siding. If the lever be now shifted by the plow or by the wheels of a car entering the main track



from the siding, the pressure of the lever 9 against the upright member of the stop 28 will turn the latter on its pivot to the position shown in dotted lines and thus hold lever 9 in its shifted position until the latter is again moved by the wheels of a car or by the plow.

It is evident that many slight changes might be resorted to in the relative arrangement of the parts shown and described without departing from the spirit and scope of my invention hence I would have it understood that I do not wish to confine myself to the exact construction and arrangement of parts shown, but,

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

1. The combination with a switch point and an operating lever connected therewith, of a Y-shaped stop pivoted in position to be shifted by said lever, and a spring cooperating with said stop to hold one or the other of its arms in engagement with the lever to temporarily hold the latter in the position to which it and the switch point may be shifted.

2. In switch mechanism for street rail-

ways, the combination with a switch point and operating means therefor, of a plow to be carried by a car for actuating said switch operating means, an arm movable with said plow, a shaft having a slotted member to receive said arm, and an arm secured to said shaft for turning the latter to raise or lower the plow and simultaneously turn the same.

3. In a switch mechanism for street railways, the combination with a pivoted switch rail and operating means therefor, of a vertical shaft to be carried by a car, a plow for actuating the switch operating means, carried by said vertical shaft, an arm fixed to said vertical shaft, a horizontal shaft, a slotted arm carried by said horizontal shaft and receiving the arm on the vertical shaft, and a drop arm fixed to the horizontal shaft for turning the latter to effect the raising or lowering and simultaneous turning of the plow.

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

MATTHEW S. FARMER.

Witnesses:

JOHN R. HAWKINS,  
HOWARD M. WALKER.