

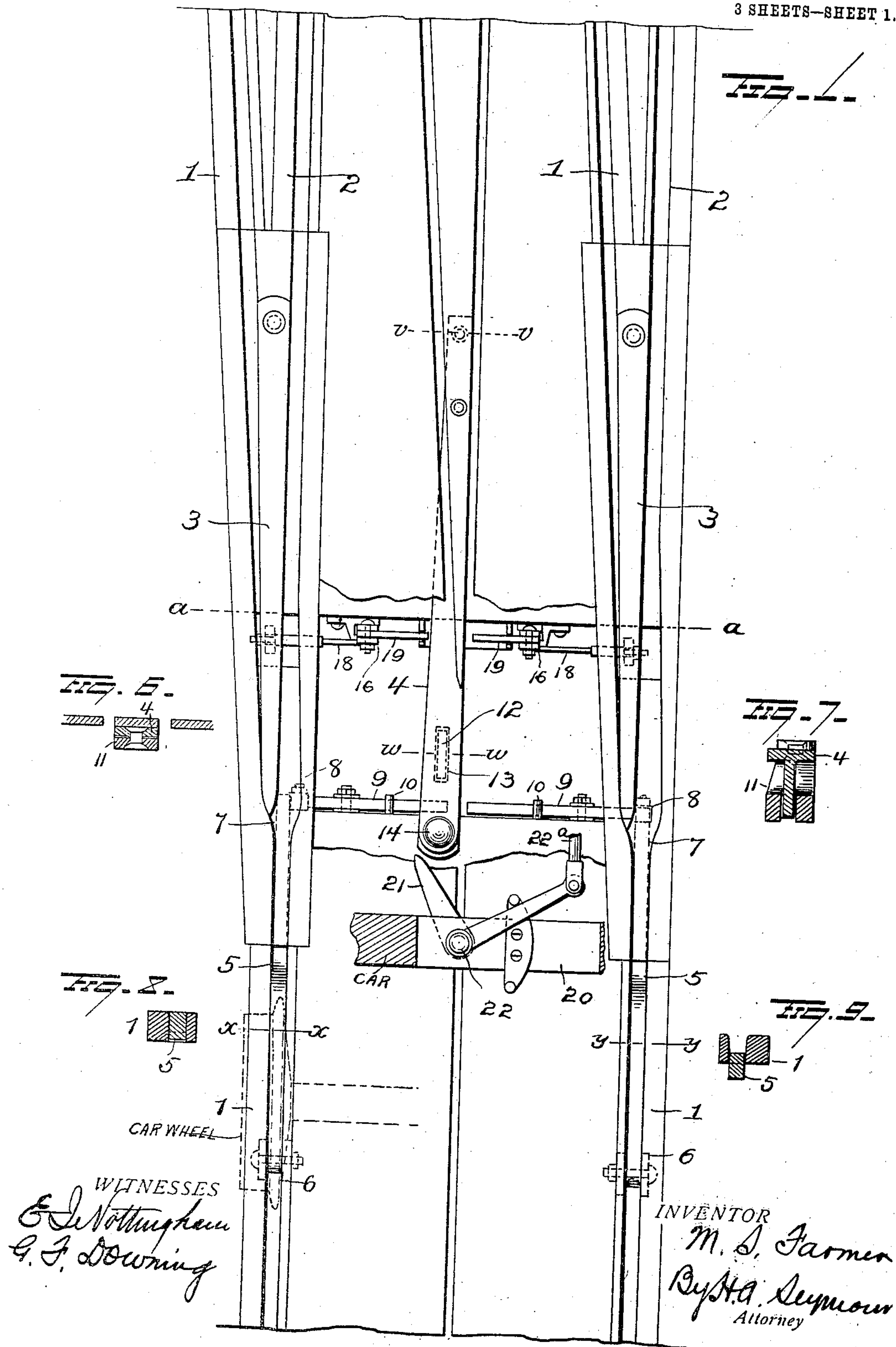
No. 816,308.

PATENTED MAR. 27, 1906.

M. S. FARMER.  
SWITCH.

APPLICATION FILED JULY 21, 1905.

3 SHEETS--SHEET 1.



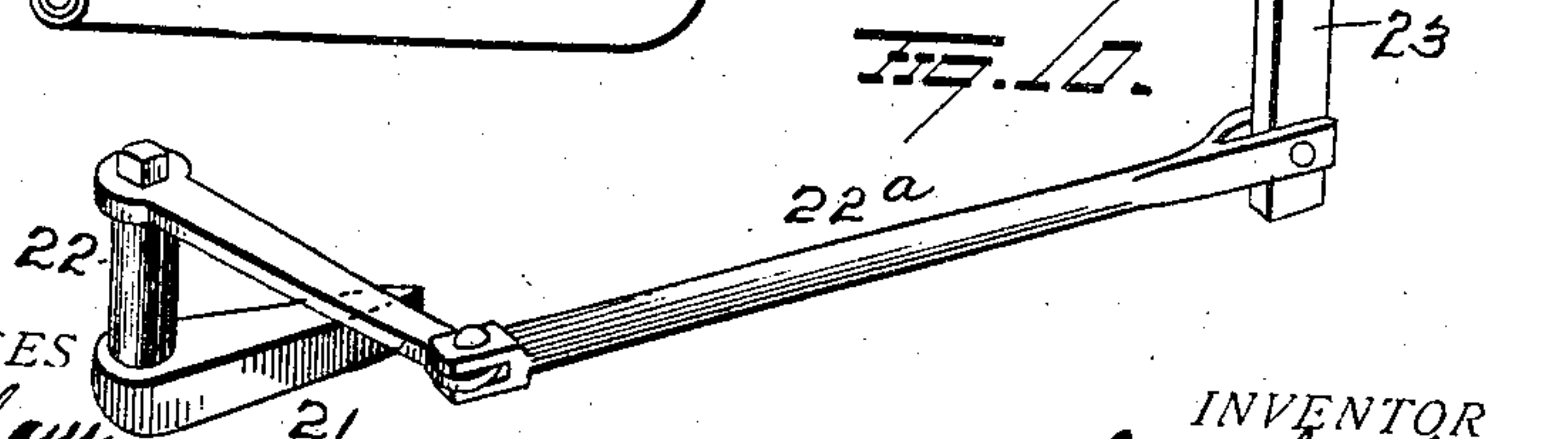
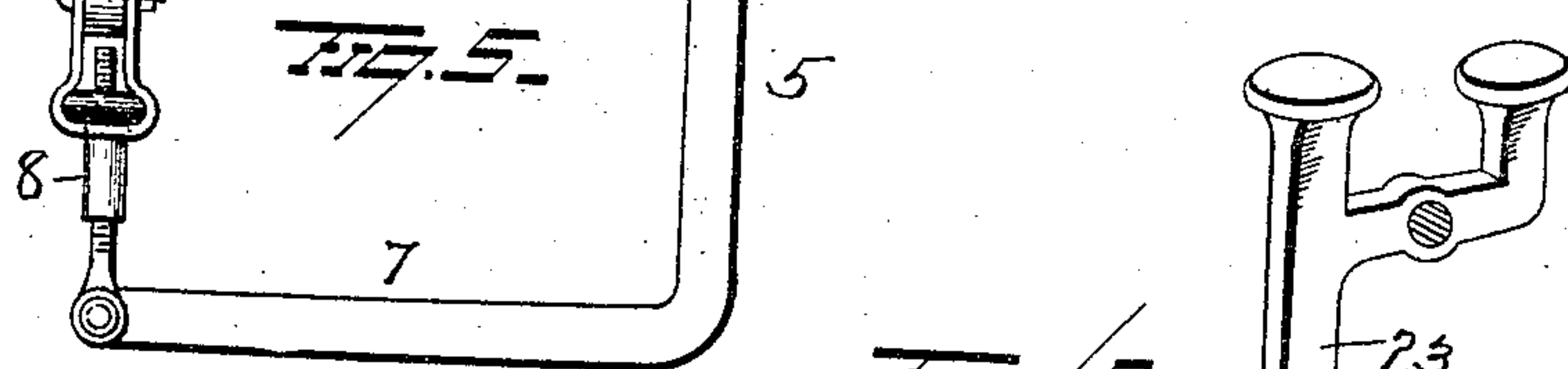
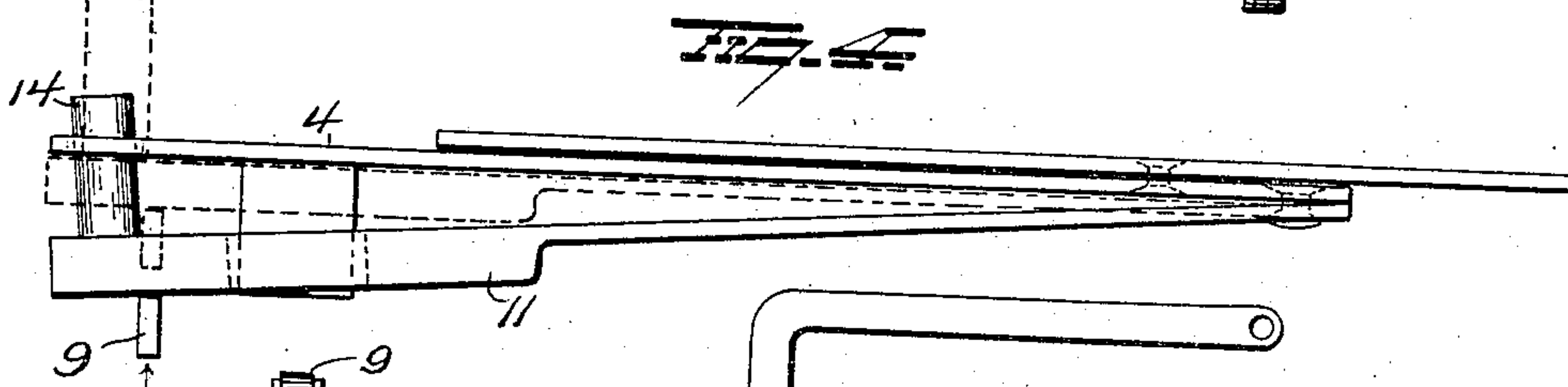
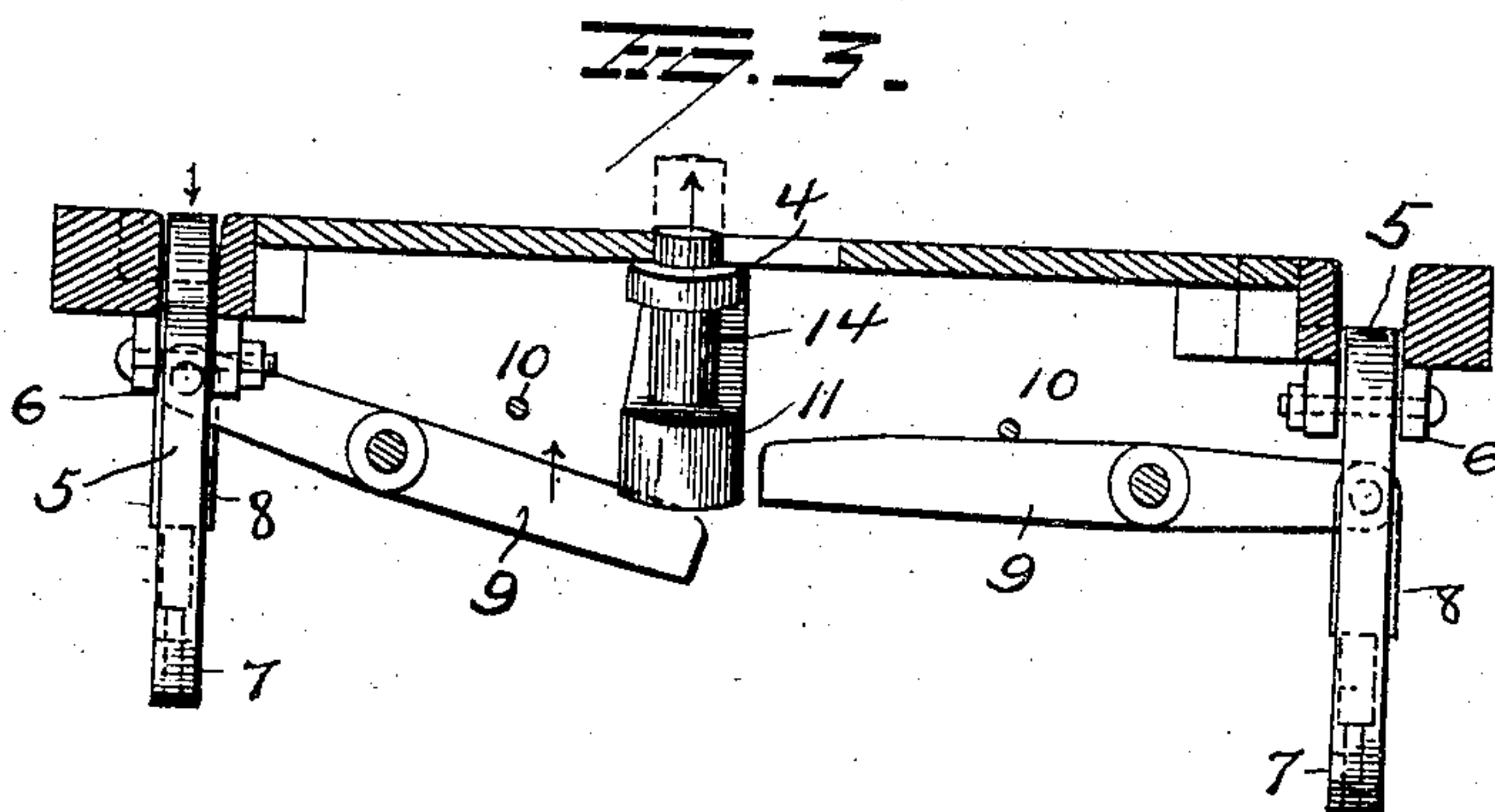
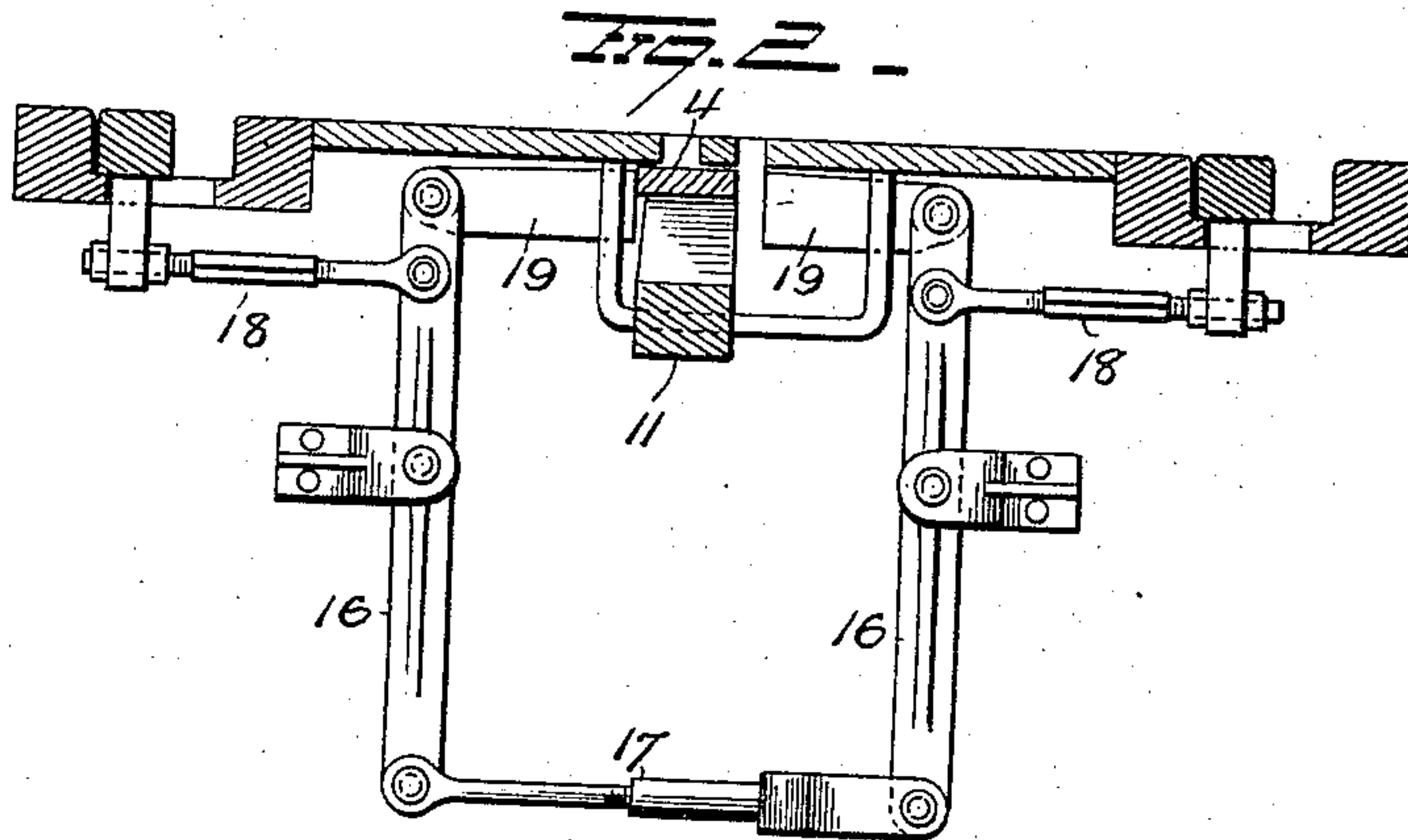
No. 816,308.

PATENTED MAR. 27, 1906.

M. S. FARMER.  
SWITCH.

APPLICATION FILED JULY 21, 1905.

3 SHEETS—SHEET 2.



WITNESSES  
*E. J. Nottingham*  
*G. J. Downing*

INVENTOR  
*M. S. Farmer*  
*By H. A. Seymour*  
Attorney

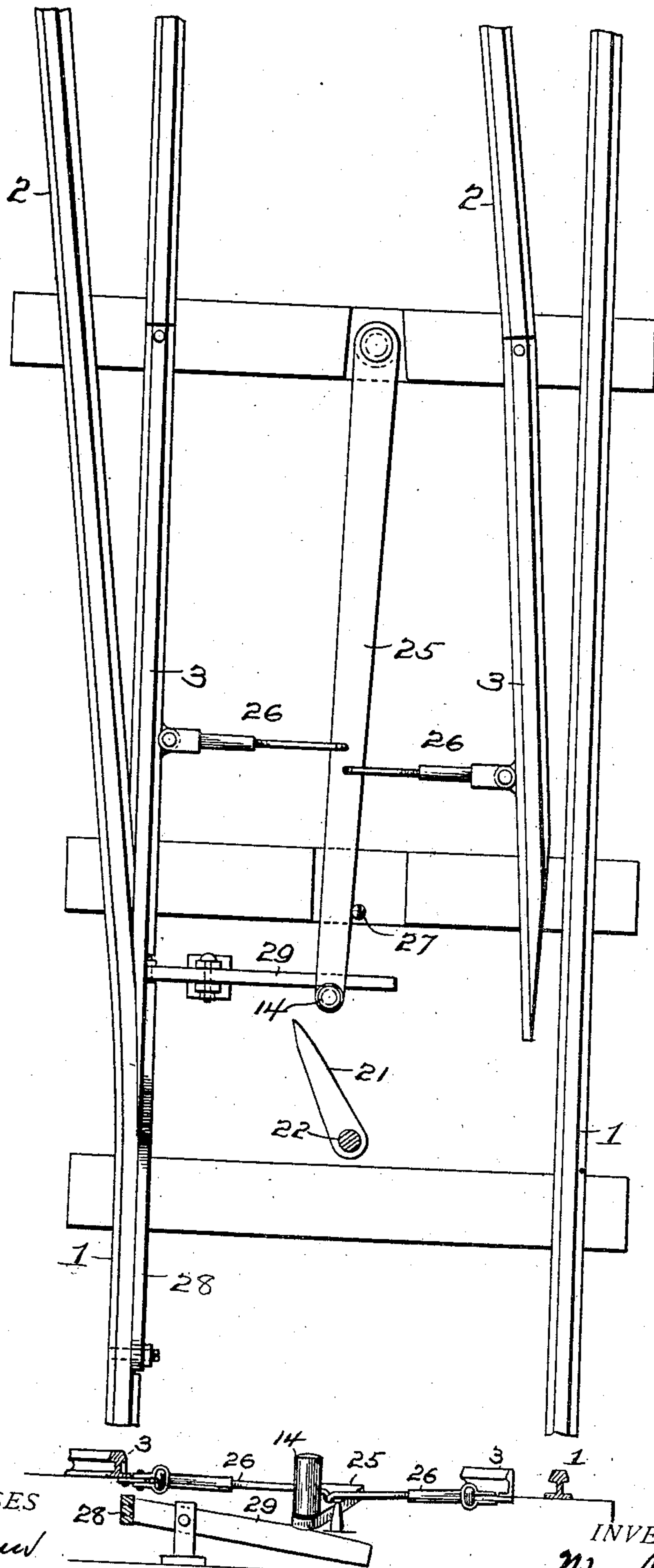
No. 816,308.

PATENTED MAR. 27, 1906.

M. S. FARMER.  
SWITCH.

APPLICATION FILED JULY 21, 1905.

3 SHEETS—SHEET 3.



WITNESSES  
*E. Nottingham*  
*G. F. Downing*

INVENTOR

*M. S. Farmer*  
*By H. A. Seymour*  
Attorney

FIG. 12



# UNITED STATES PATENT OFFICE.

MATTHEW S. FARMER, OF WASHINGTON, DISTRICT OF COLUMBIA.

## SWITCH.

No. 816,308.

Specification of Letters Patent.

Patented March 27, 1906.

Application filed July 21, 1905. Serial No. 270,649.

*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 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.

10 My invention relates to improvements in switches, and more particularly to improved switch throwing and locking mechanism, the object of the invention being to provide a switch with means normally below the surface of the track which is elevated by the wheels of a car and which when thrown by means on the car will automatically lock the switch.

20 With these and other objects in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully hereinafter described, and pointed out in the claims.

25 In the accompanying drawings, Figure 1 is a plan view illustrating my improvements. Figs. 2 and 3 are views in cross-section. Figs. 4 and 5 are detail views; and Figs. 6, 7, 8, and 9 are views in section on the lines *vv*, *ww*, *xx*, and *yy*, respectively. Fig. 10 is a detail perspective view of the switch-throwing means carried by the car, and Figs. 11 and 12 are views of a modified form of track.

30 1 1 represent rails of a track, and 2 2 are rails of a track joining the rails 1 1 by means of point-rails 3 3, and 4 represents the swinging point-rail or plow-guide, such as ordinarily employed in underground electric conduit systems. The rails 1 are slotted in their grooved portions adjacent to the switch to 40 accommodate tread-levers 5 of general L shape, pivotally secured at one end to depending lugs 6 on the rails 1 and having forwardly-projecting arms 7 at their forward ends having an adjustable connection 8 with 45 normally horizontal levers 9, pivoted between their ends, as shown. These levers 9, which I shall refer to as the "lifting-levers," have their inner ends spaced apart to allow free passage for the plow of the car, and their 50 pivotal movement is restricted by pins 10 on the framework of the conduit.

The swinging central point-rail 4 has a hinged bar 11 secured to the lower face thereof, and a depending web 12 on rail 4 is located 55 in a slot 13 in bar 11, compelling the bar and

rail to move together laterally. My improved switch-throwing pin 14 is secured to the end of bar 11, is disposed vertically and movable through an opening in rail 4, and may have a roller or sleeve thereon to reduce friction. 60 The free end of this bar 11 normally rests on one of the lifting-levers 9, and its weight holds the pin depressed below the road-level and the tread-lever 5, with which it is connected, elevated to be engaged by the flange of a car. 65

On each side of the conduit vertical bars 16 are located and pivoted between their ends, and the lower ends of the bars 16 are connected by an adjustable rod 17 below the path of the car-plow and compelling the bars 70 to move together. These bars 16 are connected by rods 18 with the switch-points 3 and have inwardly-projecting tongues 19 at their upper ends in the path of point-rail 4 to be engaged thereby to throw the switch-rails 75 when the rail 4 is thrown, as will hereinafter appear, and sufficient space is provided between the ends of tongues 19 and rail 4 to allow the plow to pass without obstruction.

20 represents a car having a vertical crank- 80 shaft 22 secured to its cross-beam and provided with switch-throwing tongue 21 at its lower end. A bar 22<sup>a</sup> connects the crank-arm of shaft 22 with the lower end of a trip-lever 23, projecting through the car-platform 85 and pivotally secured between its ends. The upper end of this trip-lever 23 is made forked or T shape and has a treadle on each of its forked ends which enables the motorman to step on either treadle and throw the lower end 90 of the lever either forward or back to change the angle of tongue 21, according to the way the switch is to be thrown.

The operation is as follows: Tongue 21 is elevated out of the way of all obstructions on 95 the track, and pin 14 is depressed out of harm's way. The wheel-flanges of an approaching car ride over tread-levers 5, depress them, and through the medium of the lifting-lever on which bar 11 is resting elevates the bar and pin 14, carried thereby. 100 The tongue 21 by its cam action against pin 14 throws the same and moves bar 11 and point-rail 4 to one side, and the point-rail engages one of the tongues 19 and throws both 105 switch-rails, as above explained. When the tongue 21 passes pin 14, the latter and bar 11 will fall, depressing the inner end of one of the lifting-levers and resting in line with the end of the other lifting-lever, so that it se- 110



curely locks the switch-rails until the bar 11 is again elevated.

In Figs. 10 and 11 my improvements are shown on a track having no conduit. In this form a central hinged and swinging rail 25 is shown connected by adjustable rods 26 with the switch-point rails 3 and carries the switch-throwing pin 14 at its free end. This free end of the rail 25 is normally depressed and rests beside a vertical pin 27, securely locking the switch-rails until the rail 25 is elevated by the tread-lever 28 and lifting-lever 29, as clearly shown. When the rail 25 is elevated and thrown, it will fall to the other side of pin 27 and lock the switch, as before.

It will be seen that my improvements not only elevate a normally depressed switch-throwing pin and throw the same, but also automatically lock the switch in its thrown position until the pin is again elevated by an approaching car.

A great many slight changes might be made in the general form and arrangement of the parts described without departing from my invention, and hence I would have it understood that I do not restrict myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a switch, the combination with a switch-point rail, of a normally depressed switch-throwing device, means for elevating said device, and means for automatically locking the switch in either thrown position.

2. In a switch, the combination with a switch-point, of a central rail connected with the switch-point and normally depressed, a device on said rail to be engaged by a device on the car to throw the rail and switch-point, and means automatically locking the rail in either depressed position.

3. In a switch, the combination with a switch-point, of a normally depressed switch-throwing pin, a tread-lever in the track to be engaged by a wheel-flange to elevate the device, means on a car to throw the device to

one side, and means automatically locking the switch in either position.

4. In a switch, the combination with two switch-points, of a central swinging rail connected with both points, a bar hinged to the rails and normally depressed, a pin on the bar movable through an opening in the rail, lifting-levers to elevate the bar and locking the same against lateral movement when depressed, tread-levers in the track to operate the lifting-levers, and means on the car to engage and throw the pin when the latter is elevated.

5. In a switch, the combination with a switch-point, of a vertically and laterally movable bar connected with the switch-point, a vertical pin on the bar, a lifting-lever to elevate the bar, a tread-lever operated by the flange of a car-wheel to operate the lifting-lever, and means on a car to engage the pin and throw the bar and switch-point when the bar is elevated.

6. In a switch-operating mechanism, the combination with a bar connected with the switch-point, and a vertical pin on said bar, of a crank-shaft on a car, a tongue on the crank-shaft to engage the pin, a yoke or T-lever pivoted between its ends to the car-platform, a rod connecting the said lever and crank-shaft, and a foot-treadle at opposite ends of the yoke or horizontal member of the lever to be depressed and throw the lever in either direction.

7. In a switch-operating mechanism the combination with a pin connected with the switch-point, of a car-platform, a lever fulcrumed in the platform, two treadles connected with the lever to throw it in either direction, a crank-shaft connected with the car-truck, a rod connecting the crank-shaft and lever, and a horizontal tongue secured to the lower end of the crank-shaft.

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

MATTHEW S. FARMER.

Witnesses:

S. W. FOSTER,

S. G. NOTTINGHAM.