

No. 773,762.

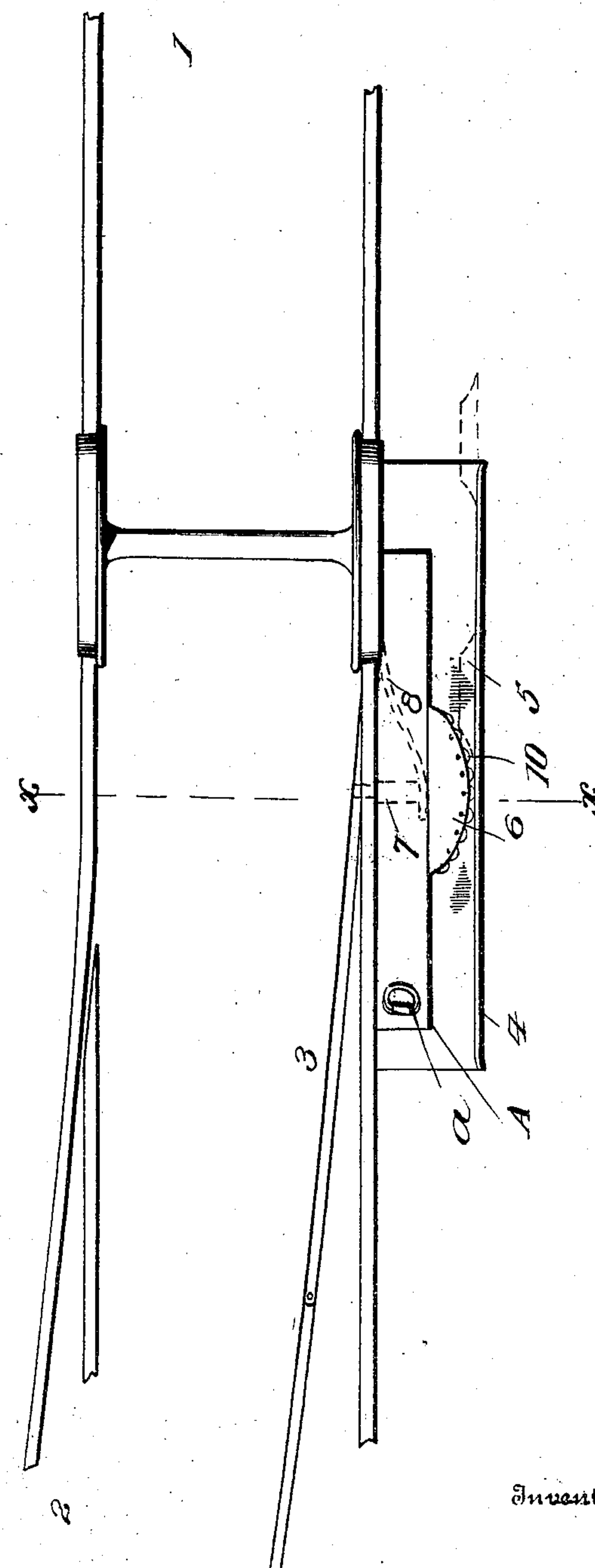
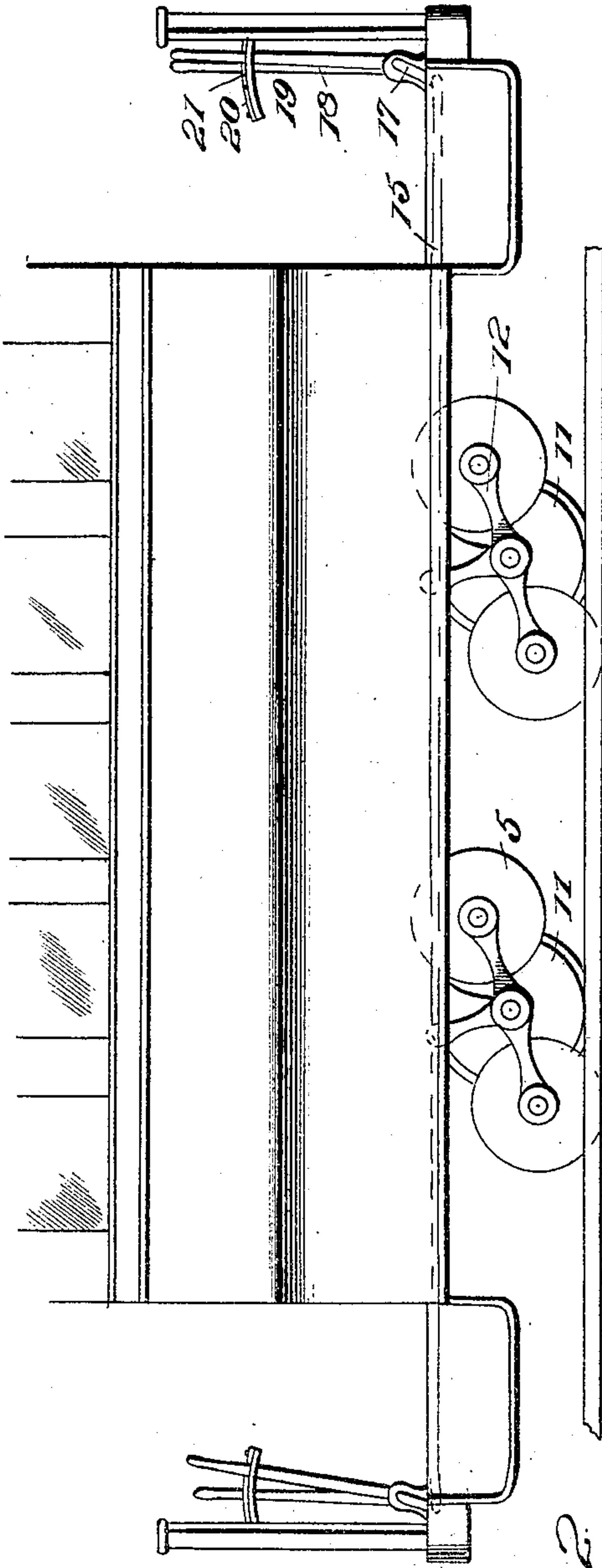
PATENTED NOV. 1, 1904.

J. F. McCORMICK.
RAILWAY SWITCH OPERATING MEANS.

APPLICATION FILED MAR. 9, 1904.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses
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W. H. Woodson

Inventor
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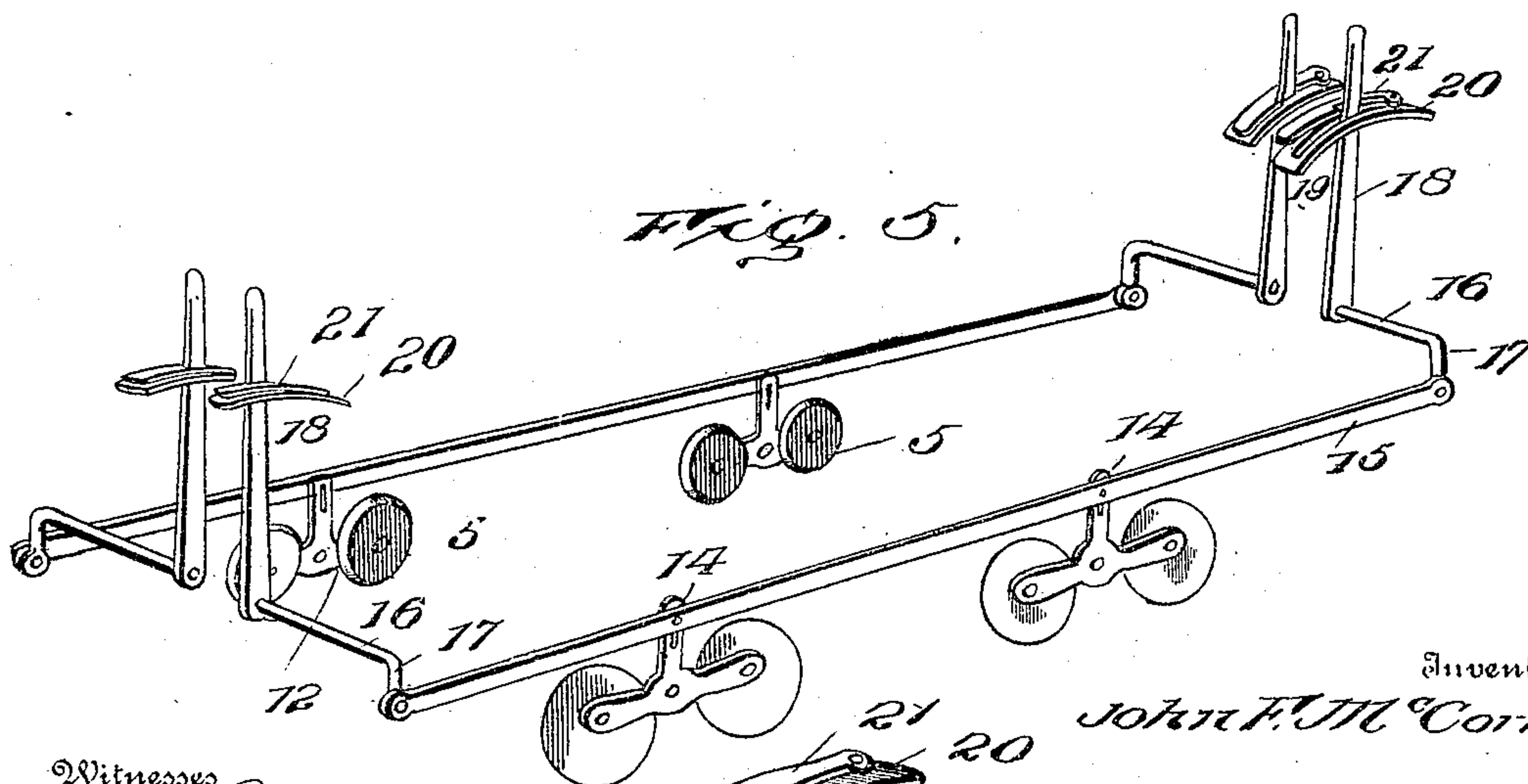
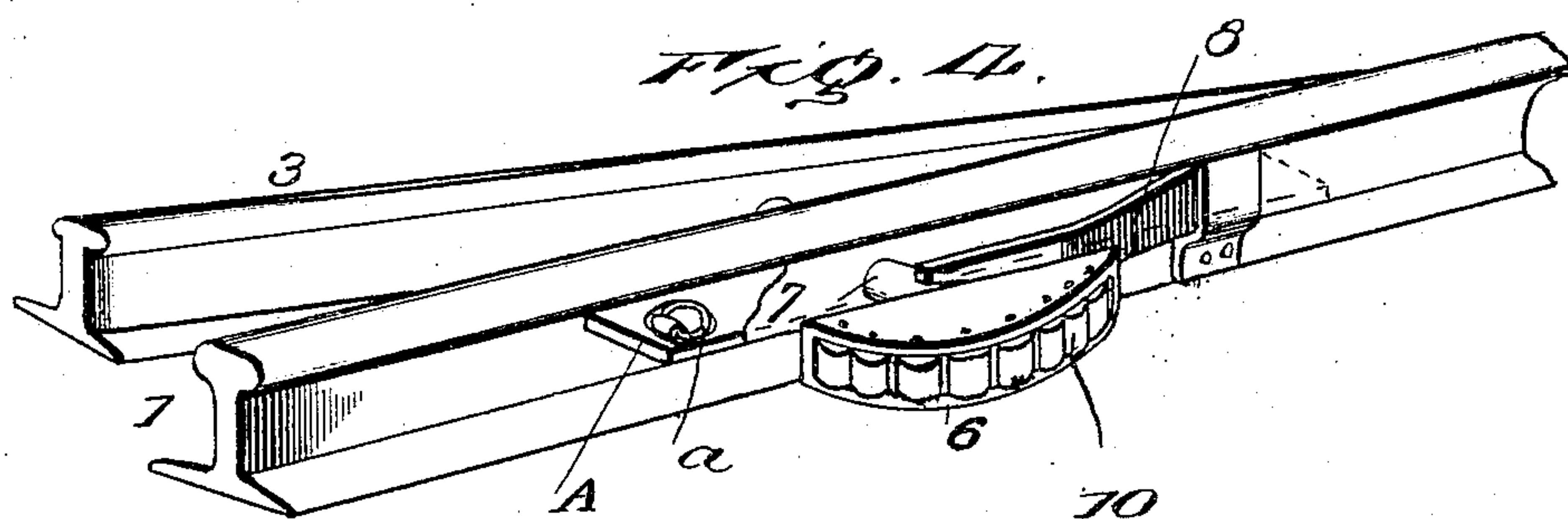
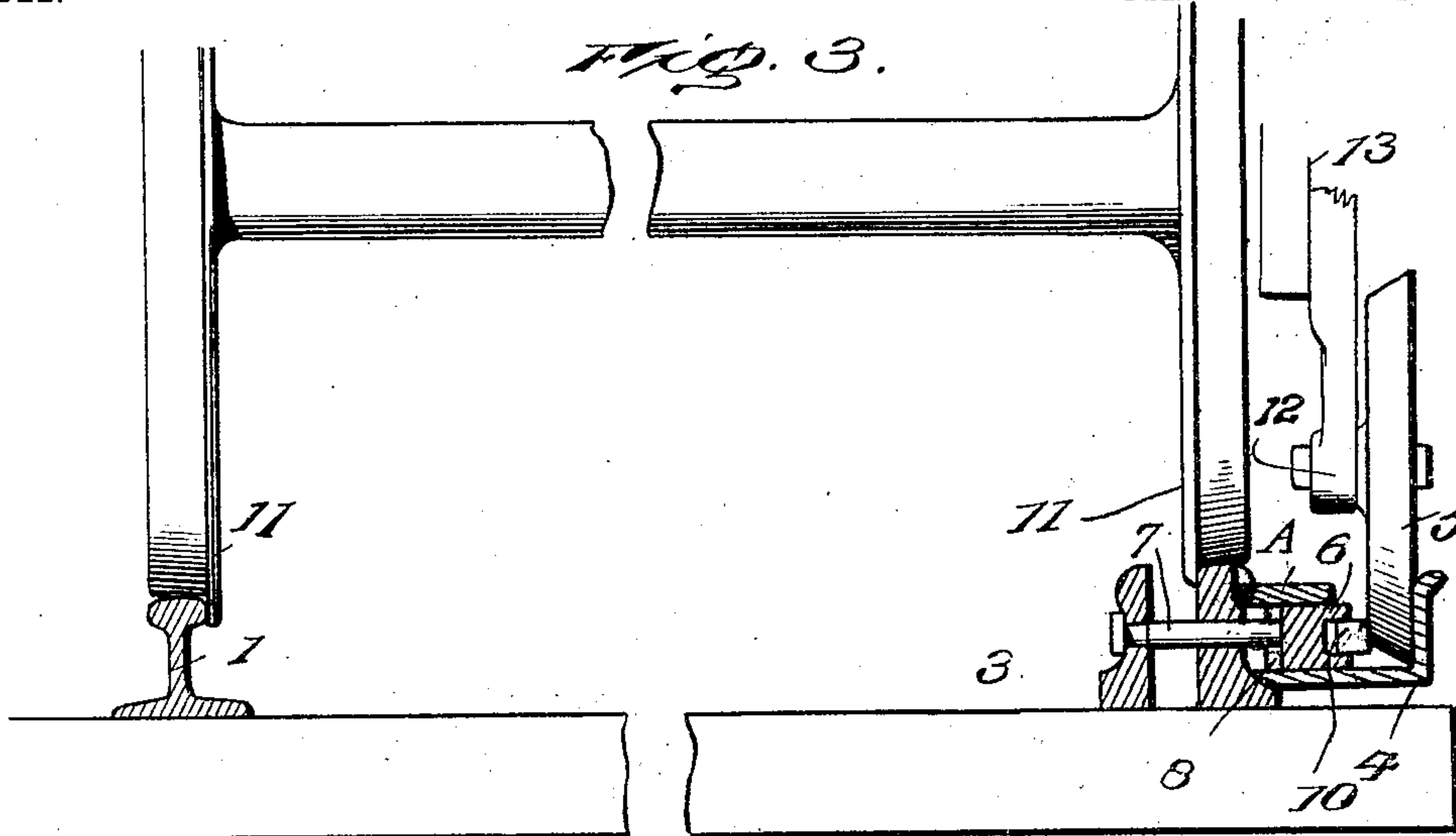
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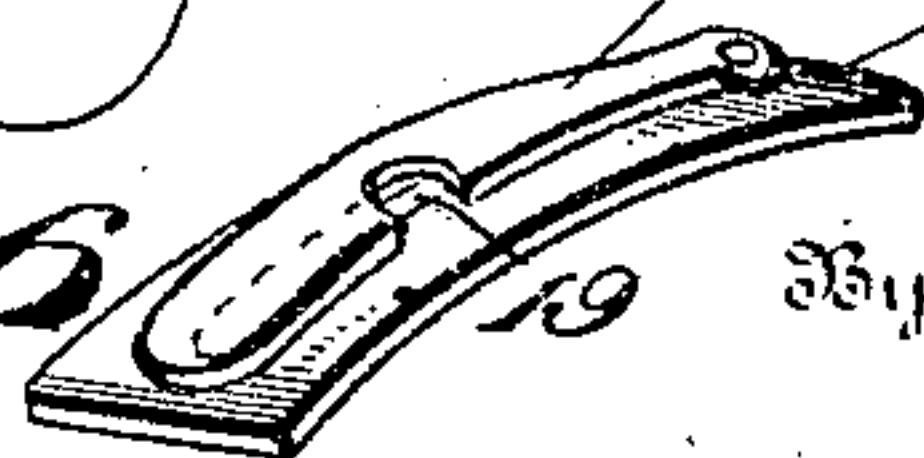
2 SHEETS—SHEET 2.



Witnesses

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FIG. 6.



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UNITED STATES PATENT OFFICE.

JOHN F. McCORMICK, OF CHURUBUSCO, INDIANA.

RAILWAY-SWITCH-OPERATING MEANS.

SPECIFICATION forming part of Letters Patent No. 773,762, dated November 1, 1904.

Application filed March 9, 1904. Serial No. 197,309. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. McCORMICK, a citizen of the United States, residing at Churubusco, in the county of Whitley and State of Indiana, have invented certain new and useful Improvements in Railway-Switch-Operating Means, of which the following is a specification.

This invention has for its object to devise novel means whereby a switch of a street-railway may be operated from the car when desired without requiring stoppage, thereby dispensing with the services of the usual attendant employed for this purpose.

In devising the mechanism it has been the chief aim to minimize the number of parts, simplify the construction, reduce the friction to the smallest amount possible, and to construct and combine the parts in a manner to secure the best possible results as regards safety in operation and positiveness of action.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and drawings hereto attached.

While the essential and characteristic features of the invention are susceptible of modification, still the preferred embodiment of the invention is illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the lower portion of a street-car equipped with switch-operating means in accordance with this invention. Fig. 2 is a plan view showing the switch and the switch-operating means. Fig. 3 is a transverse section on the line X X of Fig. 2 looking to the right, showing the parts on a larger scale. Fig. 4 is a detail perspective view of a portion of the switch and the operating means applied to the road-bed. Fig. 5 is a detail perspective view of the switch-operating means applied to the car and under control of the car operator. Fig. 6 is a detail perspective view of the means for securing the operating-lever when required.

Corresponding and like parts are referred to in the following description and indicated

in all the views of the drawings by the same reference characters.

The railway, as indicated most clearly in Fig. 2, comprises the main track 1 and the branch 2. The switch-point is indicated at 3 and is of common construction and relative arrangement to admit of directing a car from the main line onto the branch and to pass from the branch onto the main line. When the switch-point is closed against the outer rail of the main track, as indicated in Fig. 2, the branch is opened, so that a car coming from the right along the main track will pass from the latter to the branch. If it be required to pass by the switch and remain on the main track, it is necessary to move the end of the switch-point away from the outer rail of the main track, as will be readily understood, this being accomplished in the present instance by the means illustrated and hereinafter more particularly described.

Opposite to the switch and parallel with the main track is a guard-rail 4, which by preference is of angle formation, one wing being secured to the ties and the other wing extended vertically and having its end portions outwardly flared. This guard-rail co-operates with the actuator 5 to prevent outward movement thereof, thereby insuring positive operation of the switch when the actuator is thrown into position for movement of the switch-point. A presser-head 6 is connected by stem 7 with the movable end of the switch-point 3, and its end portions are oppositely inclined to provide, in effect, cam-faces for the actuator 5 to ride upon and move the presser-head, so as to carry the movable end of the switch-point away from the outer rail of the main track in the manner well understood. A spring 8 normally exerts an outward pressure upon the stem 7, so as to hold the movable end of the switch-point in close contact with the inner side of the outer rail of the main track. This spring may be of any type of construction so long as it serves the purpose aforesaid. It is preferred, however, to utilize a flat spring, thereby economizing space and admitting of the presser-head 6 lying nearer to the main track. The

spring 8 has one end clipped or otherwise secured to the outer rail of the main track, and the opposite end of said spring is notched and embraces the stem 7 and exerts a pressure against the head 6.

The presser-head 6 may be of any construction; but it is preferred to have its outer or cam face provided with antifriction-rollers 10 to minimize the frictional engagement of the actuator therewith. In the preferable construction of the presser-head it is composed of upper and lower plates spaced apart and having the rollers 10 journaled between them, said rollers being closely related to prevent foreign matter entering the space between the plates of the presser-head and impairing its efficiency. The actuator may be of any formation and relative arrangement so long as it serves to exert an inward pressure upon the head 6 when moved in the path thereof. In order to reduce the friction to the smallest amount possible, the actuator is of disk form and rotatably mounted, and its edge portion is beveled to provide a cam-surface to cooperate with the cam portion of the presser-head 6. The actuator 5 is set so as to operate in advance of the car-wheel 11, so as to move the switch-point in advance of the car-wheel to permit of the latter passing thereby when it is desired to have the car remain on the main track. An actuator is provided for each car-wheel, as indicated most clearly in Fig. 1, and they are connected for simultaneous operation. Inasmuch as switches may be arranged to be operated by the car when traveling in either direction, two actuators are provided for each car-wheel, and by preference the support 12 therefor is pivotally mounted, whereby when one actuator is thrown into position for operating the switch the other is thrown high, so as to be entirely out of the way, as indicated most clearly in Fig. 1. Each support 12 consists of a rocking beam pivotally mounted intermediate of its ends upon a hanger or bracket 13 of the car. Each rocking beam or pivoted support 12 is provided with an arm 14, which is connected with a longitudinal bar or rod 15 to admit of simultaneous movement of the beams and actuators. A rock-shaft 16 is located at each end of the car and is provided at one end with a crank-arm 17, to which the operating-bar 15 is connected, the opposite end of each rock-shaft having connected thereto an operating-lever 18, which extends within convenient reach of the motorman or operator of the car. To prevent lateral displacement of the operating-lever 18, its upper portion operates in a slot 19 of a curved plate 20, and a catch 21 is pivoted to the plate 20 and is notched for engagement with the operating-lever 18 to hold the same in fixed position when required. When the catch 21 is turned

aside, the operating-lever 18 is free to move in either direction, this being essential when the car is in service, as otherwise the switch-operating means could not be moved.

A plate A is provided and arranged to extend over the space formed between the head 6 and the rail 1 and is preferably hinged to the said rail, so as to turn upward when it is required to gain access to the head or to the space in the rear thereof for any purpose. A handle *a* is applied to the plate for convenience of manipulation.

Having thus described the invention, what is claimed as new is—

1. In switch-operating mechanism, the combination of the switch-point, a presser-head connected therewith, a spring normally holding the switch-point against a side of the rail, a guard-rail arranged opposite to the presser-head, and an actuator arranged to pass between the presser-head and guard-rail to move the switch-point away from the main rail, substantially as specified.

2. In switch-operating mechanism, the combination of the switch-point, a presser-head connected therewith, a spring normally holding the switch-point against a side of the main rail, and a rotary actuator for operating the switch, substantially as set forth.

3. In switch-operating mechanism, the combination of the switch-point, a spring for normally holding the switch-point against a side of the main rail, a presser-head connected with the switch-point, antifriction devices arranged upon the surface of the presser-head receiving the force exerted for operating the switch, and an actuator adapted to be projected into the path of the presser-head for operating the switch, substantially as described.

4. In switch-operating mechanism, the combination of the switch-point, a spring for normally holding the switch-point against a side of the main rail, a presser-head connected with the switch-point and comprising upper and lower spaced portions, antifriction-rollers journaled between the spaced parts of the presser-head, and an actuator adapted to be projected into the path of the presser-head for operating the switch, substantially as specified.

5. In switch-operating mechanism, the combination of the spring-actuated switch-point, a presser-head connected therewith, a pivoted beam, and actuators attached to the end portions of the pivoted beam to admit of one being entirely thrown out of the way when the other is projected into the path of the presser-head, substantially as set forth.

6. In switch-operating mechanism, the combination with the switch-point and a presser-head connected therewith, of a series of pivoted supports, actuators carried thereby, means connecting the pivoted supports for simultaneous operation, and operating means

for applying power to throw the actuators into and out of the path of the presser-head, substantially as set forth.

7. In switch-operating mechanism, the combination with the switch-point and a presser-head connected therewith, of a series of pivoted supports, actuators carried thereby, means connecting the pivoted supports for simultaneous operation, an operating-lever applied to the opposite ends of said connecting

means, and securing means for holding the operating-lever in the required position, substantially as specified.

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

JOHN F. McCORMICK. [L. s.]

Witnesses:

SILAS E. BRIGGS,
ILA ORNDORF.