

J. W. EADS.
 SWITCH OPERATING MECHANISM.
 APPLICATION FILED APR. 28, 1908.

915,944.

Patented Mar. 23, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

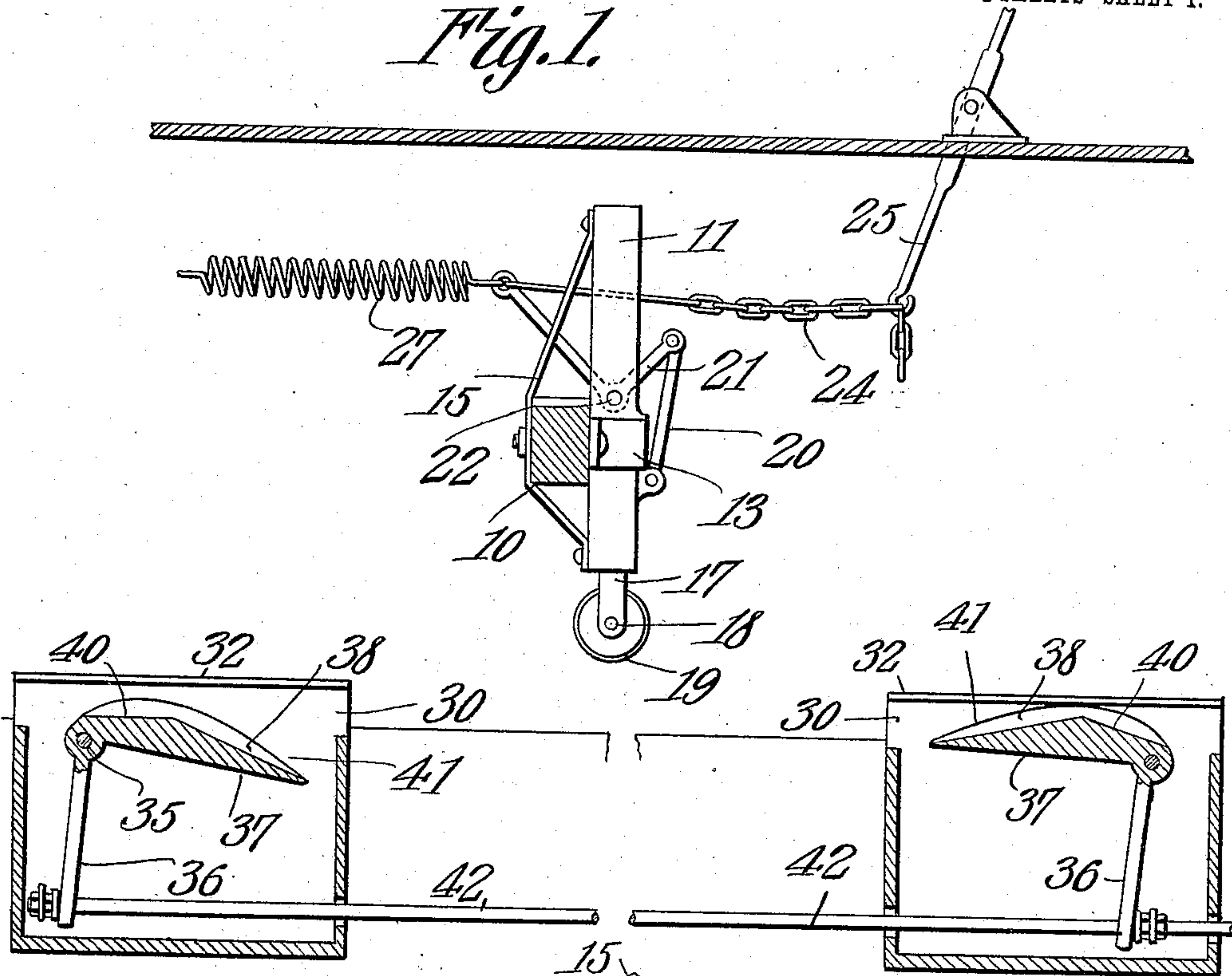
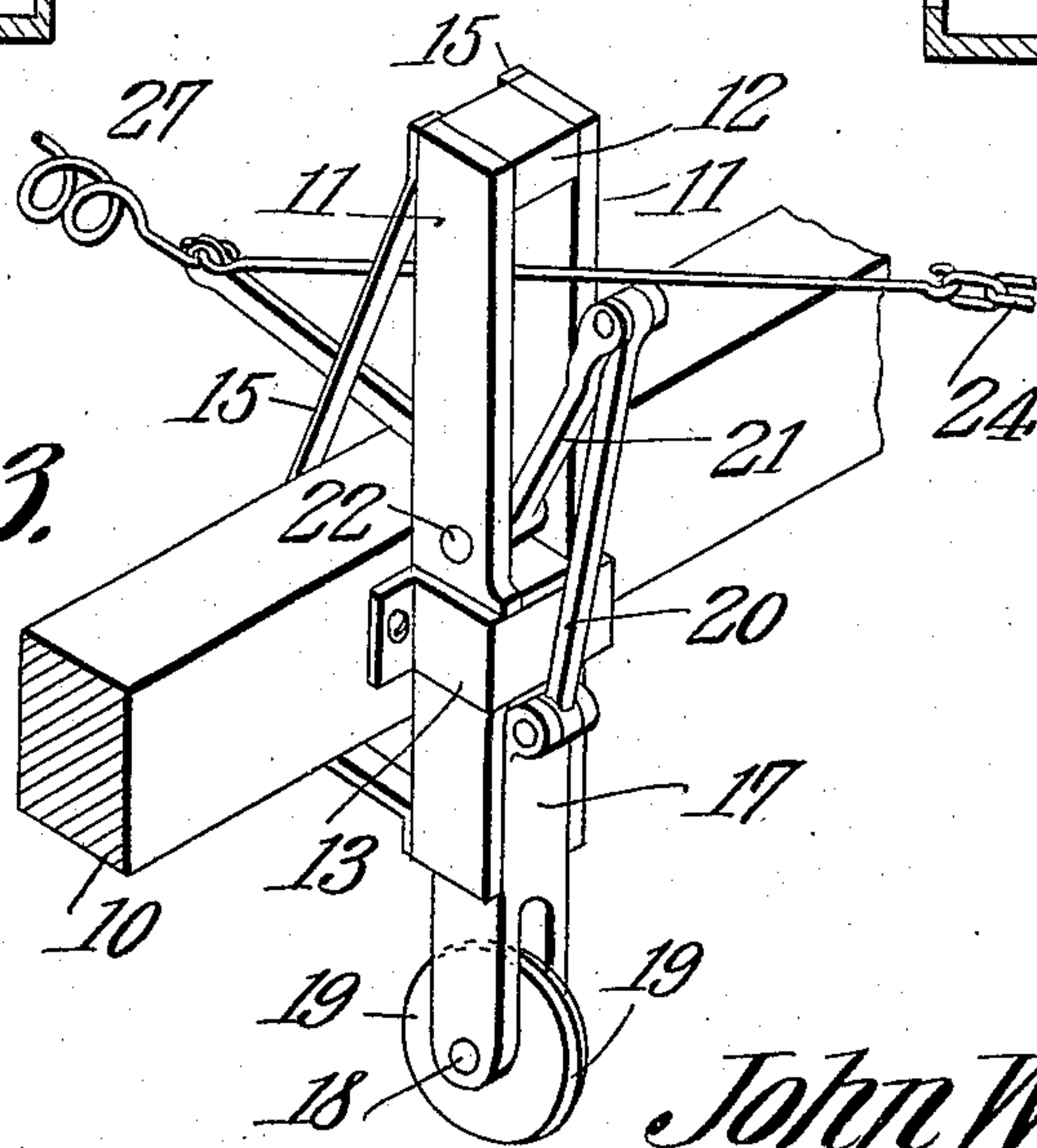


Fig. 3.



Witnesses

E. J. Stewart
John E. Parker

Inventor

John W. Eads.

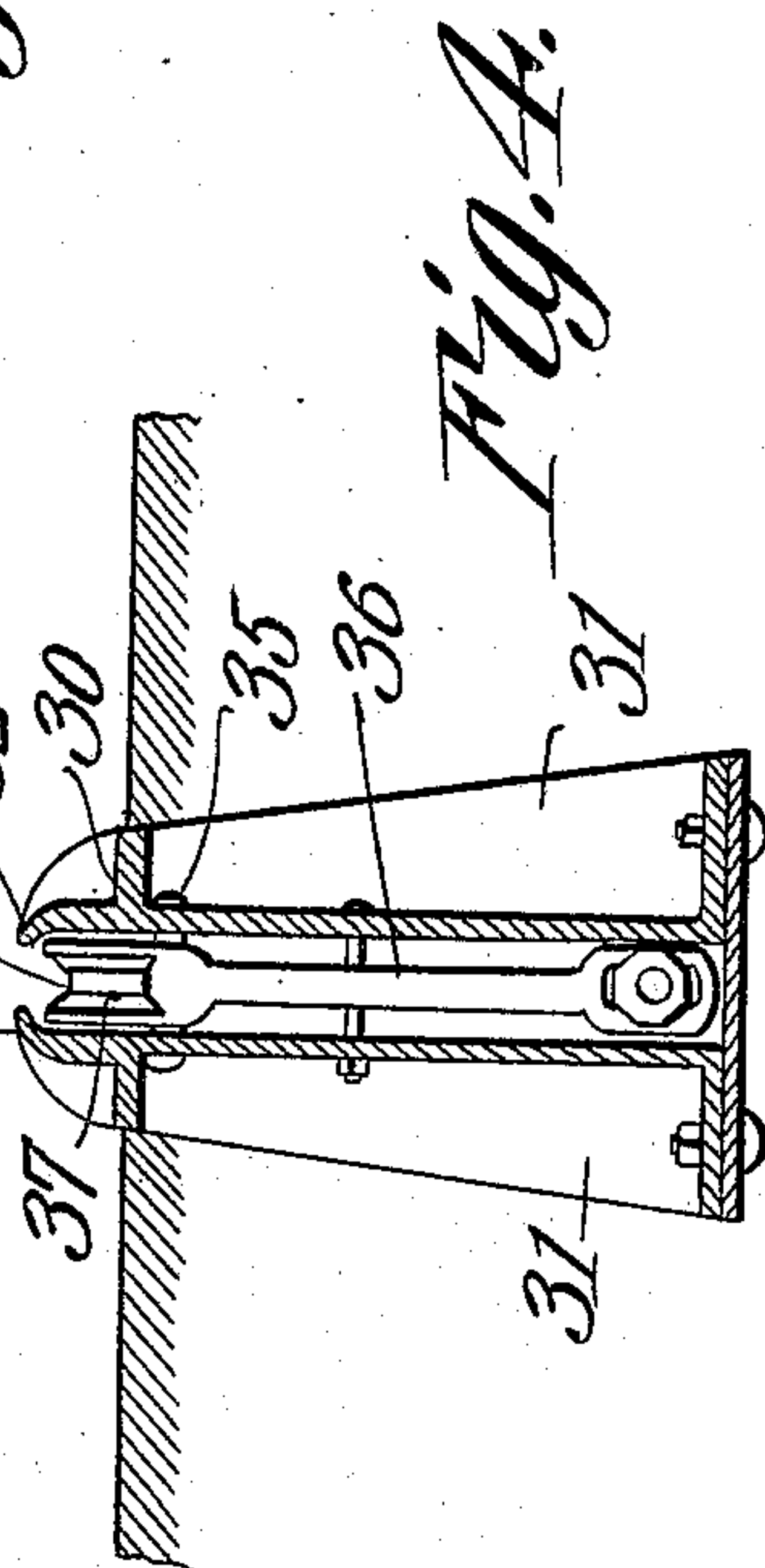
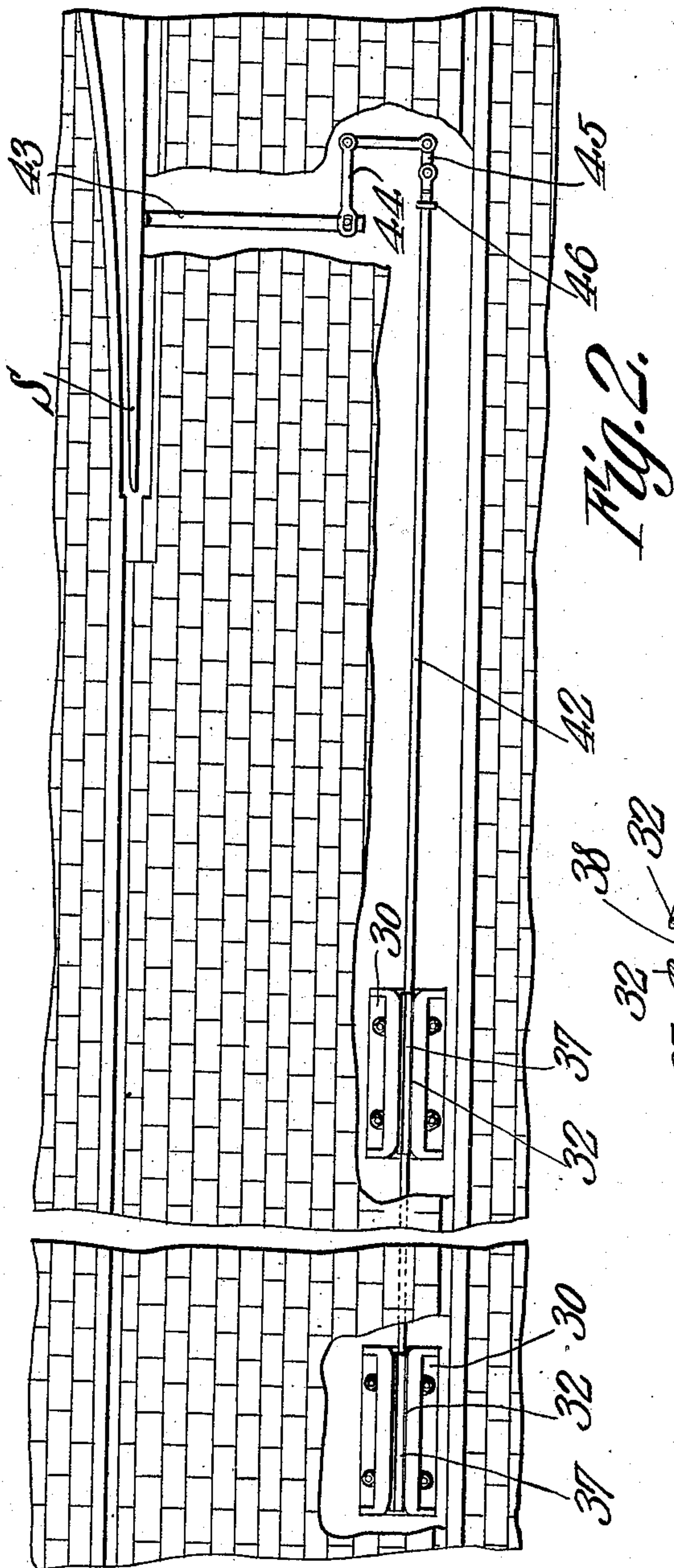
By

C. A. Snow & Co.
 Attorneys

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John W. Eads.
 By *C. A. Snow & Co.*
 Attorneys

UNITED STATES PATENT OFFICE.

JOHN WILLIAM EADS, OF DALLAS, TEXAS.

SWITCH-OPERATING MECHANISM.

No. 915,944.

Specification of Letters Patent.

Patented March 23, 1909.

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To all whom it may concern:

Be it known that I, JOHN WILLIAM EADS, a citizen of the United States, residing at No. 146 Clark street, in the city of Dallas, county of Dallas, and State of Texas, have invented a new and useful Switch-Operating Mechanism, of which the following is a specification.

This invention relates to devices of that general type employed in connection with street railway switches for permitting the operation of the switch from an approaching car.

The principal object of the invention is to provide a mechanism of very simple construction, whereby the switch may be placed wholly under the control of the motorman of an approaching car and moved in either direction in order to permit the car to proceed on the main line or to turn.

A further object of the invention is to improve and simplify the construction of the road-bed mechanism.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in certain novel features of construction and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings:—Figure 1 is a vertical section of a switch operating mechanism constructed in accordance with the invention. Fig. 2 is a plan view showing the connections between the roadbed trip lever and the switch point. Fig. 3 is a detail perspective view of a portion of the mechanism carried by the car. Fig. 4 is a transverse sectional view through the road bed trip lever and its supporting devices.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

To the front of the cross beam 10 of the car truck, or any other suitable car carried member, is secured a pair of spaced guide bars 11, the upper ends of which are connected by a cross bar 12 and said guide bars are held in place by a clip 13 that extends around their

forward edges and is bolted to the front face of the beam 10. The guide bars are further supported and braced by truss bars 15 which are riveted or otherwise secured to the bars and pass back of and are secured to the beam 10.

Fitting between the guide bars 11 is a vertically slidable block 17, in the lower forked end of which is mounted a shaft 18 carrying a small roller 19 that is arranged to engage and actuate the road-bed lever, or levers. The upper portion of the block 17 is provided with a pair of forwardly extending spaced links to which is pivoted the lower end of a link 20, and the upper end of said link is connected to the shorter arm of a bell crank lever 21 that is mounted on a pin 22 between the two guide bars 11.

The upper and longer arm of the bell crank lever is connected by a chain 24 to the lower end of an operating lever 25 that extends through an opening in the front platform of the car, and is provided with a handled upper end within convenient reach of the motorman. Under normal conditions the block 17 is maintained elevated by means of a helical tension spring 27 that extends between the upper arm of the bell crank lever and a fixed point on the frame of the car, and it is only by manipulating the lever 25 that the block 17 and the shoulder 19 may be forced downward into operative position.

At one or both sides of the roadbed, and preferably at points within the traffic rails, are arranged sole plates 30 which carry vertically disposed brackets 31, the upper portions of which are curved in such manner as to offer deflecting surfaces for engagement by the wheels of ordinary vehicles, and the space between the two brackets is partly inclosed at the top by a pair of inwardly extending flanges 32, the object being to reduce the space to such an extent as to prevent the entrance of vehicle wheels.

Extending across the brackets is a pin 35 on which is pivoted a bell crank lever having an approximately vertical arm 36 and an approximately horizontal arm 37. The arm 37 is convex from end to end, and this convex face is provided with a groove 38 for the reception of the periphery of the operating wheel or disk 19, while the base of the groove is arranged to form two inclined planes or cam surfaces 40 and 41, either of which will

be engaged by the wheel 19 and moved downwardly from an initially inclined position as the wheel passes thereover, so that the bell crank lever will be rocked in one direction.

5 There are preferably two of these levers for each switch point, one facing in one direction and the other in the opposite direction, and the vertical arms of said levers are connected by a rod 42 so that when one lever
10 is depressed the other will be elevated, and one or other of the levers will, therefore, always be in operative position.

The switch point S is of the ordinary type and is connected to a horizontally disposed
15 rod 43, the outer end of which is connected to one arm of a bell crank lever 44, and said lever is connected by a link 45 to the extreme end of the rod 42, the latter being provided with suitable guiding devices 46 of any ordi-
20 nary type.

If the motorman of the approaching car wishes to move the switch, he manipulates the lever 25 in such manner as to force the
25 wheel 17 and its wheel 19 downward. The wheel will then ride in the space between the two brackets 31, and will engage the grooved face of the bell crank lever, and operating on the cam like face of the groove will rock the lever and this rocking movement will be im-
30 parted to the rod 42 and from thence to the mating lever and the switch point. If the operating lever first engaged is the one indicated at the left of Fig. 1, the arm 36 of the bell crank lever will exert a pull on the rod
35 42 and this movement will be transmitted in the form of a thrust on the rod 43, so that the switch point S will be moved to open the main line, while the mating operating lever will be thrown upward. If, however, the
40 switch is to be thrown in the opposite direction, the lever 25 is not operated until the first of the two bell crank levers is passed, and then the wheel 19 is brought down into position to engage the bell crank lever to the
45 right of Fig. 1, and when this occurs, the rod 42 is pushed, and as a result, the rod 43 will be pulled and the switch point will be moved to open the line to the curve or siding.

With a device constructed in accordance
50 with the present invention, it is possible to accurately position the switch point without stopping the car and to leave the parts in such position that the motorman of a following car can allow the switch to remain in its
55 previously adjusted position or to move the switch point in either direction.

What is claimed is:—

1. In switch operating mechanism, a vertically movable actuating member carried by
60 the car and under the control of the motorman, a road-bed lever disposed in the path of said member and provided with a grooved upper surface for the reception of said operat-

ing member, and means for connecting said lever to the switch point.

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2. In railway switch operating mechanism, a depressible actuating roller carried by the car and under the control of the motorman, and a roadbed lever connected to the switch
70 point, said lever having a grooved arm with which the roller engages, the base of the groove being inclined to form a pair of oppositely related cam surfaces.

3. In railway switch operating mechanism, an actuating roller mounted on the car
75 under the control of the motorman, bell crank levers arranged on the roadbed and each having an approximately vertical arm connected to the switch, and an approximately horizontal arm arranged to be en-
80 gaged by the roller, said horizontal arm being grooved from end to end, and the base of the groove being inclined to form a pair of oppositely disposed cam surfaces.

4. In railway switch operating mechanism,
85 a depressible roller carried by the car and under the control of the motorman, a pair of brackets arranged in the roadbed and having their upper spaced ends rounded to form deflectors that project slightly above the
90 surface of the roadbed, a lever pivoted between said brackets and having an approximately horizontal arm arranged to be engaged by the roller, and means for connect-
95 ing said lever to the switch.

5. In railway switch operating mechanism, a depressible roller mounted on the car and under the control of the motorman, a pair of spaced brackets sunk in the road bed and having upper rounded ends projecting slightly
100 above the surface of the roadbed and provided with inwardly extending flanges to reduce the open space between the brackets, a bell crank lever pivotally mounted between said brackets, and having an approximately
105 vertical arm connected to the switch, the horizontal arm of said lever being grooved for the reception of the roller.

6. In railway switch operating mechanism, a pair of guide bars spaced from each other
110 and arranged on the car, a block guided between said bars, a switch operating roller journaled in said block, a bell crank lever pivoted between the bars, a link connecting the shorter arm of the bell crank lever to the
115 block, an operating lever on the car platform, a flexible connection between said operating lever and the longer arm of the bell crank lever, and a spring connected to said bell crank lever and tending to maintain the
120 roller in elevated position.

JOHN WILLIAM EADS.

Witnesses:

PAUL GIRAUD,
JOS. WEIL.