No. 752,663. PATENTED FEB. 23, 1904.

J. T. EVANS.

RAILWAY SWITCH.

APPLICATION FILED JUNE 8, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 1.

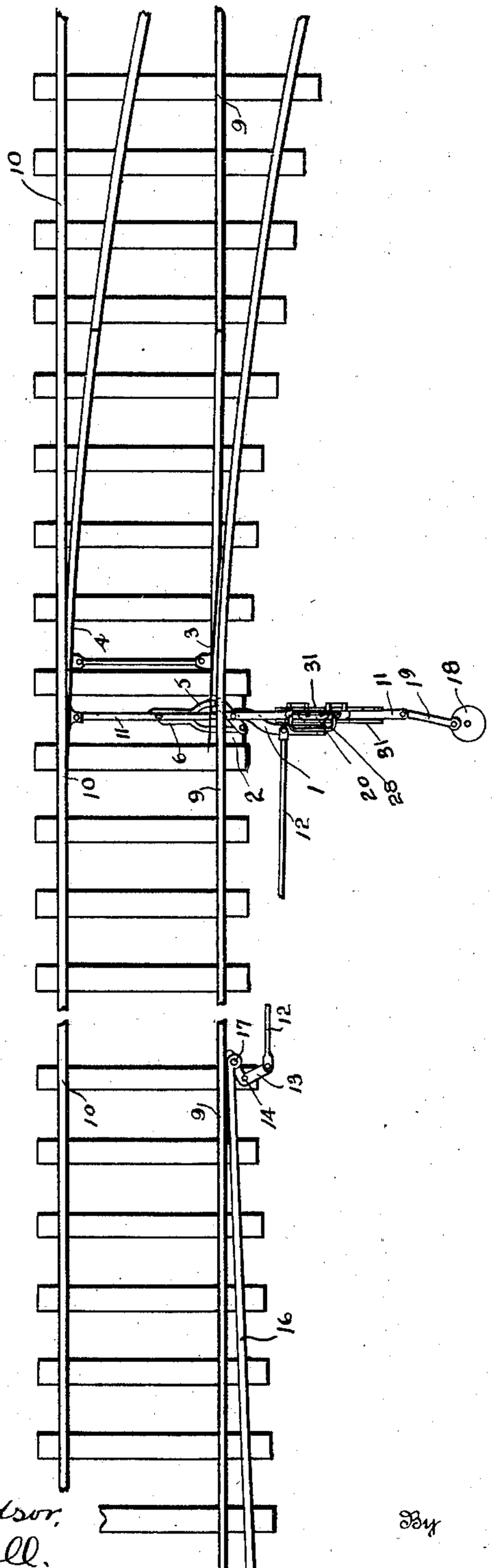
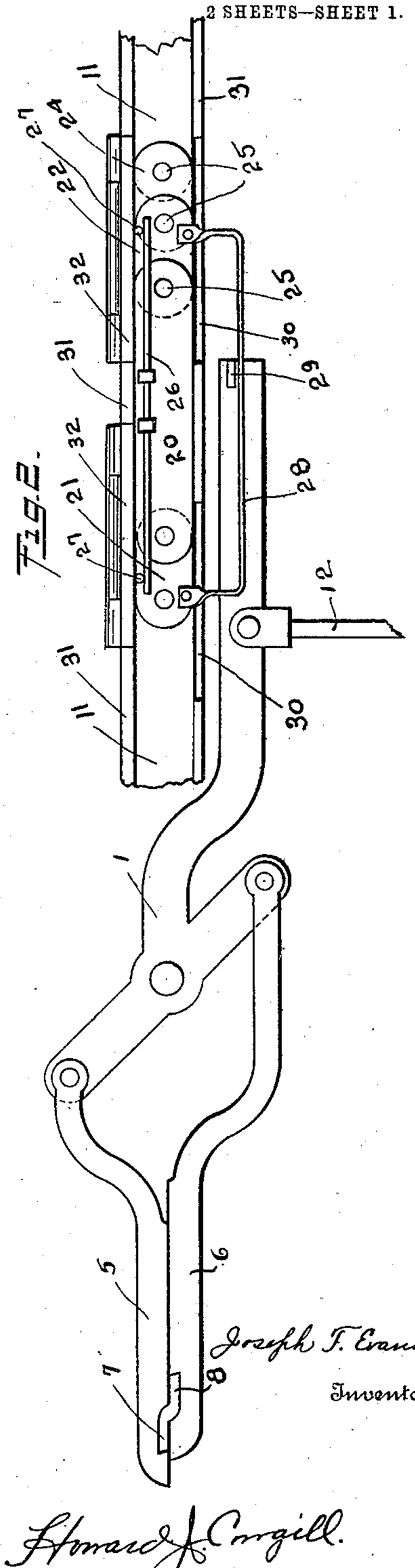


Fig. 2.



Witnesses
W. E. Windsor.
D. O. Barnell.

Joseph T. Evans.
Inventor

By Howard J. Cargill.
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

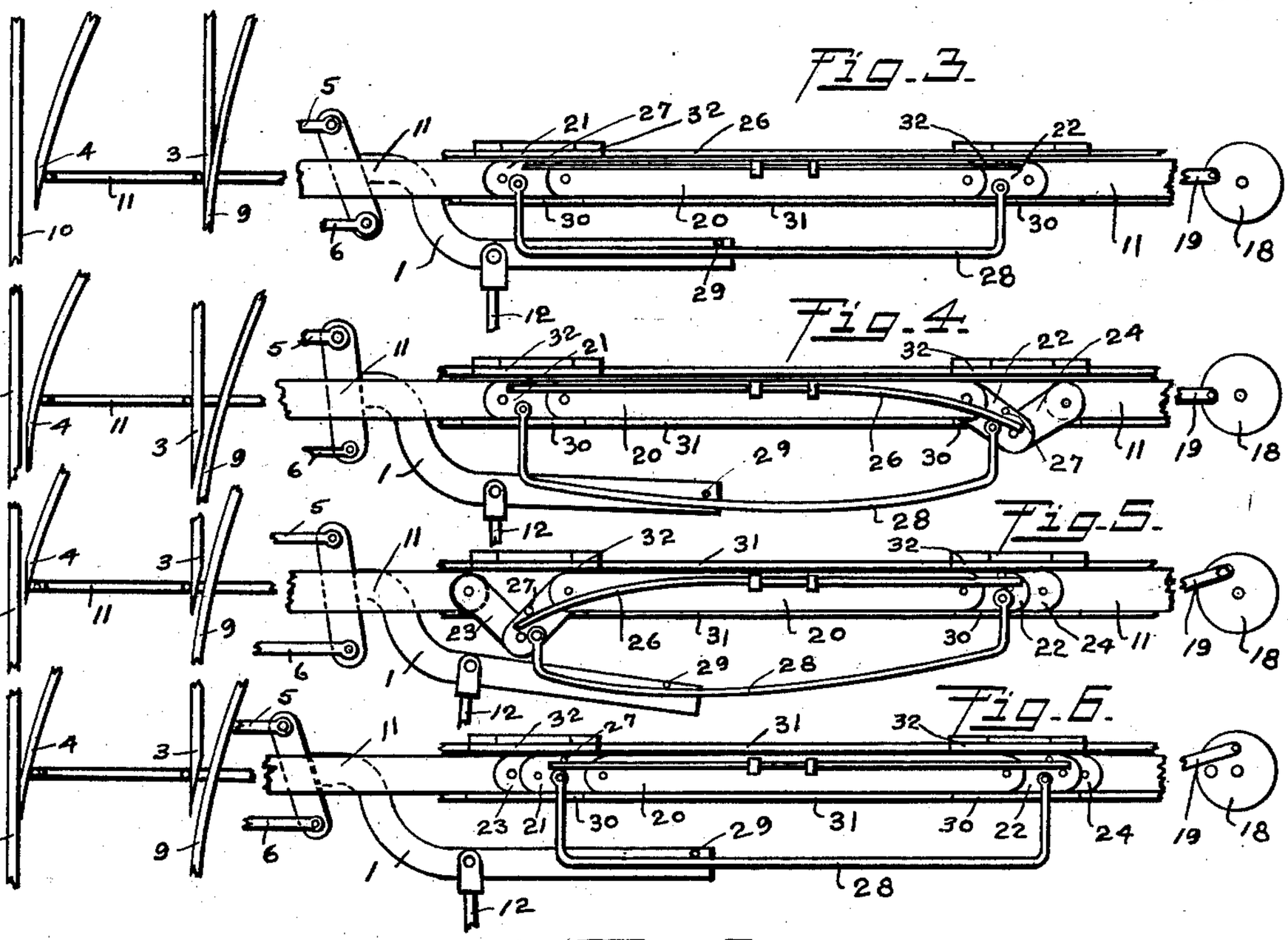


Fig. 4.

Fig. 5.

Fig. 6.

Fig. 7.

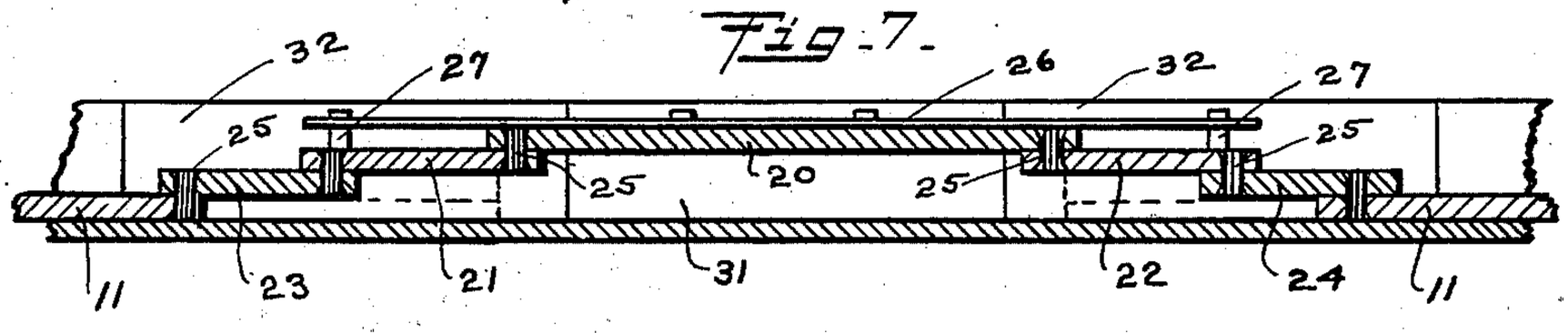
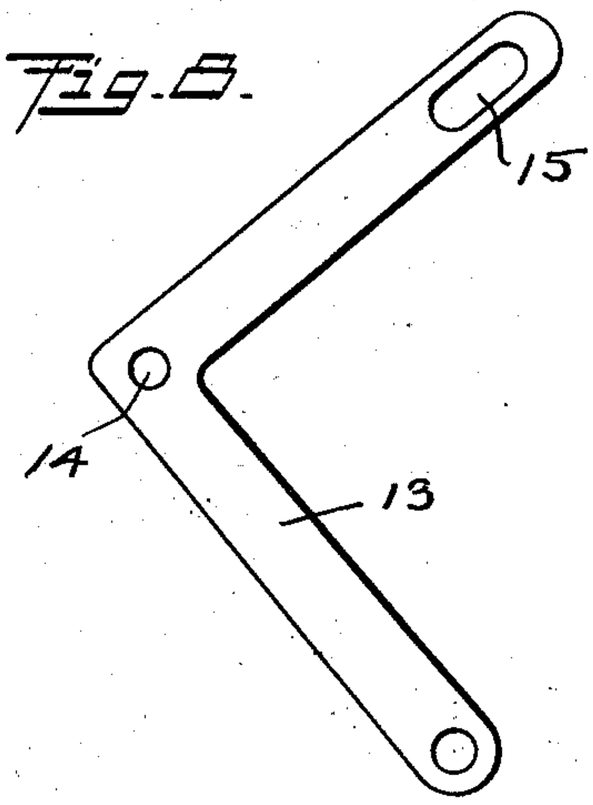


Fig. 8.



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Joseph T. Evans

Inventor

By Howard Cogill

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 752,663. Patented February 23, 1904.

UNITED STATES PATENT OFFICE.

JOSEPH T. EVANS, OF ALLIANCE, NEBRASKA.

RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 752,663, dated February 23, 1904.

Application filed June 8, 1903. Serial No. 160,587. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH T. EVANS, a citizen of the United States, residing at Alliance, in the county of Boxbutte and State of Nebraska, have invented certain new and useful Improvements in Railway-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 railway-switches; and it is the object thereof to provide means by which railway-switches may be thrown by means controlled by the engineer of a train and without stopping the train.

My present invention is an improvement of that shown in United States Patent No. 671,373, issued to me April 2, 1901, and I provide, in addition to the devices shown in said patent for throwing the switches from the engine, means by which the switches may be also thrown from a switch-stand in the ordinary manner. I have also made minor changes in the mechanical details of the means for throwing the switches from an engine.

My present invention consists in the various improvements in mechanical details above mentioned and hereinafter more specifically described and in the means employed for varying the length of the switch-shifting bar, whereby the switch may be thrown from an engine when the switch-stand is locked without disturbing the latter.

In the accompanying drawings, Figure 1 is a plan view of a switch and section of railway-track having my invention applied thereto. Fig. 2 is a detail plan view of the switch-shifting means and in connection therewith the portion of the switch-shifting bar containing the means for varying the length thereof. Figs. 3, 4, 5, and 6 are detail views showing the means for varying the length of the shifting-bar in various positions and the corresponding relative positions of the switch-points and switch-stand. Fig. 7 is a sectional view of the said mechanism in the position shown in Fig. 6, and Fig. 8 is a plan view of one of the levers used in the connections for throwing the switch from an engine.

In the construction shown I employ a three-arm lever 1, pivoted on a plate 2, secured to the ties or in other suitable manner adjacent to the switch-points 3 and 4. To said lever are connected the bars 5 and 6, having the notches 7 and 8 therein adapted to engage with the shifting-bar 11 of the switch-points and to alternately throw said points to the outer 10 and the inner rail 9 of the main track. The lever 1, bars 5 and 6, and notches 7 and 8 correspond, respectively, to the lever L, bars O and O′, and notches O^2 and O^3 of my former patent, and the operation thereof is precisely the same. From the lever 1 the rod 12 is extended along the track for a suitable distance and connected to one end of the bent lever 13, which is fulcrumed at 14. The other end of said lever has a slot 15 therein. A section of rail 16, preferably of the same size and shape as the rails 9 and 10, has a pin 17 in one end thereof engaging with the slot 15, and said end of the rail is immediately adjacent to the inner rail 9 of the track. The said rail 16 diverges from the rail 9, so that a V-shaped opening is formed between the same. The end of the rail 16 opposite to the pin 17 is securely spiked to the ties, while the end nearest the rail 9 is left free, so that the same may be sprung outward away from the rail.

The operation of the foregoing part of my mechanism is as follows: The engine is provided with a block which may be thrown into operative position alongside the rail, as in my former patent before referred to. The said block being in operative position and the engine approaching the switch, the block enters the V-shaped opening between the rail 16 and rail 9 and forces outward the free end of the rail 16, thus turning the lever 13 upon its fulcrum and pulling the rod 12, attached to the lever 1. On said rod being pulled the lever 1 is turned upon its fulcrum, the bar 5 is drawn inwardly, and the bar 6 pushed outwardly. The notches 7 and 8, engaging the shifting-bar 11 and the switch-points, are thrown to one side or the other, accordingly as the shifting-bar was engaged initially by the bar 5 or the bar 6.

The shifting-bar 11 is extended to one side of the track and connected to an ordinary switch-stand 18 by the rod 19 in the usual

manner. At a point adjacent to the long arm of the three-arm lever 1 the shifting-bar 11 is divided and the bar 20 and foldable links 21, 22, 23, and 24, pivotally joined by the pins 25, are introduced therein. Around the portion of the shifting-bar containing the said links is placed a guideway 31, as shown. A spring 26 is secured to the central part of the bar 20, and the ends of said spring extending over the links 21 and 22 engage the pins 27 thereon, tending to hold said links against the rear side of the guideway 31 and in alinement with the bar 11. A spring 28 is connected to the links 21 and 22 and extending over the front side of the guideway engages with the lug 29 on the lever 1, as shown. In the front side of the guideway 31 adjacent to the links 21 and 23 and 22 and 25 are openings 30, through which said links may swing outward. At the back of the guideway and opposite to the openings 30 are other openings, which are normally closed by the doors 32. The length of the links 23 and 24 is made equal to half the throw of the switch-points.

The operation of the folding mechanism is as follows: On the switch being thrown from an engine the rod 12 pulls the lever 1, and the lug 29 thereon engaging the spring 28 draws the end of the link 21 or the link 22 out of line with the shifting-bar 11 through one of the openings 30 in the guideway 31, as shown in Figs. 4 and 5. Whether the link 21 or the link 22 is pulled out of alinement will depend on the initial position of the shifting-bar. On one of the said links being pulled out of alinement and the switch-points being thrown by the action of the bars 5 and 6, as before described, the links 23 or 24 may fold under the links 21 or 22, respectively, or unfold from under the same, as the case may be, thereby shortening or lengthening the shifting-bar 11 and permitting the points to be moved without changing the position of the switch-stand. When one of the links 23 or 24 is folded under 21 or 22, respectively, and the other of said links is not so folded, the switch may be thrown from the switch-stand in the usual manner. Should both the links 23 and 24 be folded under the other links, as shown in Fig. 3, the switch points and stand will be in the relative position shown, the shifting-bar will be too short, and the switch-points cannot be thrown from the switch-stand except as hereinafter noted. Should both the links 23 and 24 be unfolded from under the other links, as shown in Fig. 6, the switch points and stand would be in the relative positions shown, the shifting-bar would be too long, and the switch-points could not be thrown from the stand except as hereinafter noted. In either of the two above cases—that is, the shifting-bar being too short or too long—one of the doors 32 in the rear side of the guideway 31 is opened and the switch-stand is turned, the links folding or unfolding through said doors, thus shortening or lengthening the shifting-bar as required. The shifting-bar being thus restored to its normal length, the door 32 is closed and the switch thrown from the stand in the ordinary manner.

Now, having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In a railway-switch provided with means whereby the same may be thrown by means controlled by an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of the shifting-bar, a guideway around said links, and openings in said guideway through which the links may swing to shorten or lengthen the bar.

2. In a railway-switch provided with means whereby the same may be thrown by an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of said shifting-bar, a guideway for said links, openings in said guideway through which the links may swing to fold or unfold, and springs adapted to normally maintain said links in alinement with said shifting-rod.

3. In a railway-switch provided with means whereby the same may be thrown by means operated from an engine, a switch-stand, a shifting-bar connected to said stand and to the switch-points, foldable links forming a part of said shifting-bar, springs normally maintaining said links in alinement with the shifting-bar, and means connected with the links engaging with the means for throwing the switch by an engine whereby upon operation of the latter the links will be pulled out of alinement with the shifting-bar thereby permitting their folding or unfolding and the shortening or lengthening of the bar.

4. In a railway-switch means for throwing the same by means operated from an engine, comprising a rail-section adapted to be sprung outward by means controlled from an engine, connecting means from said rail-section to a three-arm lever, means connected with said lever adapted to engage the shifting-bar of the switch to throw the same upon movement of the rail-section, a switch-stand connected to the shifting-bar, foldable links forming a part of said shifting-bar, and means connected to the said links and engaging with the three-arm lever whereby movement of the latter will pull the links out of alinement with the shifting-bar and permit the shortening or lengthening of the bar by the folding or unfolding of the links.

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

JOSEPH T. EVANS.

Witnesses:
ROY LEMMON,
B. F. PENNEY.