

(No Model.)

2 Sheets—Sheet 1.

J. M. SWEM.
RAILWAY SWITCH.

No. 497,289.

Patented May 9, 1893.

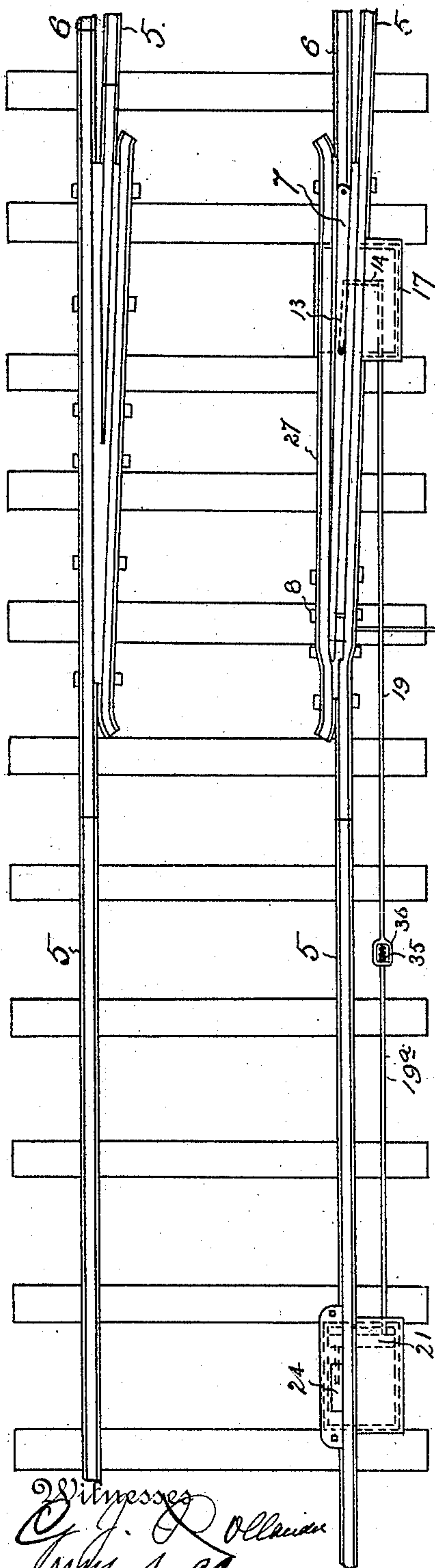


FIG. 1.

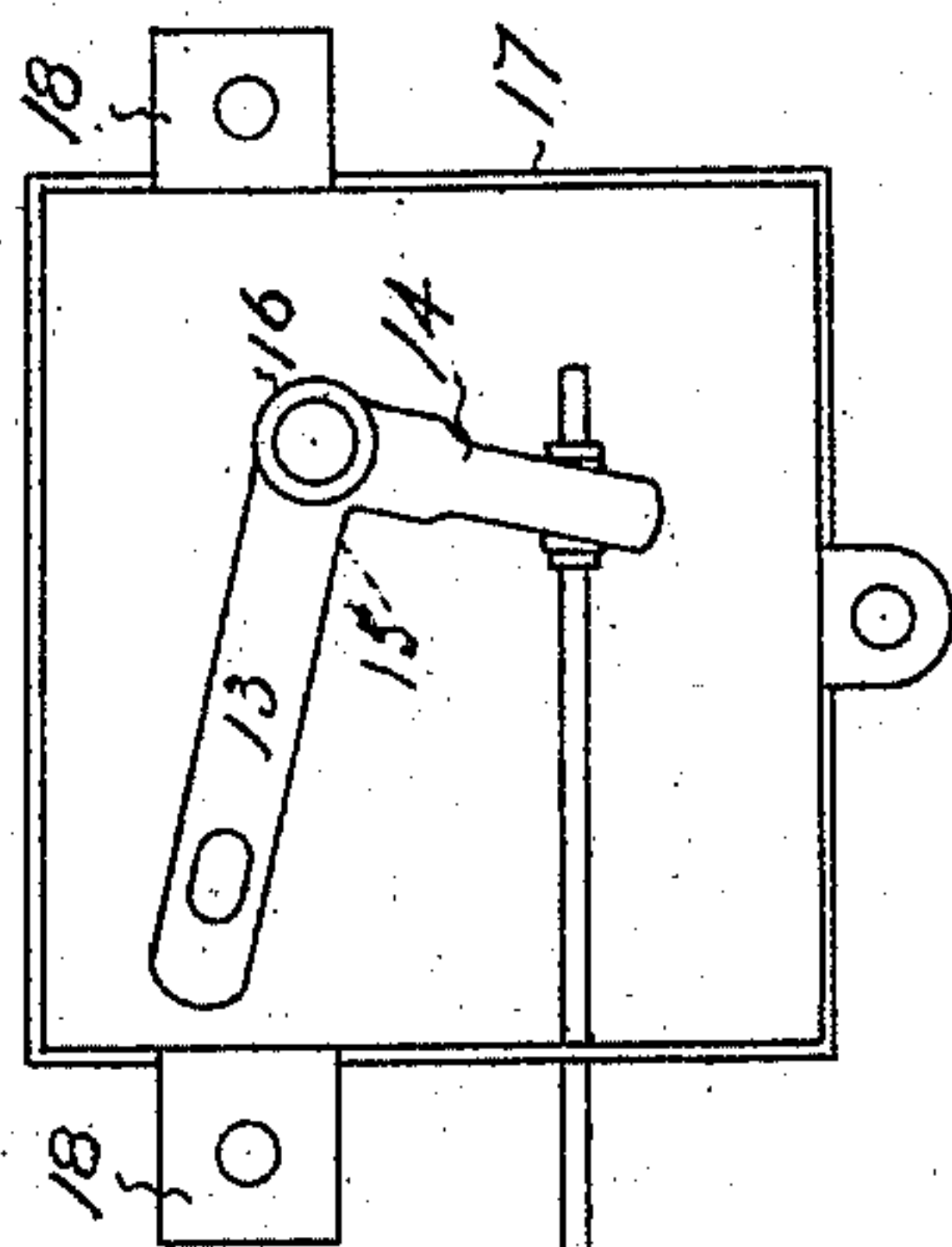


FIG. 2.

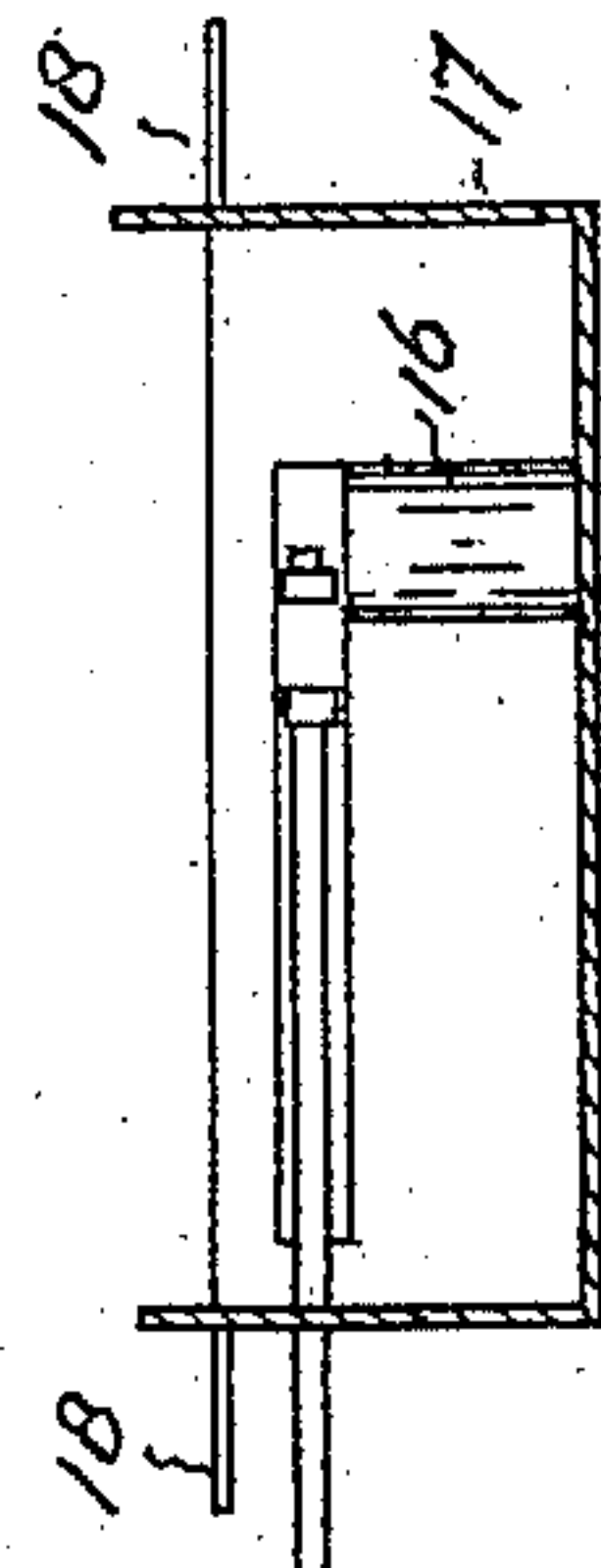


FIG. 3.

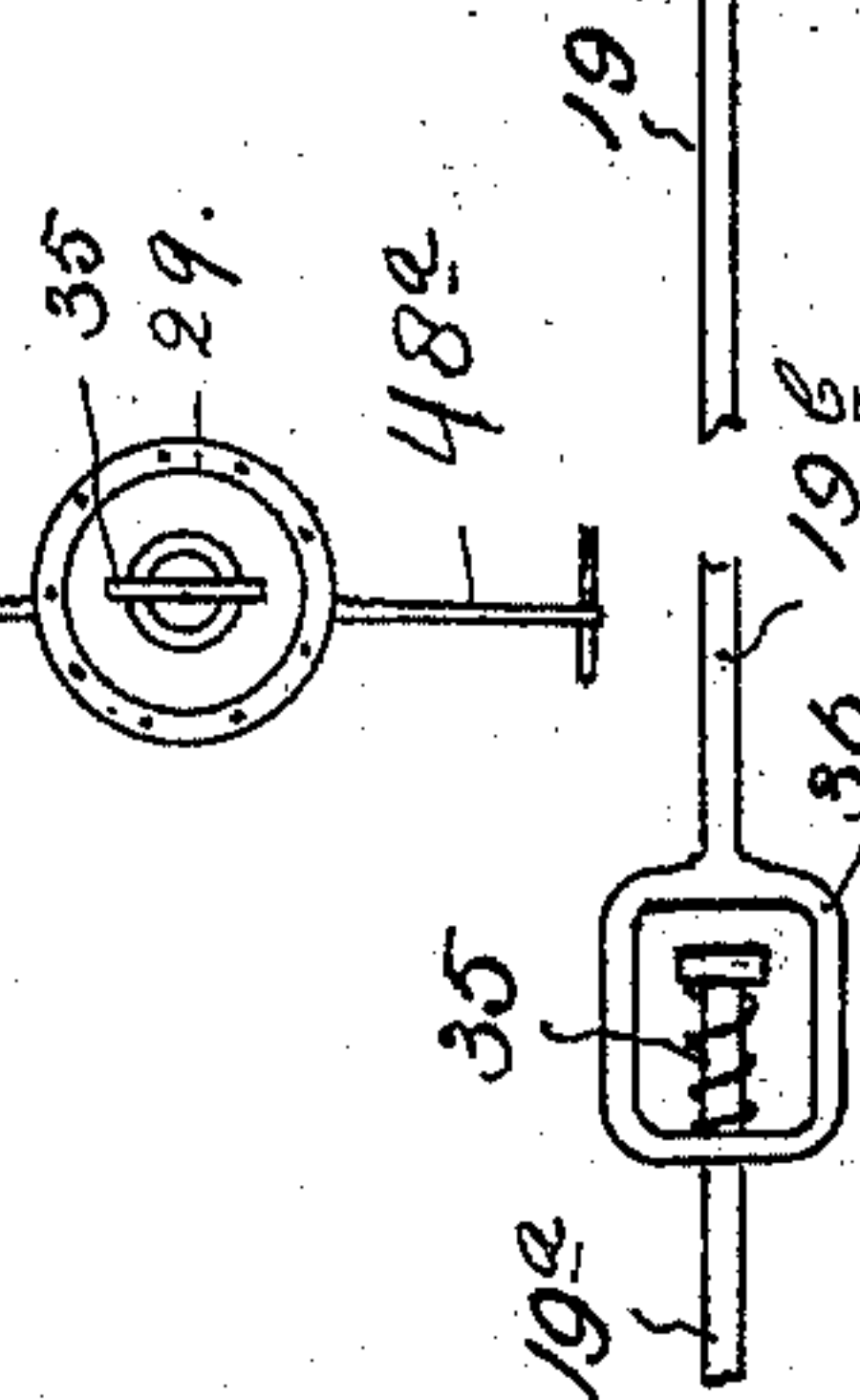
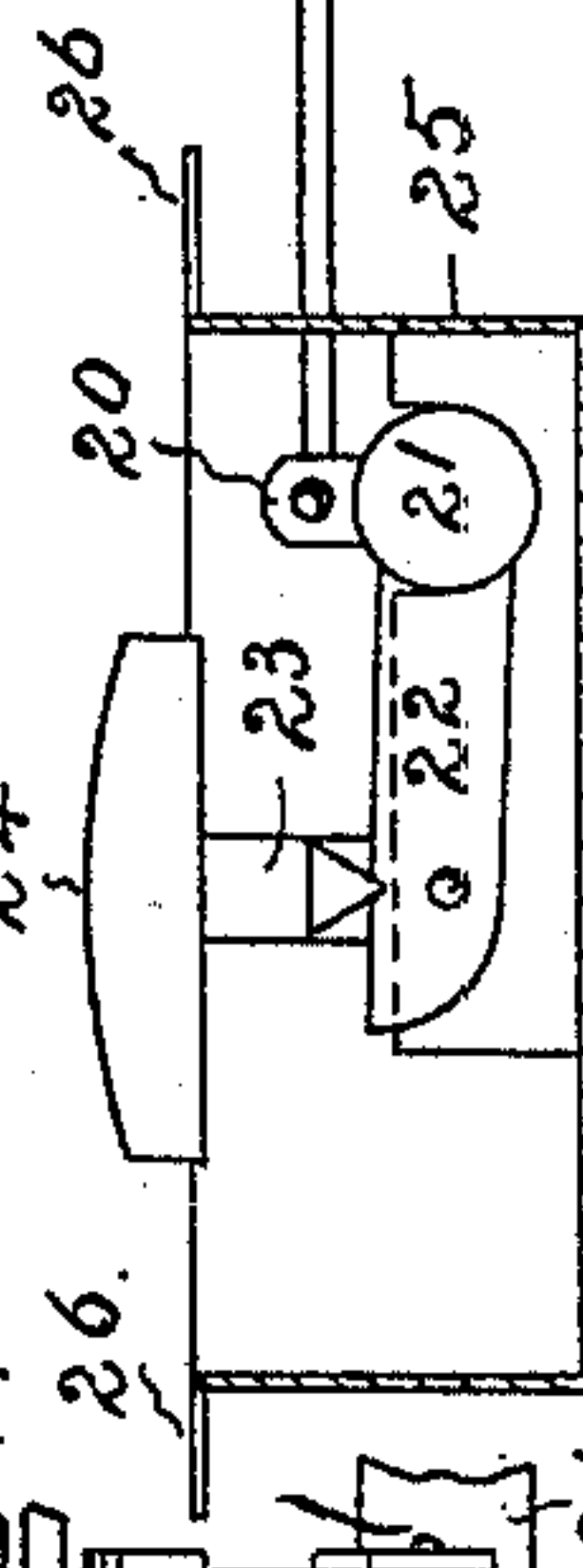
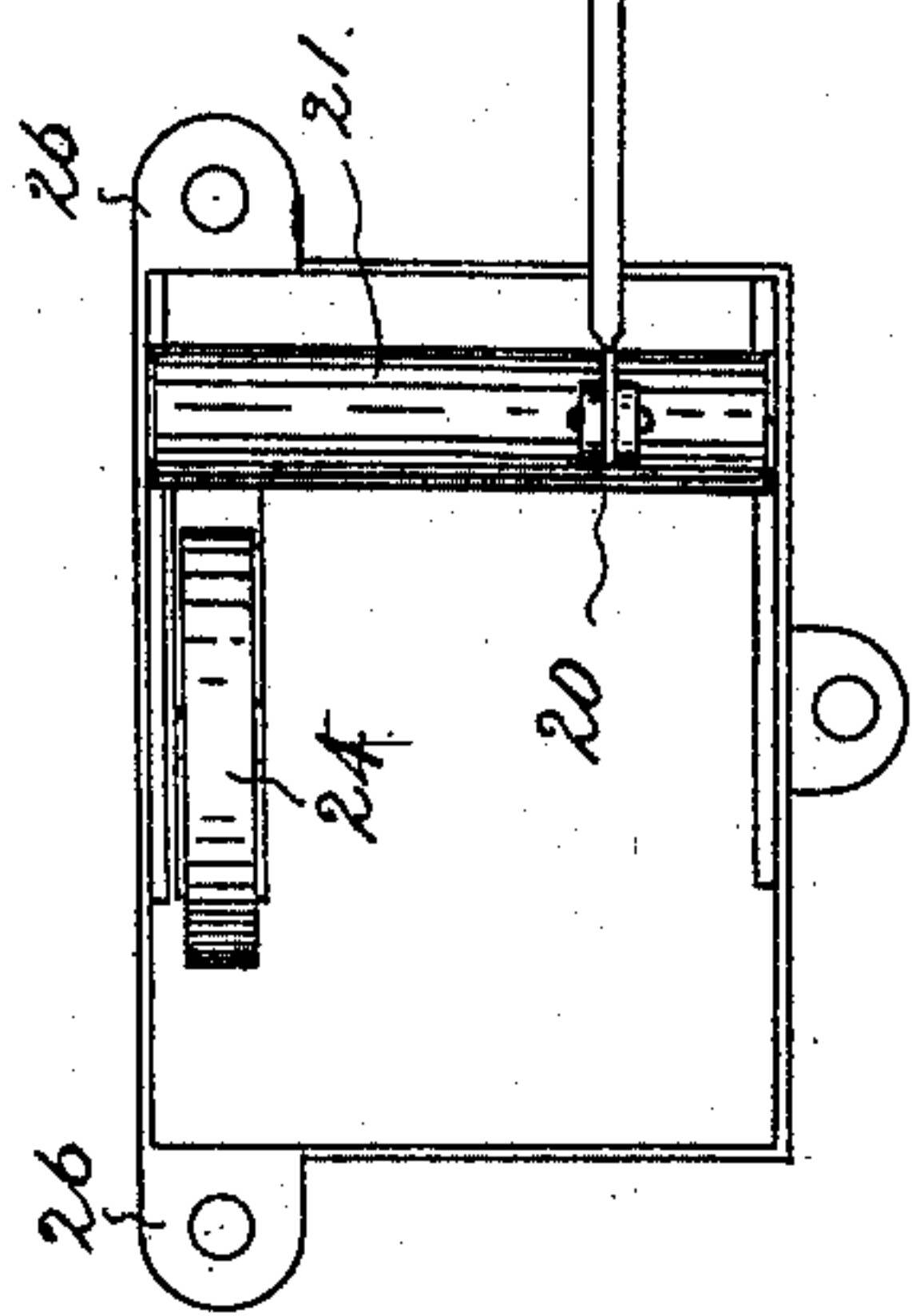


FIG. 4.



Witnesses
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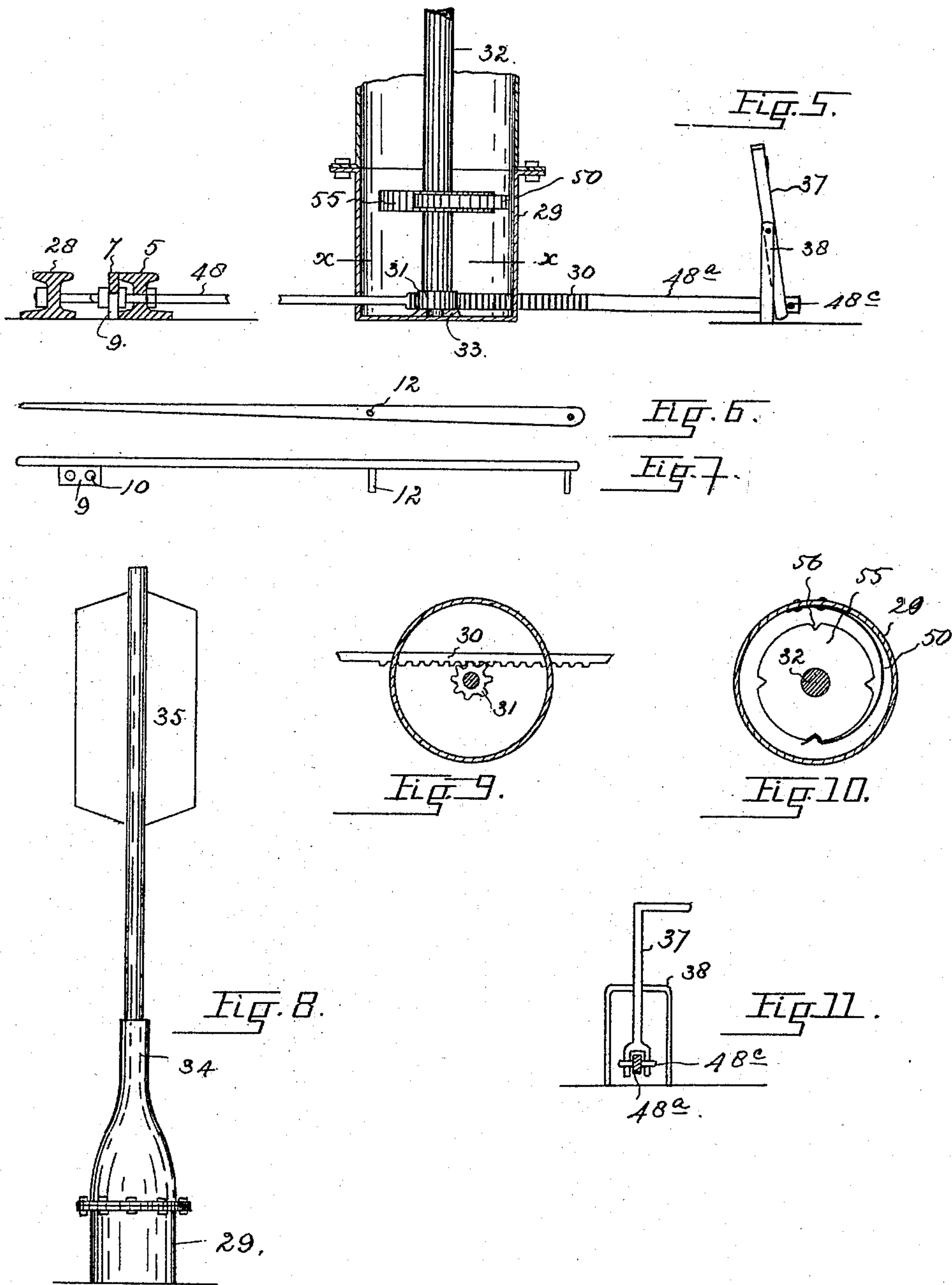
(No Model.)

2 Sheets—Sheet 2.

J. M. SWEM.
RAILWAY SWITCH.

No. 497,289.

Patented May 9, 1893.



WITNESSES:

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JAMES M. SWEM, OF DENVER, COLORADO, ASSIGNOR TO THE SWEM
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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 497,289, dated May 9, 1893.

Application filed February 8, 1892. Serial No. 420,803. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. SWEM, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Railway-Switches; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in railway switches and consists in certain novel features for use in connection with the automatic mechanism shown in Patent No. 384,651, issued to me June 19, 1888, whereby the position of the switch tongue is indicated by a signaling device, which in connection with the tongue may be operated by hand, in opposition to the movement normally imparted by automatic mechanism.

The invention will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment thereof.

Figure 1 is a plan view of a section of track provided with my improved switch. Fig. 2 is a detail top view of the automatic mechanism for operating the switch tongue. Fig. 3 is a side elevation of the same. Fig. 4 is an end elevation of the shoe normally projecting above the rail and adapted to be engaged by the tread of the wheel for the purpose of actuating the automatic mechanism. Fig. 5 is a section taken through the track and the case inclosing the mechanism operating the signal. Figs. 6 and 7 are detail plan and side views respectively of the switch tongue. Fig. 8 is an elevation of the signaling standard and the surrounding casing. Fig. 9 is a section taken on the line $x-x$ of Fig. 5, looking downward. Fig. 10 is a section taken on the same line looking upward. Fig. 11 shows the hand lever for operating the switch tongue.

Similar reference characters indicate corresponding parts or elements in the several views.

Let the numeral 5 designate the rails of the main track and 6 those of the branch or the side track, 7 the tongue pivoted at its base in

the usual manner and supported near its point by a bolt 8 secured to the main and guard rails, and upon which the tongue is slidingly supported by the use of a flange 9 provided with an aperture 10 through which the bolt passes. The tongue is further provided with a pin 12 to which is pivoted one arm 13 of a bell crank lever 15 fulcrumed at its angle to a shouldered pin 16 located within a box 17 placed beneath the track and supported and held in place by flanges 18 bolted to the ties.

To the other arm 14 of the bell crank lever is attached one extremity of the pitman 19, the opposite extremity of said pitman being pivotally connected with a lug or projection 20 of the rock shaft 21 to which is rigidly secured the arm 22 slotted to receive the depending arm 23 of the shoe 24 which projects upward sufficiently to engage the flange of the car-wheel when the switch is closed for the main track. As the car passes along, the shoe is pressed downward into the box 25 secured to the ties by flange 26. The downward movement of the shoe gives a partial rotation to the rock shaft and moves the pitman sufficiently to throw the switch tongue to engagement with the guard 27 as shown in Fig. 1, thus opening the switch to the main line, box 25 with its inclosing mechanism being located a suitable distance from the tongue.

Attached to the depending flange 9 of the switch tongue and extending outwardly from the track and at right angles thereto is a rod 48 passing through suitable openings formed in the base of the bottle shaped casing 29 and provided with a cogged rack 30 engaging a pinion 31 rigidly secured to the base of the standard 32, having its lower extremity pivoted in a socket 33 formed integral with the bottom of casing 29. This casing is formed in two parts united by bolts passed through suitable openings formed in the engaging circumferential flanges. The upper section of the casing terminates in a neck 34, the opening in which is fashioned to fit the standard 32. This casing is of sufficient height to give the standard the necessary stability and firmness. To the top of the standard is secured the target 35 of sufficient size to be readily seen from a suitable distance. Thus it will

be seen that the standard and its target are so arranged with reference to the tongue and the operating parts that the movement of the tongue back and forth gives the standard a partial rotation in reverse directions and shifts the target accordingly. In one case the face of the target is turned toward the approaching train and in the other case the edge of the same, thus indicating to the trainmen whether the switch is open or closed.

As shown in Fig. 1 the face of the target is presented to approaching trains when the switch is open to trains on the main track. This position of the switch tongue and target corresponds with the depressed position of the foot 24, the downward movement of which acts on the rock-shaft, the pitman, the bell crank lever, and the tongue in accordance with the construction and connection of these parts as heretofore explained.

For the purpose of temporarily locking the standard and connecting parts of the signaling mechanism when adjusted, a disk 55 is rigidly secured to the standard and provided with notches 56 adapted to engage a counterpart cam formed upon the free extremity of a spring 50, the opposite extremity of the spring being secured to the inner surface of the casing as shown in Fig. 10. The disk is shown provided with four notches so that the cam on the spring engages a notch on the disk at each quarter turn or rotation of the standard.

To provide for certain emergencies and requirements in a switch of this class the pitman 19 is made expansible, and for this purpose is formed in two sections 19^a and 19^b connected by a spring 35 surrounding the extremity of section 19^a and located within a small frame 36 in which the free extremity of the opposite section terminates. One extremity of the spring bears against a nut screwed on section 19^a within the frame 36, while the opposite extremity bears against the end of the frame but is not attached to section 19^a, which passes through a suitable opening formed in the end of the frame. This spring is made sufficiently stiff to render the pitman practically continuous for ordinary automatic work. If, however, the lever meets with accidental resistance, as some hard substance located between it and the adjacent rail, the expansible joint just described permits the pitman to yield or stretch, sufficiently to prevent the breaking of the parts, which might happen were the pitman rigid or continuous from end to end. Again it will often be found necessary when the tongue is shifted as shown in Fig. 1 and normally held in this position by reason of the car wheels engaging the shoe 24 to shift the tongue so as to open the switch to cars on the branch track, either for the purpose of running cars from the branch to the main track, or vice versa. For this purpose rod 48 is provided with an extension 48^a lying beyond the signal casing 29 and connected with a hand-

lever 37 fulcrumed on an upright frame 38, the lower extremity of the lever being pivotally connected with the outer extremity of extension 48^a. It will be seen from this construction that when the tongue is normally shifted to engage guard 27 as shown in Fig. 1 and held in this position by reason of cars standing upon or running over shoe 24, the tongue may be shifted to engage the rail 5 of the main track by moving the hand lever 37, the relative positions of these parts being shown in Fig. 5. This movement of the tongue by the use of the hand lever is of course only permitted by virtue of the expansible feature of the pitman, since I am supposing a case when section 19^a of the pitman cannot move, being held fast by the engagement of the car wheels on the shoe 24. When the tongue is thus shifted by the use of the hand lever, it may be so held by the trainman without difficulty and until the required number of cars has been run from one track to the other as may be desired. The advantages of this feature of the invention will be readily understood.

Having thus described my invention, what I claim is—

1. The combination with the tongue and automatic mechanism for shifting the same, a pitman having a longitudinally yielding joint, a bar connected with the tongue and projecting outward therefrom preferably at right angles to the pitman, and a hand lever fulcrumed on a suitable frame and having one arm connected with the bar whereby the tongue may be moved to a certain position against the action of the automatic mechanism simultaneously tending to hold it in a contrary position, substantially as described.

2. In a railway switch the combination with the tongue and automatic mechanism for shifting the same, of signaling mechanism consisting of a standard carrying a pinion and a notched disk, a casing surrounding the standard and carrying a leaf spring having a counterpart cam adapted to engage the notches in the disk and a bar connected with the tongue and provided with a cogged rack engaging the pinion on the standard whereby as the tongue is moved the standard is given a partial rotation in reverse directions and temporarily locked, automatically, substantially as described.

3. In a railway switch the combination with the tongue and automatic means for actuating the same, of a signaling mechanism consisting of a standard carrying a cogged pinion and a disk having a notched periphery, a two-part casing surrounding the standard and concealing the disk and pinion, a leaf spring secured to the casing and carrying a cam engaging the disk, the sections of the casing being provided with exterior circumferential engaging flanges bolted together, and a rack bar connected with the tongue and engaging the pinion on the standard, substantially as described.

4. In a railway switch the combination with
the tongue and automatic mechanism for
shifting the same, said mechanism including
a pitman having a longitudinally yielding
5 joint, a rack bar, attached to the tongue and
extending therefrom preferably at right an-
gles to the pitman, an upright frame, a lever
fulcrumed thereon and having one arm con-
nected with said bar whereby the tongue may
10 be moved in opposition to the action of the
automatic mechanism simultaneously tend-

ing to maintain it in a contrary position, and
intermediate signaling mechanism consisting
of a standard carrying a pinion engaging the
rack bar, substantially as described. 15

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

JAMES M. SWEM.

Witnesses:

WM. McCONNELL,
S. PALMER.