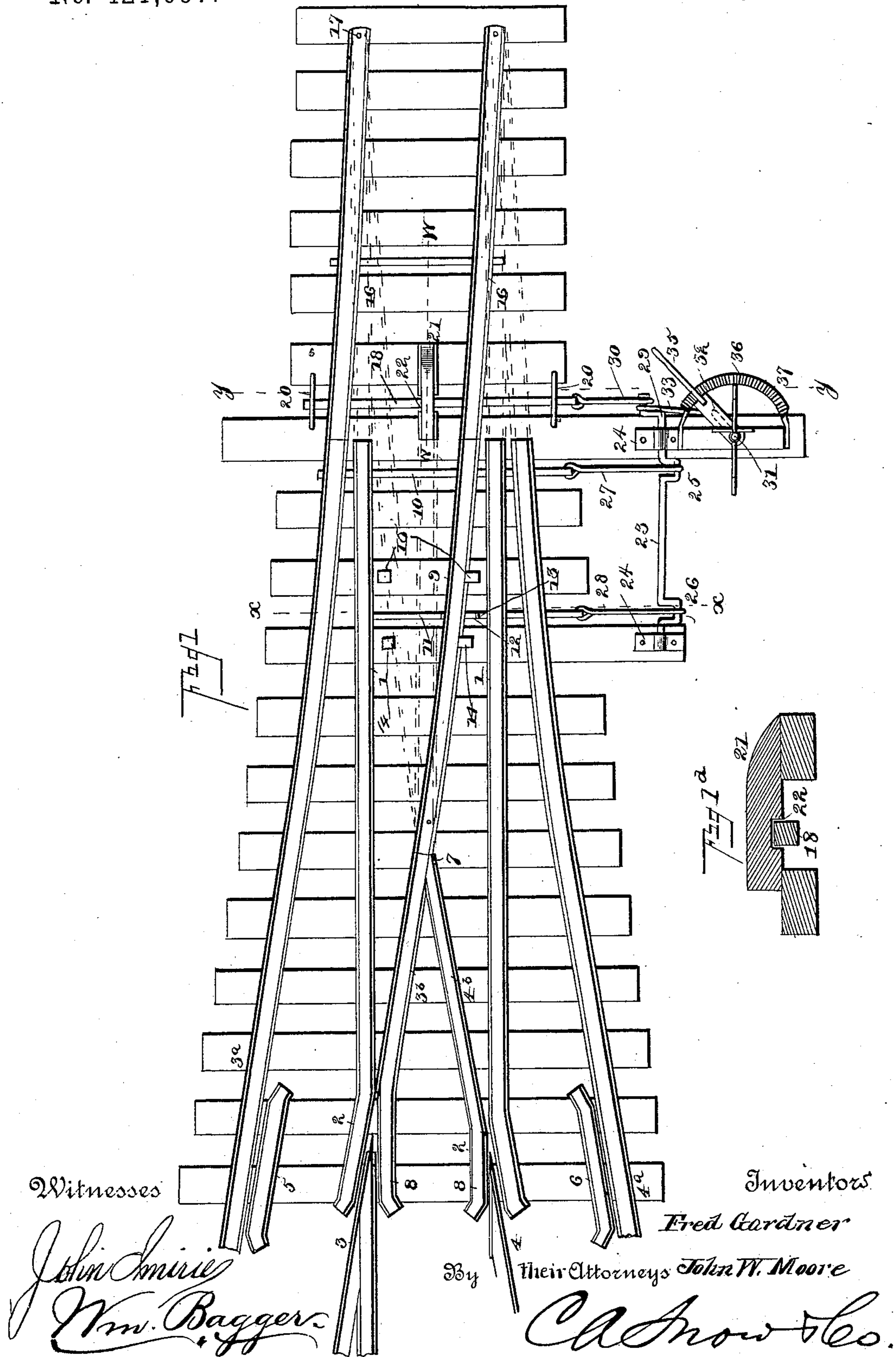


2 Sheets—Sheet 1.

No. 421,097.

Patented Feb. 11, 1890.



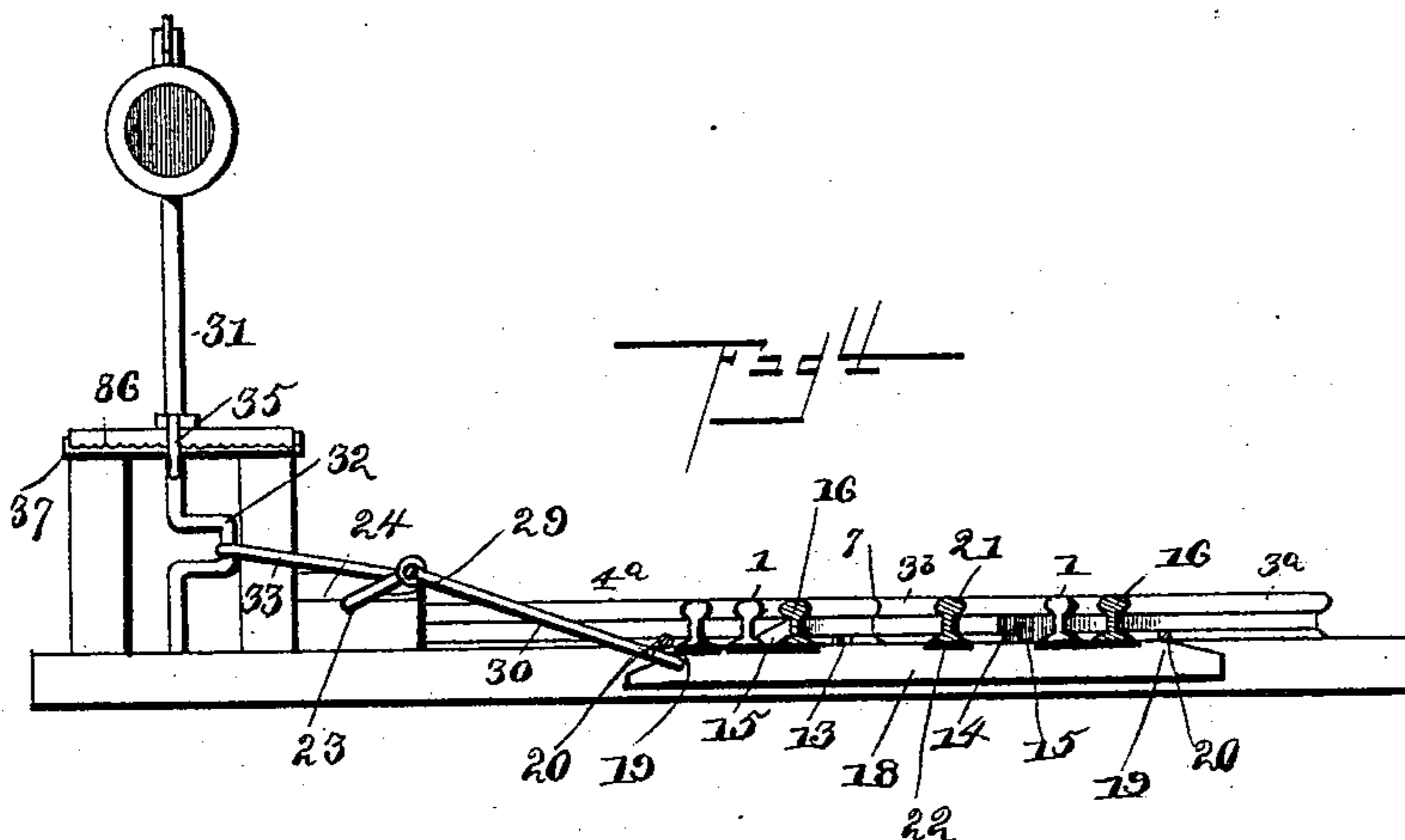
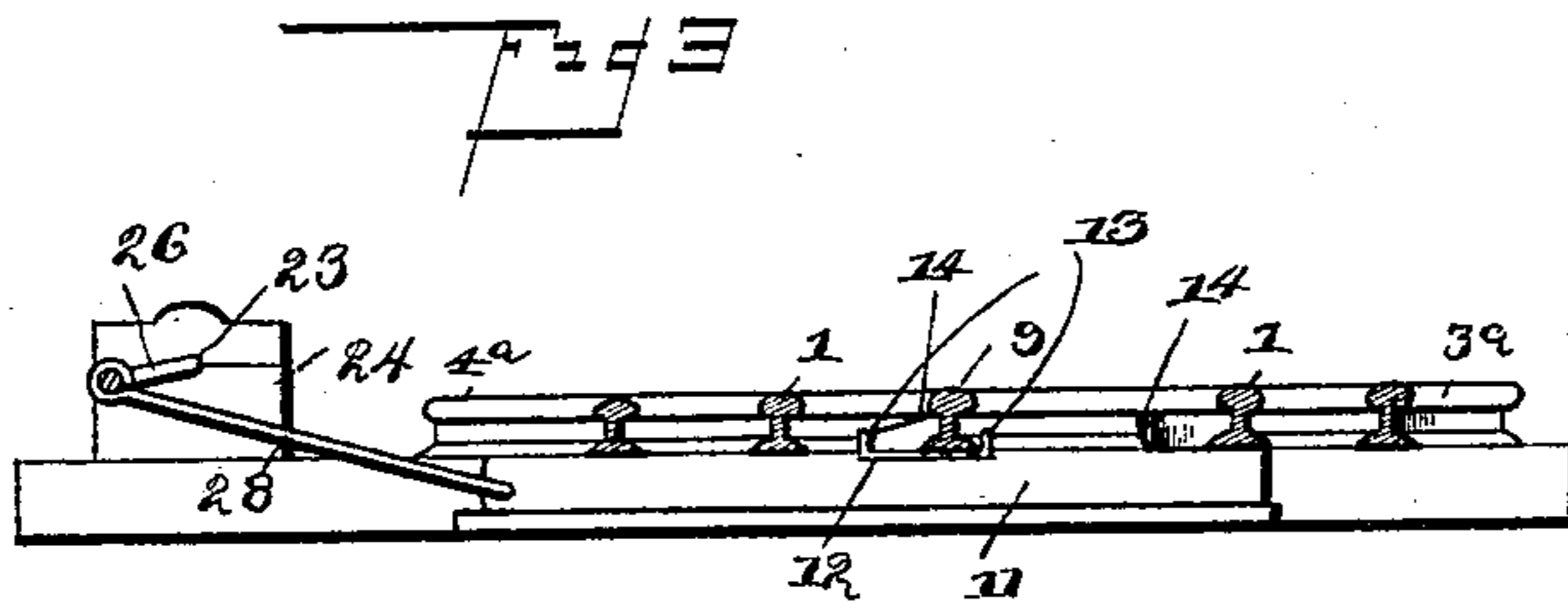
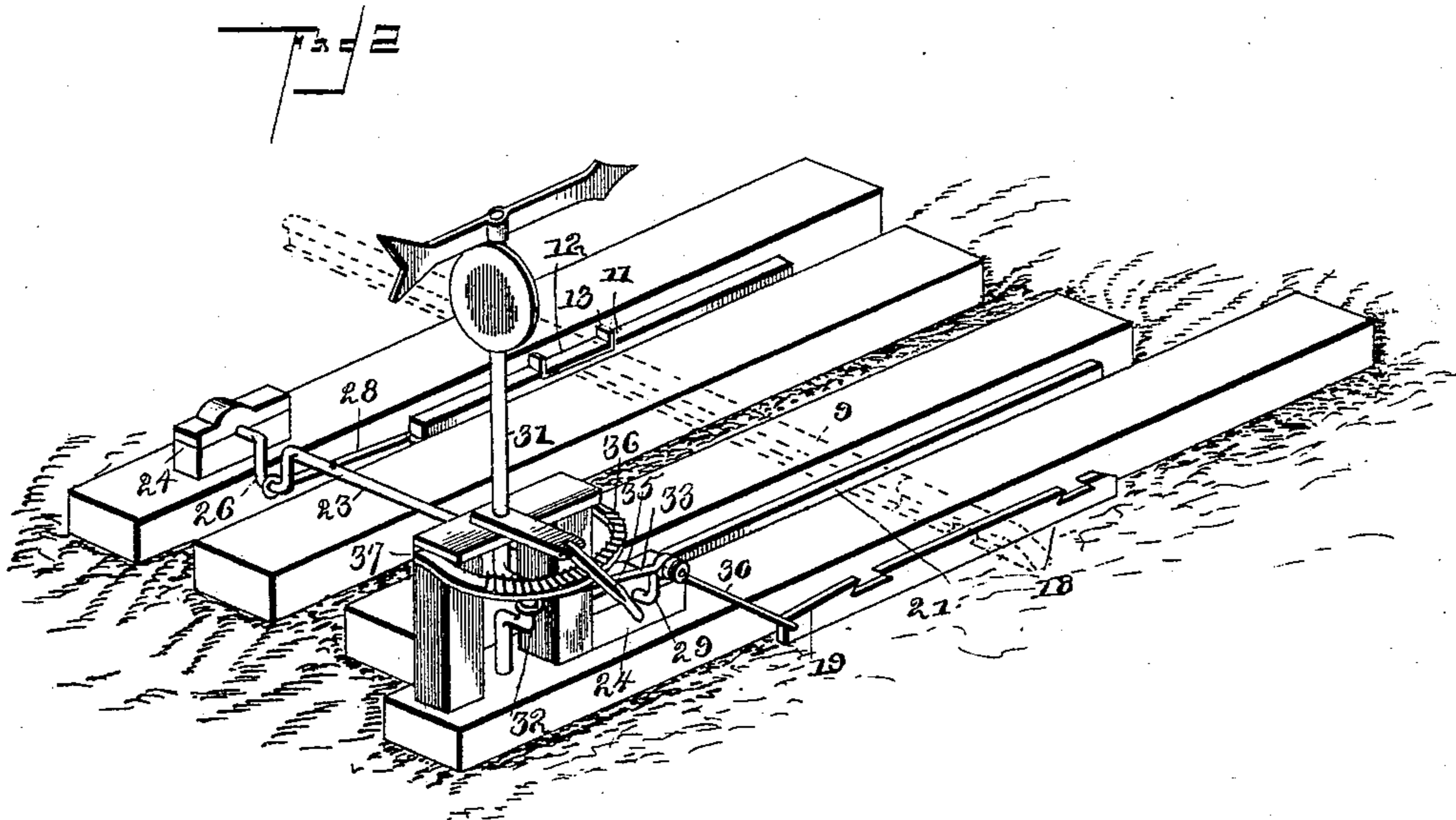
(No Model.)

2 Sheets—Sheet 2.

F. GARDNER & J. W. MOORE.  
RAILROAD SWITCH.

No. 421,097.

Patented Feb. 11, 1890.



Witnesses

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# UNITED STATES PATENT OFFICE.

FRED GARDNER AND JOHN W. MOORE, OF DODGE CITY, KANSAS.

## RAILROAD-SWITCH.

SPECIFICATION forming part of Letters Patent No. 421,097, dated February 11, 1890.

Application filed October 17, 1889. Serial No. 327,275. (No model.)

*To all whom it may concern:*

Be it known that we, FRED GARDNER and JOHN W. MOORE, citizens of the United States, residing at Dodge City, in the county of Ford and State of Kansas, have invented a new and useful Railroad-Switch, of which the following is a specification.

This invention relates to railroad-switches of that class which are known as "two-throw" switches, and which are used at points where the main line branches off to two side tracks, and it has for its object to construct a switch of this class which shall be exceedingly simple in construction and in which one of the frogs and one of the lead-rails ordinarily employed shall be dispensed with, and in which the single lead-rail employed, when thrown to either side, shall be slightly curved in the proper direction to correspond with the rail of the side track, which forms a continuation thereof.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts, which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, Figure 1 is a plan view of a railroad-switch embodying my several improvements. Fig. 1<sup>a</sup> is a section taken on the line *xx* in Fig. 1. Fig. 2 is a perspective detail view of the rail-shifting mechanism. Fig. 3 is a transverse sectional view taken on the line *xx* in Fig. 1. Fig. 4 is a transverse sectional view taken on the line *yy* in Fig. 1.

Like numerals of reference indicate like parts in all the figures.

1 1 designate the main-line rails, and 2 2 the frogs at the points where the main-line rails are joined with the inner rails 3 and 4 of the two side tracks, which diverge in either direction from the main line.

3<sup>a</sup> 4<sup>a</sup> designate the outer rails of the side tracks, and 5 6 are the guard-rails, which are arranged adjacent and parallel to the said outer side-track rails.

3<sup>b</sup> 4<sup>b</sup> are the terminal ends of the inner side-track rails, which are arranged between the main-line rails and the forward ends of which converge at 7, while at the points where they

join the frogs they are bent to form the guards 8.

9 designates the lead-rail, which is pivoted at the point 7, where it joins the terminal ends of the inner rails of the side tracks. The said lead-rail is connected near its front end with the bridle-bar 10, which is arranged to slide transversely between the ties, and which is operated by mechanism which will be presently more fully described. An additional bridle-bar 11 is arranged about centrally under the lead-rail transversely to the latter and is provided with a plate 12, suitably mounted upon its upper side, (see Figs. 2 and 3,) and provided at its ends with upturned hooks 13, adapted to alternately engage opposite sides of the flange of the lead-rail.

On each side of the lead-rail, suitably mounted upon two of the supporting-ties, are a pair of hook-shaped lugs 14 15, the former of which (which is nearest to the pivoted end of the lead-rail) is arranged outside of a line drawn between the inner edge of the hook 15 and the point 7, at which the lead-rail is pivoted. The result of this arrangement is that when the lead-rail is thrown in either direction it first engages one of the hooks 15, when by the exertion of continued strain upon the bridle-bar 11 the lead-rail is slightly curved, as will be clearly seen by reference to the plan view, Fig. 1, of the drawings, to correspond as nearly as possible with the curve of the outer side-track rail, which is temporarily parallel thereto.

16 16 designate the switch-rails, each of which is pivoted at the point 17, where it joins the main line, and the free ends of which are connected by a bridle-bar 18, having tapering ends 19, adapted to enter under clips 20, which, when the said switch-rails are thrown to either side, will hold them against displacement.

21 designates a beveled or inclined guard-rail, which is arranged at the pivoted end of the lead-rail, forming a continuation of the latter in the direction of the main line. The under side of said guard-rail has a slot or recess 22, in which the bridle-bar 18 may slide and where it is securely confined.

23 designates a shaft, which is mounted in bearings 24 in a position parallel to the main-line rails, and which is provided with cranks 25 and 26, which are connected by pitmen 27 and 28 with the bridle-bars 10 and 11, respectively. One end of the shaft 23 is provided with an additional crank 29, which is diametrically opposite the cranks 27 and 28, and which is connected by a pitman 30 with the bridle-bar 18. It follows that the latter and the switch-rails 16 will be operated in a direction opposite to that in which the lead-rail 9 is moved when the shaft 23 is manipulated. The operation of the crank-shaft 23 is effected by means of a vertical rock-shaft 31, having a crank 32, which is connected by a pitman 33 with one of the cranks upon the shaft 23. The said vertical rock-shaft is operated by means of the lock-lever 35, adapted to engage notches 36 in a horizontal segment-plate 37, mounted upon the standard in which the said vertical rock-shaft has its bearings. Signals of the customary kind may be mounted upon the upper end of the vertical rock-shaft.

From the foregoing description, taken in connection with the drawings hereto annexed, the operation and advantages of our improved railroad-switch will be readily understood. It will be seen that one of the frogs and one of the lead-rails customarily employed in two-throw switches are dispensed with, thus simplifying the construction.

The single lead-rail employed in our device is given sufficient throw to register with the end of either switch-rail, and it is capable of being slightly curved in either direction, so as to correspond with the curve of the outer rail of either side track. The lead-rail, when thrown to either side, is held firmly and securely by means of the hooked lugs 13 on one side and 14 15 on the other side, its free end being securely held by the bridle-bar 10. When the switch-rails are placed in alignment with the main-line rails, the lead-rail assumes a position centrally between and parallel to the said main-line rails. When in this position, its free end registers with and is protected by the incline or beveled guard-rail 21, which in the event of any obstruction being dragged along the track by the train will deflect the same and prevent it from interfering injuriously with the free end of the lead-rail.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a railroad-switch, the combination of the main-line rails, the diverging side-track rails, the converging terminal ends of the inner side-track rails arranged between the main-line rails, the lead-rail pivoted at the converging point of the terminal ends of the inner side-track rails and the pivoted switch-rails, substantially as herein set forth.

2. In a switch, the combination, with a sin-

gle lead-rail pivoted at the converging point of the terminal ends of the inner side-track rails centrally between the main-line rails, of the switch-rails mounted pivotally at their junction with the main-line rails and each adapted to be brought into alignment with the free end of the lead-rail, substantially as set forth.

3. The combination, with the lead-rail pivoted at one end, of the bridle-bar supporting the free end of said lead-rail, a bridle-bar arranged about centrally under and transversely to the said lead-rail and having a plate provided at its ends with upturned hooks adapted to alternately engage the flange of said lead-rail, and the hook-shaped lugs 14 and 15, arranged between the said lead-rail and the adjacent main-line rails, each of said hooks 14 being located outside of a line drawn from the adjacent hook 15 to the pivoting-point of the lead-rail, and mechanism for operating the bridle-bars, substantially as set forth.

4. The combination, with the lead-rail mounted pivotally between the main-line rails, of a beveled or inclined guard-rail mounted permanently centrally between the main-line rails and adapted to register with the free end of the lead-rail, substantially as set forth.

5. The combination of the pivoted switch-rails forming part of the main-line track, the lead-rail mounted pivotally between the main-line rails, the guard-rail mounted permanently between the main-line rails and adapted to form a continuation of the free end of the lead-rail, and the bridle-bar connecting the free ends of the switch-rails and arranged to slide in a notch or slot in the under side of the said guard-rail, substantially as set forth.

6. In a railway-switch, the combination of the main-line rails, the divergent side-track rails, the converging terminal ends, of the inner side-track rails arranged between the main-line rails, the lead-rail pivoted at the converging point of the terminal ends, of the inner side-track rails, a bridle-bar connected pivotally to and supporting the free end of the lead-rail, a bridle-bar arranged about centrally under the lead-rail and having a supporting-plate provided with upturned hooks adapted to alternately engage the flange of the lead-rail, the hook-shaped lugs arranged between the lead-rail and the adjacent main-line rails, the lug nearest the pivoted end of said lead-rail being arranged inside of a line drawn from the adjoining lug to the pivoting-point of said lead-rail, the switch-rails pivoted at the points of their junction with the main-line rails, the bridle-bar connecting the free ends of said switch-rails, clips adapted to receive the ends of said bridle-bar, a beveled guard-rail arranged centrally between the main-line rails adapted to register with the free end of the lead-rail, and having a transverse slot to accommodate the bridle-bar con-

necting the free ends of the switch-rails, a  
rock-shaft having cranks connected with the  
bridle-bars supporting the lead-rail, and a  
crank extending in a diametrically-opposite  
5 direction and connected with the bridle-bar  
supporting the switch-rails, and mechanism  
for operating said crank-shaft, substantially  
as described, and for the purpose set forth.

In testimony that we claim the foregoing  
as our own we have hereto affixed our signa- 10  
tures in presence of two witnesses.

FRED GARDNER.  
JOHN W. MOORE.

Witnesses:

MAC. S. TODD,  
JOHN H. SIGGERS.