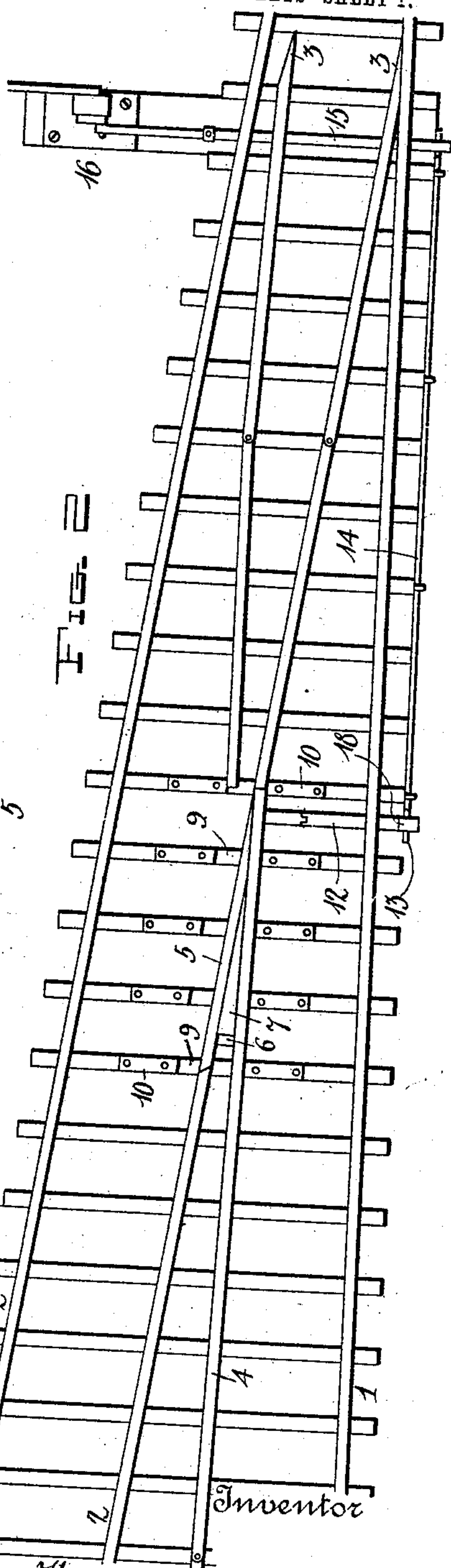
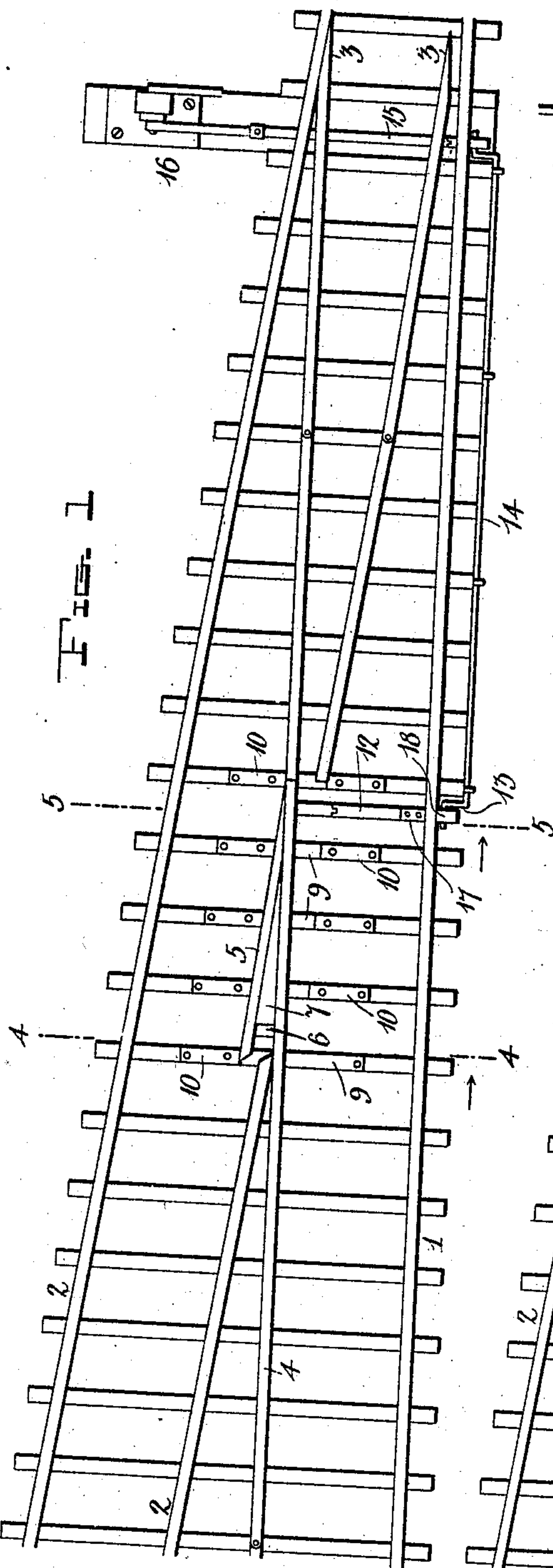


No. 841,778.

PATENTED JAN. 22, 1907.

T. W. HARBER.  
FROGLESS RAILWAY SWITCH.  
APPLICATION FILED MAY 3, 1906.

2 SHEETS—SHEET 1.



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FIG. 3

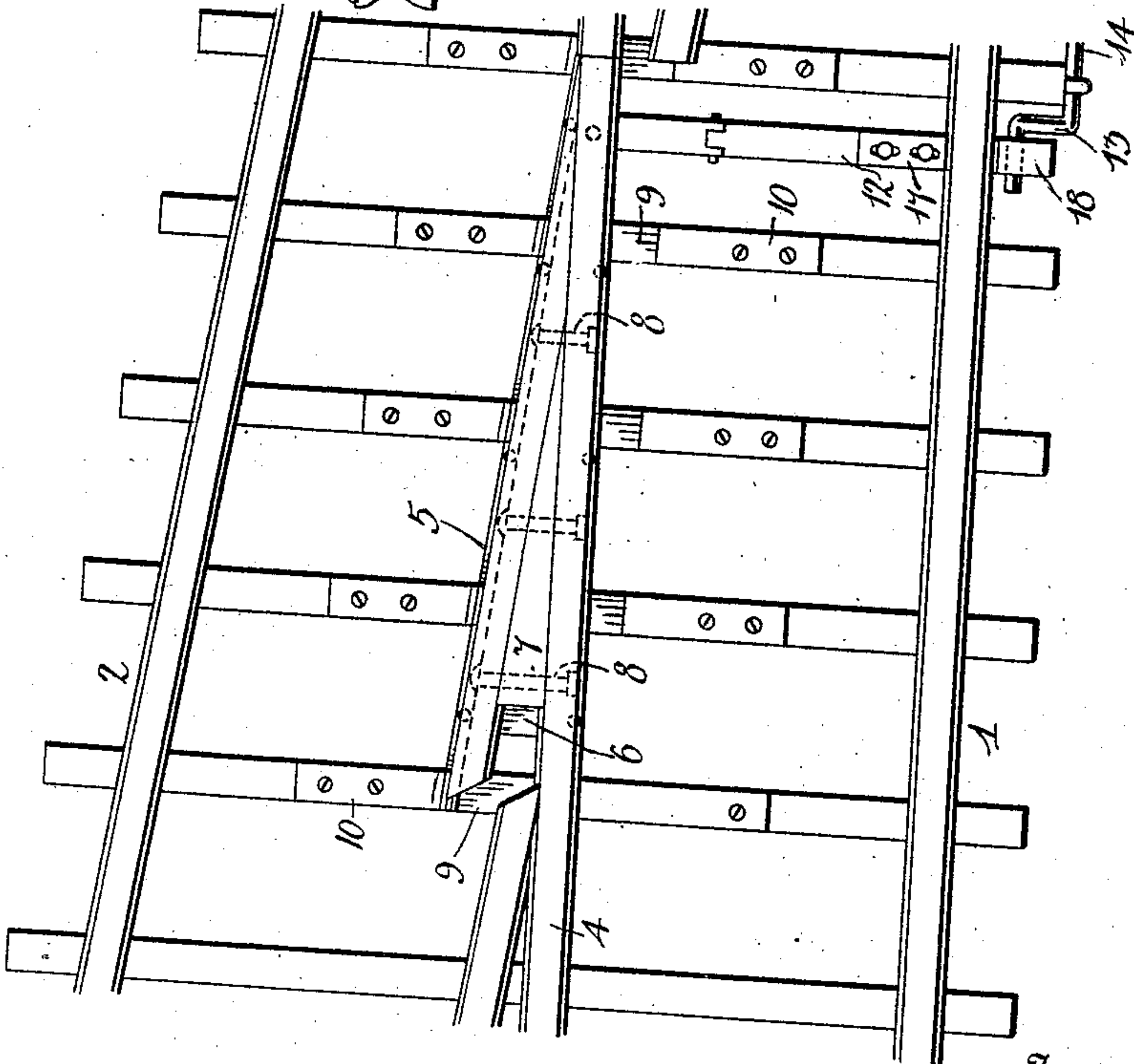


FIG. 4

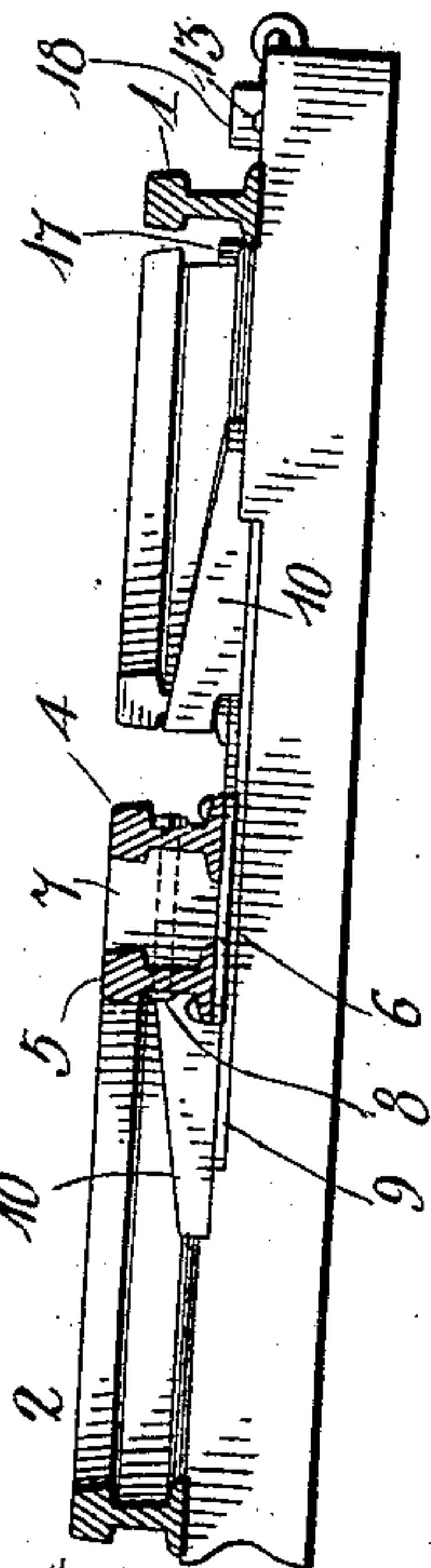
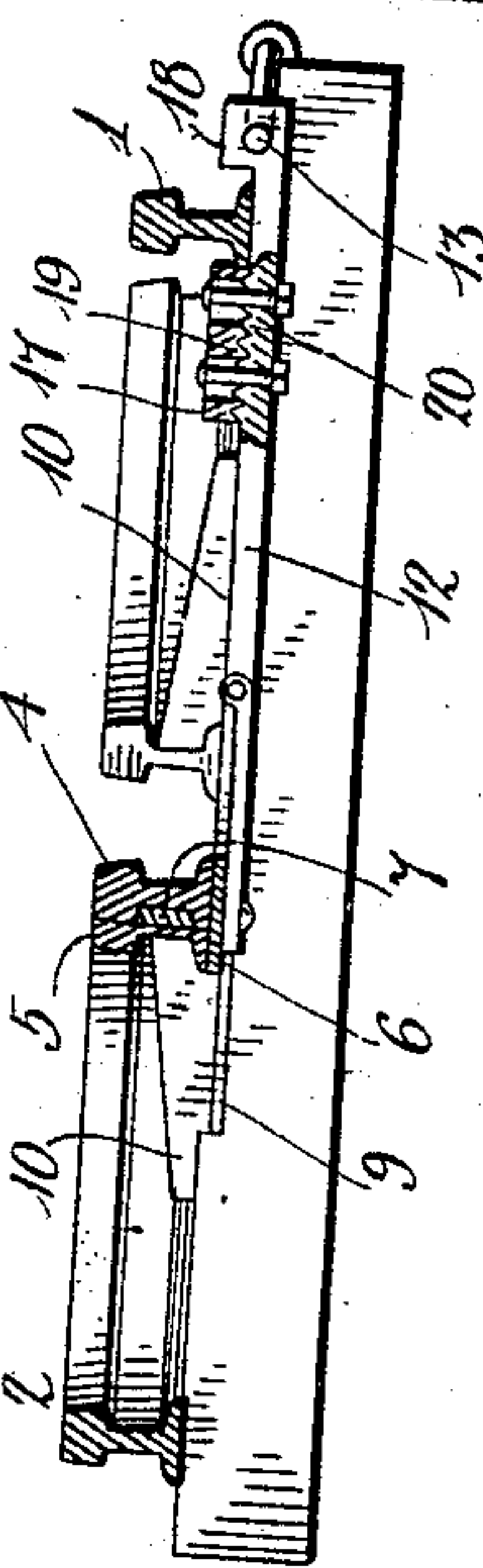


FIG. 5



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# UNITED STATES PATENT OFFICE.

THOMAS W. HARBER, OF SPRINGFIELD, MISSOURI.

## FROGLESS RAILWAY-SWITCH.

No. 841,778.

Specification of Letters Patent.

Patented Jan. 22, 1907.

Application filed May 3, 1906. Serial No. 315,099.

*To all whom it may concern:*

Be it known that I, THOMAS W. HARBER, a citizen of the United States, residing at Springfield, in the county of Greene and State of Missouri, have invented certain new and useful Improvements in Frogless 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.

This invention relates to improvements in frogless railway-switches.

The object of the invention is to provide a railway-switch of this character the crossing-rails of which are constructed and arranged in such a manner as to dispense with the usual frog.

A further object is to provide means whereby the movable portions of the rails at their crossing are actuated simultaneously with the throwing of the switch-point.

A further object is to provide adjustable stop devices on the throw-rod of the movable rails whereby the latter are locked to form a free passage on the main-line track.

With the above and other objects in view the invention consists of certain novel features of construction, combination, and arrangement of parts, as will be hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a plan view of a section of railway-tracks arranged in accordance with the invention, showing the position of the parts when the switch is closed on the main line. Fig. 2 is a similar view showing the position of the parts when the switch is closed on the side track. Fig. 3 is an enlarged detail plan view of the tracks at the crossing of the rail, showing the construction of the movable portions of said rails. Fig. 4 is a vertical cross-sectional view on the line 4 4 of Fig. 1, and Fig. 5 is a similar view on the line 5 5 of Fig. 1.

Referring more particularly to the drawings, 1 denotes the main-line track, and 2 denotes the side track.

3 denotes the switch-points, arranged on the inner rails of the main and side tracks, as shown.

At the crossing of the inner rails of the main and side track the inner main-track rail is provided with a movable section 4, which is pivoted at one end, as shown. To the movable section 4 of the inner main-track rail is secured a short spur-rail 5, the

connected end of which is beveled to a point at its juncture with the movable section 4. The opposite end of the spur-rail 5 is cut obliquely or beveled to engage the beveled end of the inner side-track rail when the movable sections of the tracks are shifted to bring the spur-rail 5 in line with the inner side-track rail upon the closing of the switch on the side track.

The movable section of the inner main-track rail and the spur-rail 5 are bolted through their flanges to a connecting-plate 6, and between said rails is arranged a wedge-shaped block 7, which serves as a brace for the inner sides of said movable section 4 and the spur-rail 5. The wedge-block 7 is held in place by bolts 8, which are passed through the same and the sections 4 and 5 of the rail. The plate 6, secured to the lower side of the movable sections of the rail, is adapted to slidably engage wear-plates 9, secured to the ties below said movable-rail sections, as shown. On the ties which pass beneath the movable sections of the rails are arranged stop-blocks 10, against which the outer sides of said movable-rail sections abut when the latter are shifted, said blocks also serving as braces for the outer sides of the rail-sections.

Pivotally connected to the joined ends of the rail-sections 4 and 5 is a laterally-projecting throw rod or bar 12, the opposite end of which is connected to a crank 13, formed on the end of an operating-rod 14, which is mounted on the ends of the ties and extends along parallel with the outer side rails of the main track to the ends of the switch-points 3, where said rod is connected to the throw-rod 15 for the switch-points 3, the opposite end of said throw-rod 15 being connected to the usual switch-stand 16, arranged on the opposite side of the track. On the throw bar or rod 15 is adjustably mounted inner and outer stop-blocks 17 and 18, adapted to engage the opposite sides of the outer main-track rail when the switch-points and the movable sections 4 and 5 of the rails are thrown to clear the main track, thereby holding said movable sections of the rail in locked position. The stop-blocks 17 and 18 are preferably provided on their under sides with transverse serrations 19, adapted to engage similar serrations 20 on the bar 12. By means of the serrations 19 and 20 the blocks 17 and 18 may be adjusted in proper position to engage the opposite sides of the outer main-track rail. The blocks when so ad-



justed are held in place by means of bolts passed therethrough and through the bar 12, as shown.

By providing the main and side track rails with movable sections connected and arranged as herein shown and described the usual frog at the crossing of the rails is dispensed with, and by connecting the movable sections of the rails with the switch-operating mechanism said sections are moved simultaneously with the throwing of the switch-points.

From the foregoing description, taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined by the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a frogless switch, the combination with the main and side track rails, of a movable section arranged in the inner rail of the main track, a spur-rail connected to said movable section, a connecting-plate secured to the under side of said spur and movable rail sections, a wedge-block arranged between and rigidly bolted to said spur and movable rail sections, a throw-rod pivotally connected to the outer end of the latter, stops arranged on said throw-rod to engage the opposite sides of the main-track rail, and means whereby said movable sections of the rails are shifted simultaneously with the throwing of the switch-points, substantially as described.

2. In a frogless switch, the combination with the main and side track rails, of a mov-

able section arranged in the inner rail of the main track, a spur-rail connected to said movable section, a connecting-plate secured to the under side of said spur and movable rail section, a wedge-block arranged between and rigidly bolted to said spur and movable rail sections, wear-plates arranged on the ties beneath said connecting-plate, stop-blocks arranged on the ties at each side of said movable section and spur-rail, a throw rod or bar pivotally connected to the latter, adjustable stop-blocks arranged on the outer ends of said throw-bars, an operating-rod, a crank formed on the outer end thereof to engage said throw-bar, and means whereby said operating-rod is actuated by the throw of the switch-points, substantially as described.

3. In a frogless switch, the combination with the main and side track rails, of a movable section arranged in the inner rail of the main track, a spur-rail connected to said movable section, a connecting-plate secured to the under side of said spur and movable rail section, a wedge-block arranged between and rigidly bolted to said spur and movable rail sections, a throw-bar pivotally connected to the outer end of the latter, serrations formed on the outer end of said throw-bar, serrated stop-blocks adapted to be adjustably engaged with said serrated end of the throw-bar, means to secure said blocks in their adjusted positions, an operating crank-shaft connected to the outer end of said throw-bar, and means whereby said bar is actuated simultaneously with the throwing of the switch-point, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

THOMAS W. HARBER.

Witnesses:

L. J. O'HARA,  
WILLIE A. BALL.