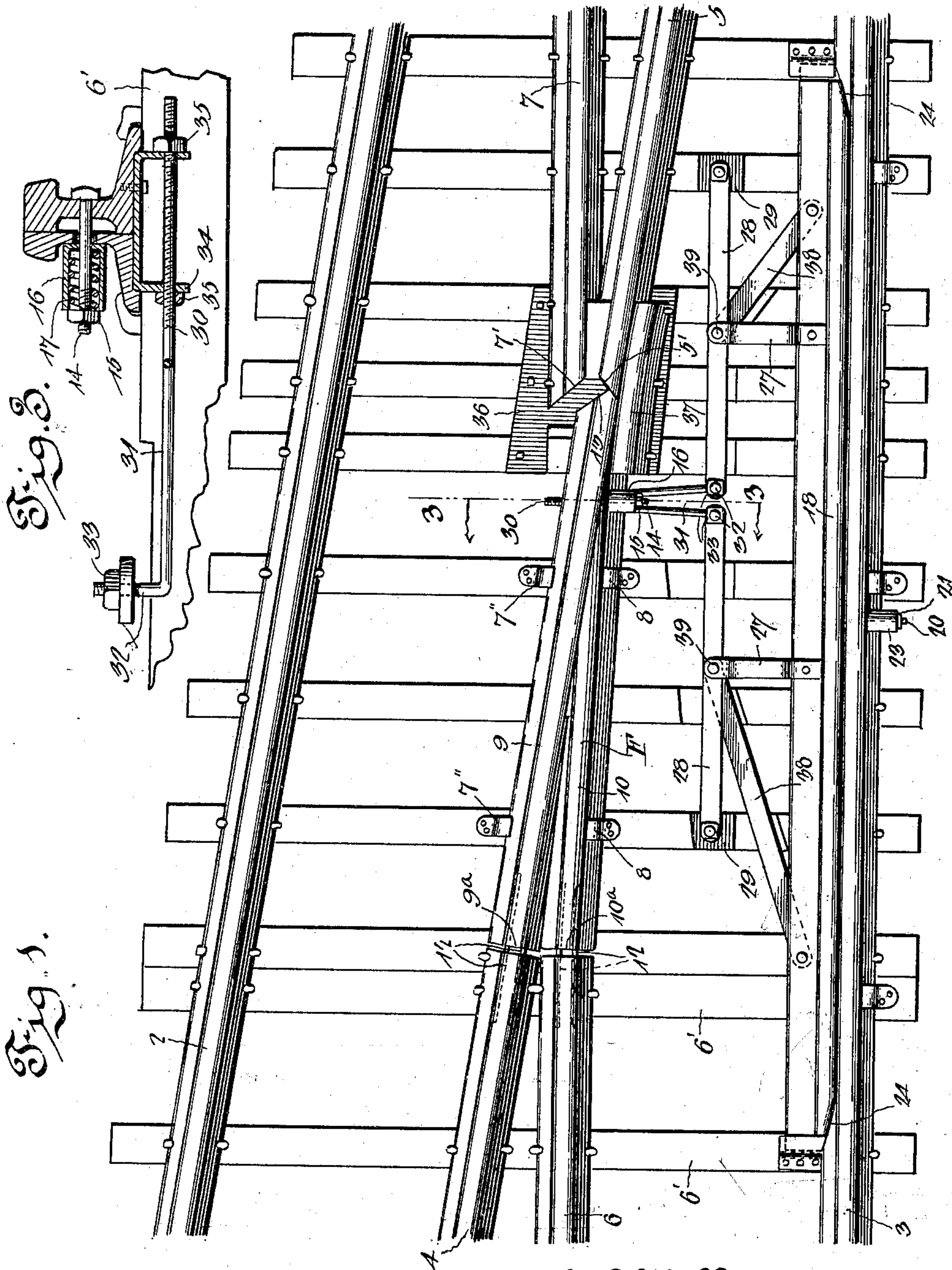


**Patented June 20, 1899.**

(Application filed Mar. 6, 1899.)

**2 Sheets—Sheet 1.**



Witnesses  
J. Frank Bulwerwell.  
Heath Luth

L. C. Kelley and Inventors.  
 By their Attorneys, E. L. Reich,  
 Cash & Co.

**No. 627,123.**

**Patented June 20, 1899.**

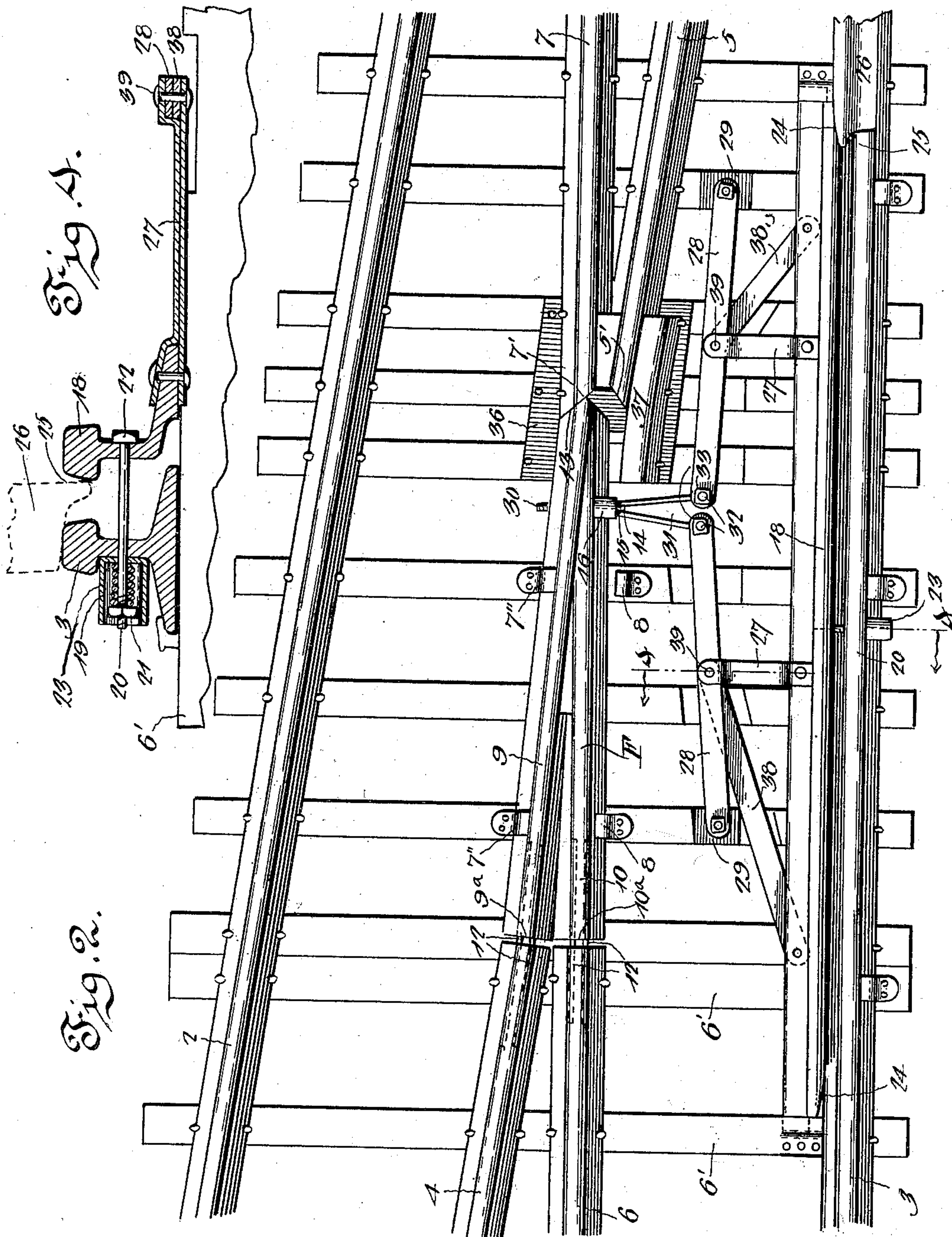
**L. C. KELLEY & E. L. REICH.**

## RAILWAY FROG.

(Application filed Mar. 6, 1899.)

(No Model.)

**2 Sheets—Sheet 2.**



Witnesses

J. Frank Culverwell.

By their Attorneys, E. L. Reich.

L. C. Kelley and

Inventors:

Heath Luthens

Chas. Knowlton



# UNITED STATES PATENT OFFICE.

LOGAN CURTIS KELLEY AND EDMOND L. REICH, OF ASH GROVE, MISSOURI.

## RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 627,123, dated June 20, 1899.

Application filed March 6, 1899. Serial No. 707,945. (No model.)

*To all whom it may concern:*

Be it known that we, LOGAN CURTIS KELLEY and EDMOND L. REICH, citizens of the United States, residing at Ash Grove, in the county of Greene and State of Missouri, have invented a new and useful Railway-Frog, of which the following is a specification.

This invention relates to railway-frogs adapted to be used in connection with steam and other roads; and the object of the invention is to provide a simple and efficient device of this character involving a primary switch or frog-operating member consisting, preferably, of a rail fitting longitudinally against one of the track-rails and which can be acted upon at its opposite ends or other convenient points by the flange of a locomotive or car wheel or other part for the purpose of throwing the frog so that a train, car, or locomotive can pass from a branch or siding onto the main line.

With these ends in view the invention consists in the novel combination of elements and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand the invention, the preferred embodiment thereof is illustrated in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view of a railway-switch constructed in accordance with our invention and illustrating the frog in its normal position. Fig. 2 is a similar view, the frog being shown as shifted to permit a locomotive or the like to pass from the siding to the main line, and in this figure a wheel is represented as having shifted the primary actuating-rail for the purpose of operating the frog. Figs. 3 and 4 are cross-sections on the lines 3-3 and 4-4 of Figs. 1 and 2, respectively.

Like characters denote like and corresponding parts in each of the several figures of the drawings.

In the drawings the outermost rails of the switch are designated by 2 and 3, the rail 2 being the outer one of the main track or line, while the rail 3 is the outer one of the branch or siding, and both of these rails are shown as being continuous.

The rail-sections 4 and 5, between which the frog F is disposed, constitute a part of

the main line, the travel of trains over the latter being controlled by the frog.

The rail-sections 6 and 7 coöperate with the branch rail 3 and constitute a portion of the side line. The short rail-sections 4 and 6 are adapted to coöperate with the frog, which latter is shiftable between the oppositely-disposed angular ends 5' and 7' of the rail-sections 5 and 7, respectively.

The outer rails 2 and 3 and the shorter intermediate rails 4 and 6 and 5 and 7 are secured to the ties 6' in some convenient manner, and the operation of the frog is limited by the chairs 7'', upon which the frog is sustained for lateral sliding movement and which are secured to the ties and provided with the usual lugs or ears 8, between which the frog is disposed and which engage the same when it is in its two shifted positions.

The frog F consists of two rail-sections 9 and 10, the squared ends 9' and 10' of which are contiguous to the correspondingly-shaped portions of the track rails or sections 4 and 6, respectively, and are connected to said parts by flexible straps, as 12, bolted or otherwise secured to the parts, although it is evident that the frog can be otherwise sustained. The two sections of the frog are adapted to slide in contact upon their inner faces for a portion of their length, and the section 9 is provided with a beveled end or point 13, the faces of which are oppositely inclined to agree with and to fit against the correspondingly-inclined faces 5' and 7' of the rail-sections 5 and 7. The two portions of the frog are connected together by the bolt 14, extending through registering openings therein and embraced at one end by the nut 15. The sleeve or collar 16 surrounds the bolt between the nut 15 and the web of the frog-section 10 and serves as a housing for the coiled spring 17, which fits against the head of the bolt and also against the frog, thereby to hold the two sections of the latter in firm engagement. The tension of the spring can be readily regulated by turning the nut 15. The opening in the frog-section 10 through which the connecting-bolt 14 passes is slightly wider than the opening in the frog-section 9, thereby permitting the part 10 to slide upon its companion 9 as the frog is shifted.

The primary operating device, which is ac-



tuated by a wheel or other part, is designated by 18, and it is disposed in parallelism with the outer rail 3 of the siding and is adapted to closely fit against the latter when in its normal position, as clearly represented in Fig. 1, and is held in such position by a coiled spring, as 19. The coiled spring surrounds the bolt 20 and fits against the web of the rail 3 and also against the nut 21 on the end of the bolt, which passes through the rail and is also headed, as at 22, upon its inner side. The coiled spring is surrounded by the jacket or sleeve 23, which fits against the outer face of the web of said rail. The opposite ends of the primary actuating device 18 are beveled off, as at 24, and the car-wheel is adapted to strike and operate the beveled surfaces 24, thereby to move the part 18 bodily away from the rail 3, and consequently effect the operation of the frog F. The flange 25 of the car-wheel 26 is usually provided to crowd the operating-rail inward, and when it passes out of contact therewith the spring 19 serves to instantly return the same to its initial or normal position, as represented in Fig. 1.

At suitable points in the length of the rail 18 the arms 27 are rigidly secured and extend transversely therefrom and are pivotally connected with the oppositely-disposed levers 28, the front ends of which are in adjacency and the rear ends of which are fulcrumed to plates, as 29, secured to the ties 6. A connecting bolt or rod is shown at 30, and it is bifurcated or forked, as at 31, the branches of the latter being disposed under the adjacent ends of the levers and having right-angular offset portions 32 extending through the levers and fitted with nuts 33 to hold the parts in fixed relation. The bolt or rod 31 extends through a bearing 34, depending from the frog F, and is provided upon its threaded surface with nuts 35, located at opposite sides of the bearing.

The rail-sections 5 and 7 rest at their inner ends upon the wide plate or chair 36, which is secured to a series of ties 6 transversely across the same, and also supports the pointed end of the frog F. Said plate or chair also carries the short guard-rail 37, which is secured thereto, and which abuts against the rail-section 5, and which is engaged by the pointed end of the frog when the latter is in its initial position.

The levers 28 are connected with the shiftable operating-rail by the diagonal braces 38, which receive at their inner ends the pivots 39, that connect the transverse arms 27 and said levers, and the rear ends of these braces are secured to the under side of said part 18 to move therewith.

From the foregoing description it will be evident that the flange 25 of a car-wheel 26 by riding along the beveled surfaces 24 can thrust the rail bodily sidewise, thereby moving the frog F in a corresponding direction and carrying its pointed end out of contact with the rail-section 5 and into engagement with the rail-section 7, as shown in Fig. 2,

whereby the locomotive, car, or train can pass from the siding or branch onto the main line. When the wheel or wheels pass out of contact with the rail 13, the latter will be returned to its primary position by the spring 19.

Changes in the form, proportion, size, and the minor details of construction within the scope of the appended claims may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. The combination with outer, main and branch rails, of intermediate rail-sections having oblique faces, a frog disposed between the rail-sections and including two sections one of which is slidable upon the other, and having oblique faces adapted to engage the faces of the intermediate rail-sections, a spring for holding the two sections of the frog in engagement, and mechanism including a rail located to be operated by a car-wheel or like device for shifting said frog, substantially as described.

2. The combination with outer, main and branch track-rails, of intermediate track-sections disposed in pairs and two of which have oblique faces upon their inner ends, a frog-rail supported between the track-sections and having a pointed end adapted to engage either of said oblique faces, and including a slidable section, means for holding the two sections of the switch-rails in contact, and a rail in position to be operated by a car-wheel or other like part and operatively connected with and adapted to actuate said switch-rail, substantially as described.

3. The combination with outer, main and branch rails, of intermediate track-sections, a frog shiftable supported between said track-sections and consisting of two parts one of which is slidable on the other, a bolt extending through the two parts of the frog, a nut on the bolt, a coiled spring surrounding the bolt and fitting against the nut and also against the frog, a casing surrounding said coiled spring, a rail fitting against the outer branch rail longitudinally thereof and in position to be operated by a car-wheel or like part, and connections between said car-wheel-operated rail and the frog for operating the latter, substantially as described.

4. The combination with outer, main and branch rails, of intermediate rail-sections two of which have oblique faces, a frog shiftable supported between said intermediate rail-sections having a pointed end adapted to engage either of said oblique faces and consisting of two members one of which is slidable on the other, a device for holding the two members of the frog in contact, a longitudinal actuating-rail fitting against the branch rail and connected with the frog for operating the same, substantially as described.

5. The combination with outer, main and branch rails, of intermediate rail-sections two



of which have oblique faces, a frog having a pointed end adapted to engage either of said oblique faces, said frog being shiftably supported between said intermediate rail-sections and consisting of two members one of which is slidable on the other, a device for holding the two members of the frog in contact, a longitudinal actuating-rail, means for holding said longitudinal actuating-rail against the branch rail, actuating-levers supported between said longitudinal actuating-rail and the frog, a bolt adjustably connecting the levers and frog, and connections between said levers and actuating-rail, substantially as described.

6. The combination with outer, main and branch rails, of intermediate rail-sections, a frog shiftably supported between said intermediate rail-sections and consisting of two members one of which is slidable on the other, a device for holding the two members of the frog in contact, a bolt extending through a bearing secured to the under side of the frog and having check-nuts, and said bolt being bifurcated, two levers connected with the branches of said bolt, an actuating-rail fitted against the branch rail, and beveled at its opposite ends and provided with arms connected with said levers, and means for holding said actuating-rail and the branch rail in contact, substantially as described.

7. The combination with outer, main, and branch rails, of intermediate rail-sections, a frog shiftably supported between said intermediate rail-sections and consisting of two members one of which is slidable on the other, a device for holding the two members of the frog in contact, a bolt extending through a bearing secured to the under side of the frog and having check-nuts, and said bolt being

bifurcated, two levers connected with the branches of said bolt, an actuating-rail fitted against the branch rail, and beveled at its opposite ends and provided with arms connected with said levers, means for holding said actuating-rail and the branch rail in contact, and diagonal braces connected with said levers and with the actuating-rail, substantially as described.

8. The combination with outer, main and branch rails, of intermediate rail-sections, a frog shiftably supported between said intermediate rail-sections and consisting of two members one of which is slidable on the other, a device for holding the two members of the frog in contact, a bolt extending through a bearing secured to the under side of the frog and having check-nuts, and said bolt being bifurcated, two levers connected with the branches of said bolt, an actuating-rail fitted against the branch rail, and beveled at its opposite ends and provided with arms connected with said levers, means for holding said actuating-rail and the branch rail in contact, diagonal braces connected with said levers and with the actuating-rail, a bolt extending through said actuating-rail and the branch rail, a spring surrounding the bolt and bearing against the nut thereof and the outer face of the web of said branch rail, and a casing surrounding said spring, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in the presence of two witnesses.

LOGAN CURTIS KELLEY.  
EDMOND L. REICH.

Witnesses:

JNO. W. CANNAN,  
H. E. WILSON.