

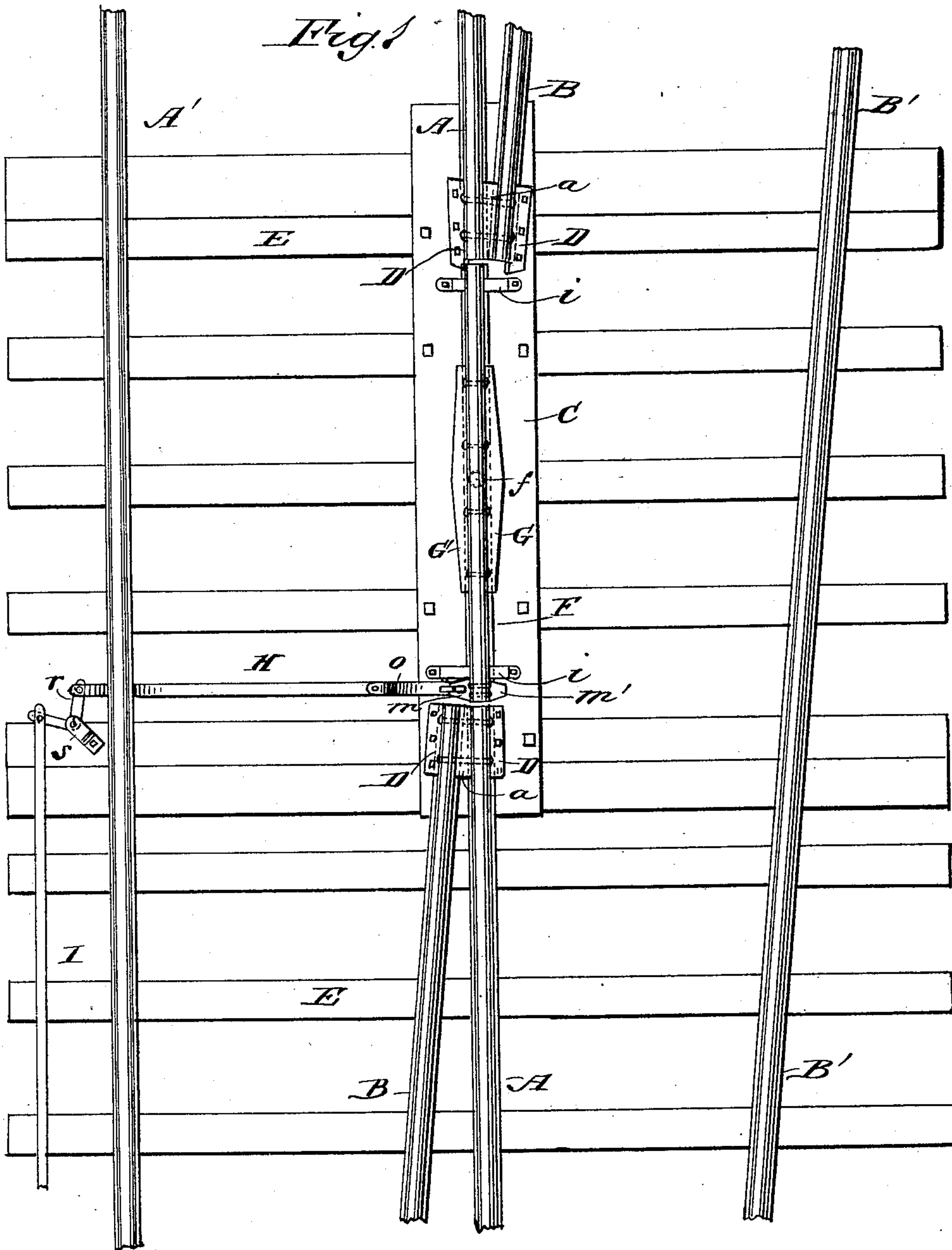
(No Model.)

3 Sheets—Sheet 1.

D. HORRIE.  
RAILROAD FROG.

No. 452,672.

Patented May 19, 1891.



WITNESSES:

*F. M. Andle.*  
*C. Sedgwick.*

INVENTOR:

*D. Horrie*  
BY *Munn & Co.*  
ATTORNEYS

(No Model.)

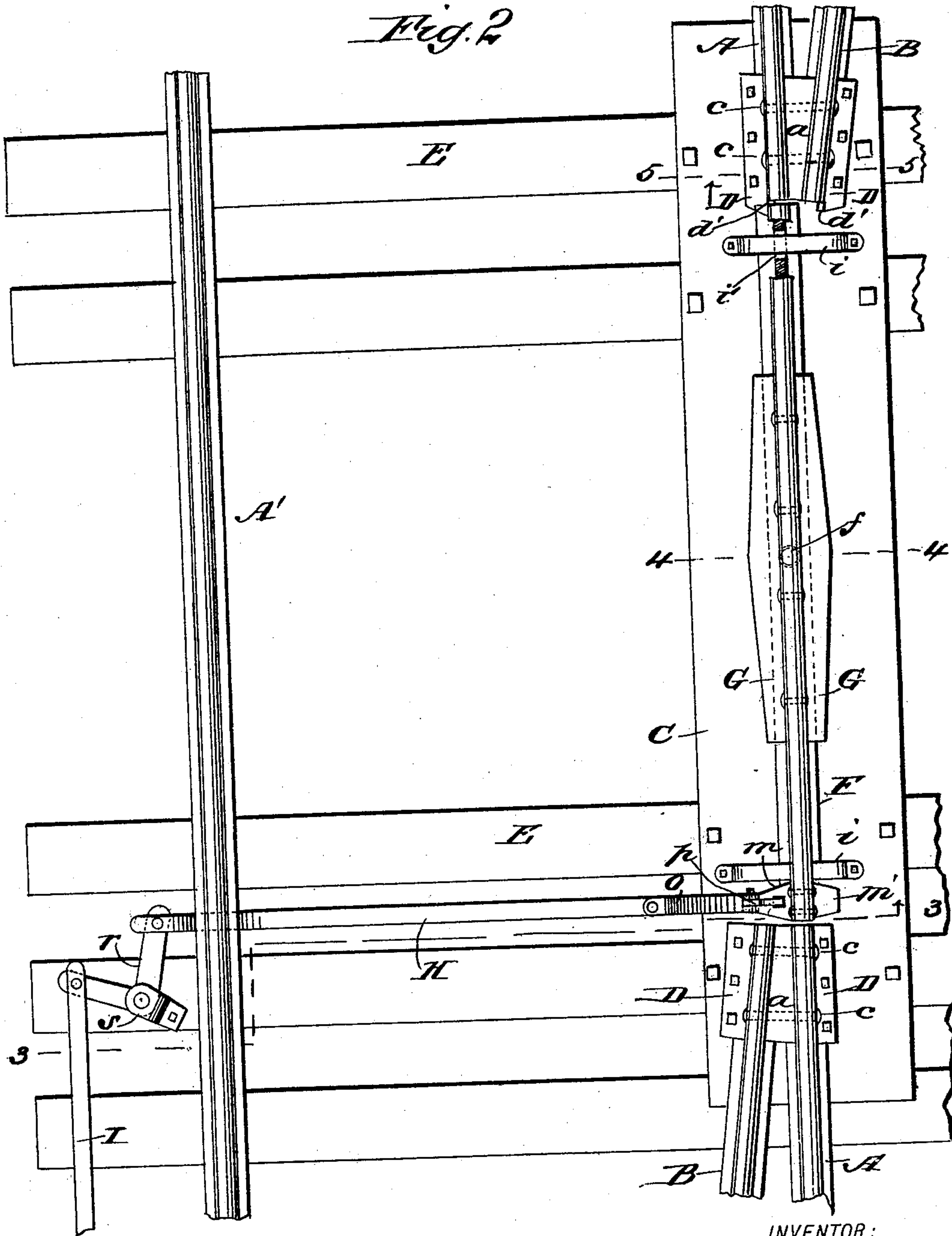
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*Fig. 2*



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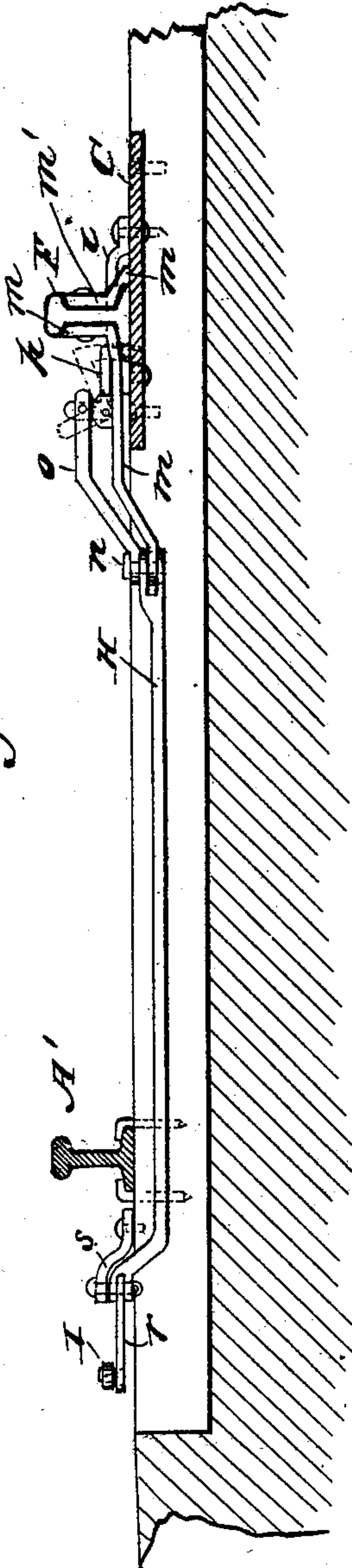
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Fig. 3



WITNESSES:

*W. McArdle.*  
*C. Sedgwick*

Fig. 4

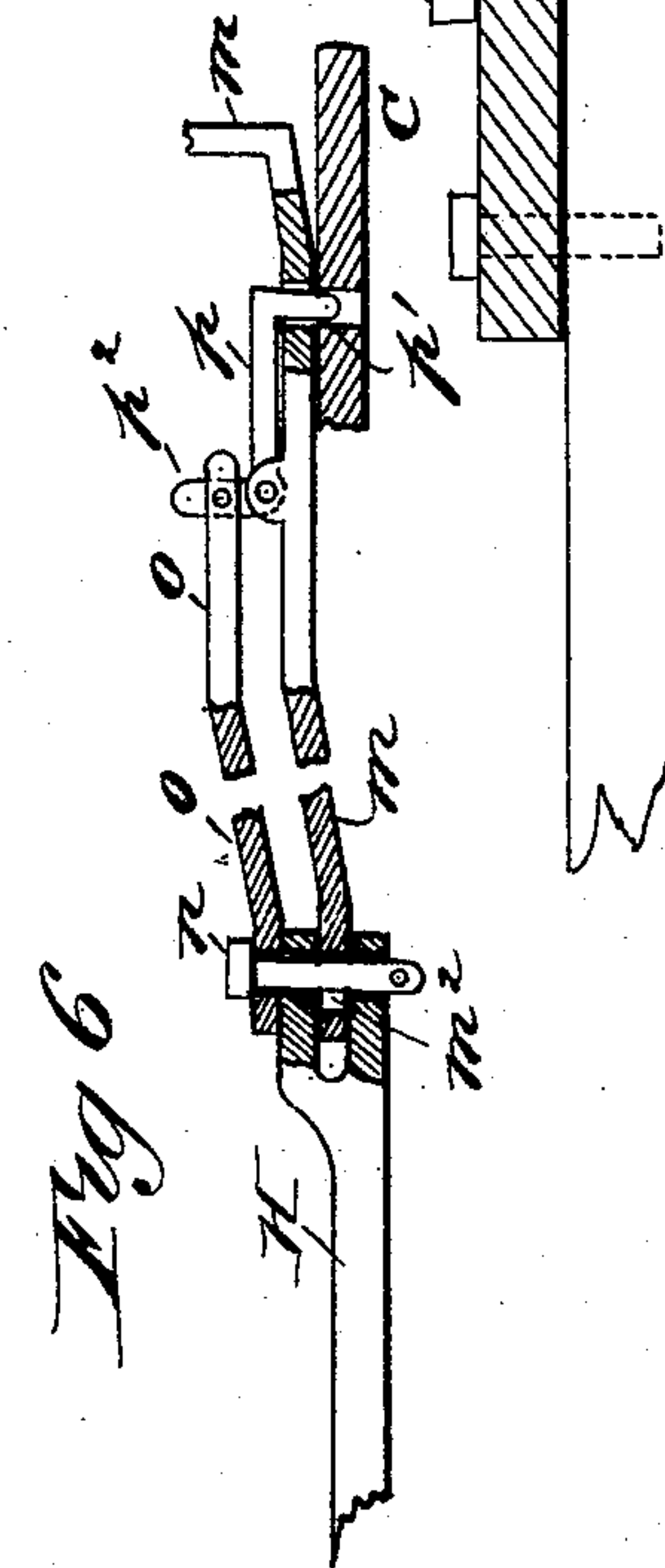


Fig. 6

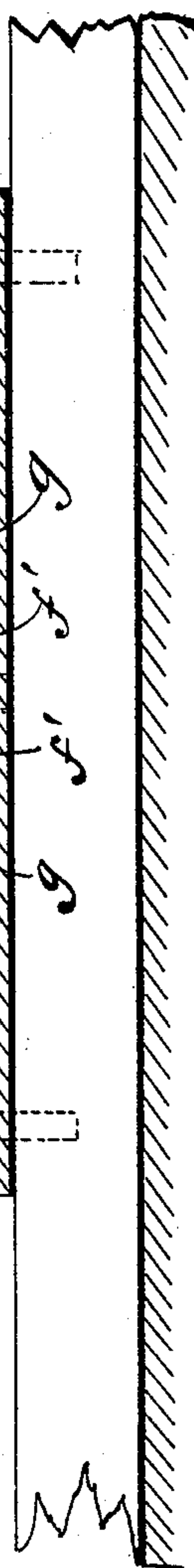
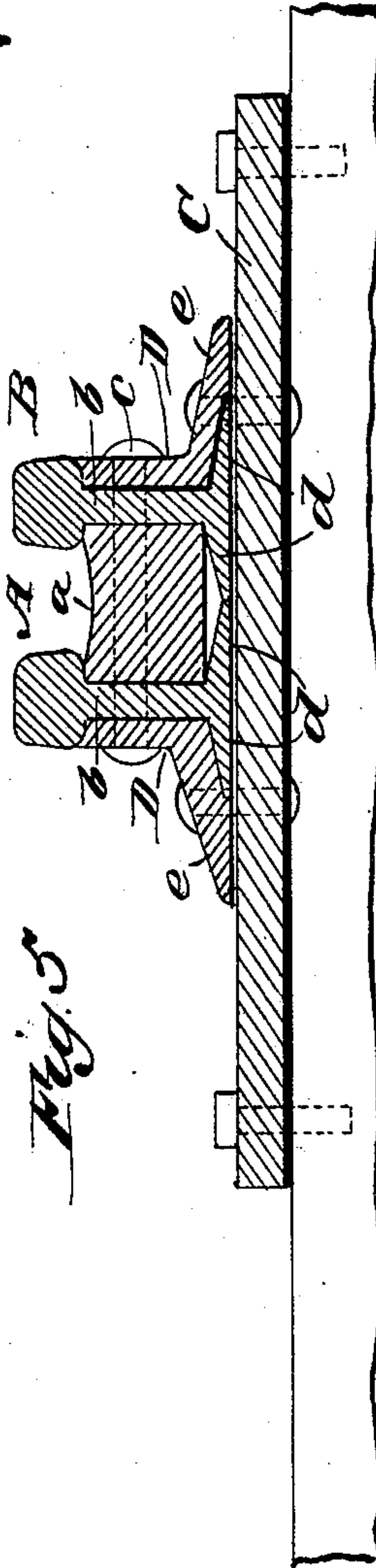


Fig. 5



INVENTOR:

*D. Horrie*

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ATTORNEYS



# UNITED STATES PATENT OFFICE.

DAVID HORRIE, OF ANTIGO, WISCONSIN.

## RAILROAD-FROG.

SPECIFICATION forming part of Letters Patent No. 452,672, dated May 19, 1891.

Application filed October 8, 1890. Serial No. 367,393. (No model.)

*To all whom it may concern:*

Be it known that I, DAVID HORRIE, of Antigo, in the county of Langlade and State of Wisconsin, have invented a new and useful Railroad-Switch, of which the following is a full, clear, and exact description.

The objects of this invention are to produce a simple practical switch or railroad-track crossing that will dispense with frogs and which will afford means to automatically lock the shifting frog-rail in connection with a main track and release it in a similar manner when the frog-rail is thrown to align with a side track or a track that crosses the main track.

To these ends my invention consists in the construction and combination of parts, as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of the switch mechanism in connection with main and side track rails that are shown broken. Fig. 2 is an enlarged plan view of the switch and the track-rails broken. Fig. 3 is an end elevation of the switch, partly in section, taken on the line 3 3 in Fig. 2. Fig. 4 is a transverse section of the device on the line 4 4 in Fig. 2. Fig. 5 is a cross-section of the joined main and side track rails, taken on the line 5 5 in Fig. 2; and Fig. 6 is an enlarged, broken, partly-sectional view of one of the essential features of the device detached from other parts.

The adjacent rails A B of a main track A A' and side or crossing track B B' are sufficiently separated longitudinally to permit the location between their aligning ends of the switching device, which consists of parts that will be described. A bed-plate C is provided, which extends parallel with the main-track rail A' of a suitable length to project below the rail ends A B, which latter are securely joined in pairs by similar devices, which each consist of a spacing-block *a*, that fits between the webs *b* of the rails, and is thereto connected by transverse bolts or rivets *c*, which pass through and secure in place the angle-plates D.

As shown in Fig. 5, the angle-plates D are adapted to fit upon the outer surface of the webs *b* and base-flanges *d* of the rail ends A B, the proportionate width of the lower por-

tions of said angle-plates affording a foot *e* on each plate, which portions *e* are secured to the bed-plate C by rivets or other means. (See Fig. 5.)

The spacing-blocks *a* are tapered to fill the converging space between the adjacent ends of the main-track rails A and side rails B, so that these rails in pairs are held together rigidly and in like manner are affixed to the bed-plate C, which is seated upon and secured to the cross-ties E, that are embedded in the usual way to maintain the track-rails in position.

Between the pairs of rail ends A B a shifting rail F is located on the bed-plate C, and is thereto pivoted to swing laterally. The pivoted connection between the rail F and plate C at *f* is rendered substantial by providing two similar re-enforce plates G, which are shaped to fit against the opposite sides of the shifting rail and also upon the base-flanges *f'* of said rail, the lower portions *g* of the re-enforce plates G being extended outside of the flanges *f'* a proper degree to afford a wide supporting-base for the shifting rail F and their upper portions *g'* bolted or riveted to the web *h* of the shifting rail, as shown in Fig. 4.

At a proper distance from each end of the shifting rail F transverse slots *i'* are formed in the web of said rail, which permit the guide-bars *i* to be inserted therein, said bars having their ends bent downwardly, so as to seat them upon the bed-plate C, to which they are bolted or otherwise fastened. The rail F is so proportioned in length that it will vibrate freely on its center pivot *f* between the rail ends A B, which lateral movement of the rail is limited by the abutment of the flanges *f'* thereof at one end of the rail F against the protecting end portions *d'* of the angle-plates D, as represented in Figs. 1 and 2. At the opposite end of the shifting rail F two bracket angle-plates *m m'* are affixed oppositely. One of said plates is prolonged in a lateral direction and bent downwardly and then forwardly to be pivotally secured to the draft-bar H, that lies horizontally across the space between the track-rails A A' and projects beyond the latter-named main-track rail, below which it is located and adapted to slide longitudinally.

The end of the draft-bar H, to which the bracket-plate *m* is loosely secured, is later-



ally slotted at its end to admit the end of the elongated plate, and, as represented in Fig. 6, this end portion of the bracket-plate  $m$  is provided with an elongated aperture  $m^2$ , through which the connecting-pin  $n$  is inserted.

Upon the end portion of the draft-bar II, above the slotted end of the bracket-plate  $m$ , the perforated end of the tripping-bar  $o$  is secured by the pin  $n$ , which is thus adapted to retain the bracket-plate and tripping-bar in alignment and substantially parallel, as the tripping-bar is bent flatwise into form which nearly corresponds to that of the bracket-plate.

On the bracket-plate  $m$ , at a proper distance from the main-track rail A, the bell-crank-shaped latch-dog  $p$  is pivoted between upright ears on the bracket-plate. The lower limb of said dog, which extends toward the rail A, is provided with a depending toe  $p'$ , that has a latching engagement with the bed-plate C by its loose passage through the plate  $m$ , there being an aligning orifice made for its reception in the body of the plate and an aperture in the bed-plate, as shown in Figs. 3 and 6, this locking engagement taking place only when the shifting rail F is in alignment with the main-track rails A, and so forms a continuous main track. The upright limb  $p^2$  of the latch-dog  $p$  is pivoted to the adjacent end of the tripping-bar  $o$ , so that the longitudinal movement of the draft-bar II will rock the latch-dog and lock or release the shifting rail F, as may be desired.

The end portion of the draft-bar II, which projects below the main-track rail A', is bent upwardly and outwardly a proper distance outside of the rail, and is laterally slotted at its terminal end to receive and be loosely secured to the end of one limb of the horizontal bell-crank lever  $r$ , which latter is supported to rock in a horizontal plane by the bracket-arms, to which it is pivotally secured at the junction of its limbs. The remaining limb of the bell-crank lever  $r$  is outwardly projected and is jointed to a connecting-rod I, that is shown broken, but may be extended parallel with the main-track rail A' to be connected by its other end to a switch-stand of any approved construction, (not shown,) which is adapted to move the rod I horizontally and longitudinally when manipulated, whereby the shifting rail F may be set to align with the main-track rails A or crossing side-track rails B. The tripping-bar  $o$ , by reason of its secure attachment to the end of the draft-bar II, will rock the latch-dog  $p$  and release the dog, after which the pin  $n$  will strike the end of the slot  $m^2$  in the bracket-plate  $m$ , and thus move the rail F toward the side tracks B.

It will be evident that if a duplicate shifting device is provided where the extension of the crossing side-track rails B B' will engage the main-track rails A A' said duplicate mechanism will, in conjunction with the switch mechanism shown and described, af-

ford means to cross a main track with another track or connect a main track with a side track without the use of rigid frogs.

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

1. The combination, with a shifting rail pivoted on a bed-plate to swing laterally and align with main-track rails or side-track rails, of a transverse draft-bar, a tripping-bar, a latch-dog, an elongated bracket-plate which the latch-dog is pivoted upon, and a device that is adapted to slide the draft-bar longitudinally, substantially as set forth.

2. The combination, with main-track rails that are laterally connected to side-track rails in pairs at their ends, side-track rails, and a bed-plate extending between the paired rails, of a centrally-pivoted shifting rail on the bed-plate, re-enforce plates secured on the shifting rail opposite its center pivot, a bracket-plate on the rail end, having a latch-hole in its projecting portion, a bell-crank-shaped latch-dog pivoted on the elongated bracket-plate, a tripping-bar pivoted by one end to a limb of the latch-dog and attached to a draft-bar at its other end, a transverse draft-bar loosely connected to the slotted end of the elongated bracket-plate, a bell-crank lever pivoted by one limb to the end of the draft-bar, and a connecting-rod jointed to the other limb of the draft-bar, substantially as set forth.

3. The combination, with two laterally-joined pairs of main and side track rails, a bed-plate extending between said rails, a centrally-pivoted shifting rail, re-enforce plates secured near the center of said shifting rail, and guide-bars transversely located in slots in the shifting rail near its ends, of an elongated bracket-plate at one end of the shifting rail, a latch-dog pivoted on the bracket-plate and adapted to latch fast to the bed-plate, a tripping-bar jointed to the latch-dog, a draft-bar secured by one end to the tripping-bar firmly and to the bracket-plate loosely, a bell-crank pivoted by one limb to the other end of the draft-bar, and a connecting-rod jointed to the other limb of the bell-crank, substantially as set forth.

4. The combination, with a base-plate and a shifting rail pivoted thereon, of a bracket-plate connected to the shifting rail, extending laterally therefrom and having a slot in its outer end, an angular latch-dog pivoted on the bracket-plate and adapted to engage apertures in the bracket and base-plates, a draft-bar, a tripping-bar connected to the latch-dog, and a pin pivoting the draft-bar and tripping-bar and passing through the slot of the bracket-plate, substantially as set forth.

DAVID HORRIE.

Witnesses:

H. G. BORGMAN,  
C. W. MCFARLAND.