

(No Model.)

F. HARDY & L. W. McCANTS.
RAILWAY SWITCH.

No. 516,599.

Patented Mar. 13, 1894.

Fig. 1.

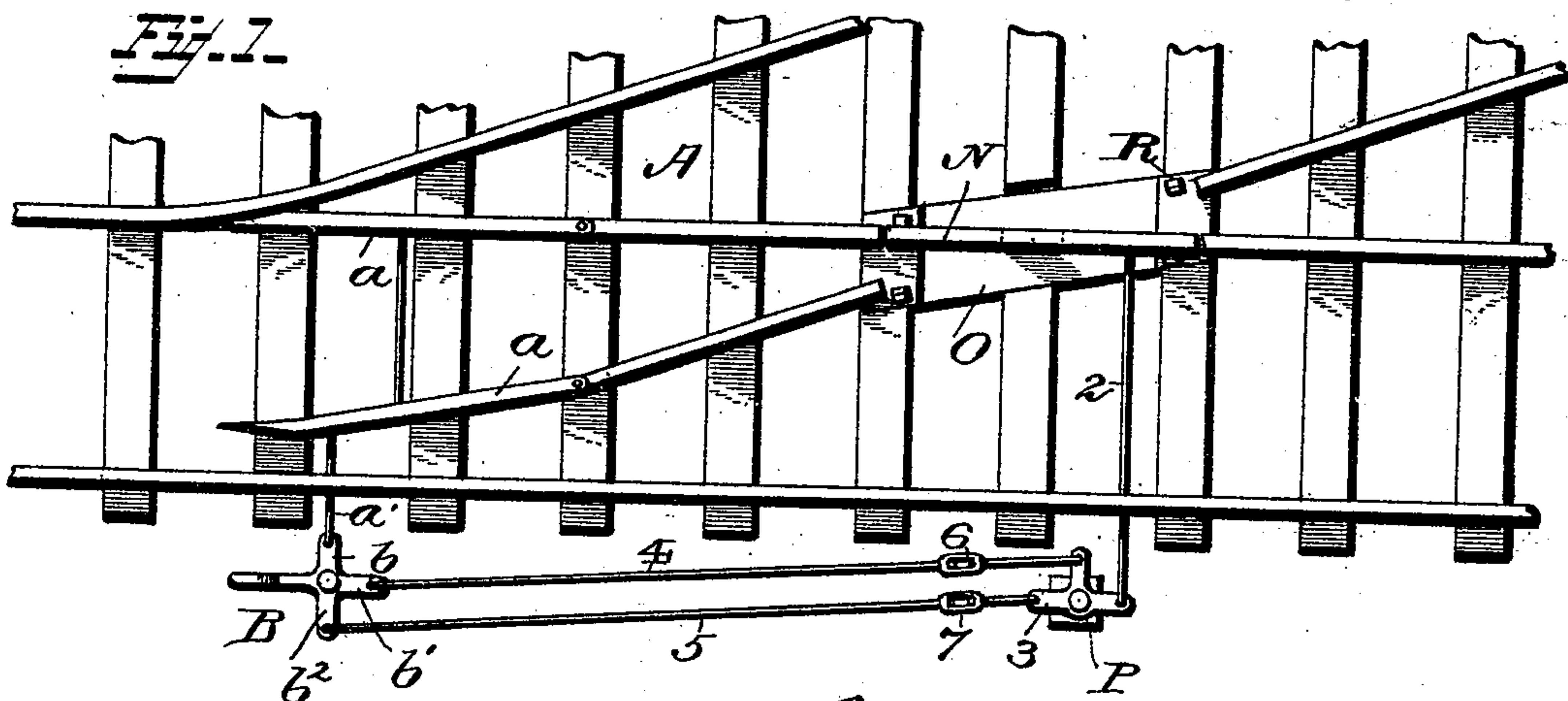


Fig. 2.

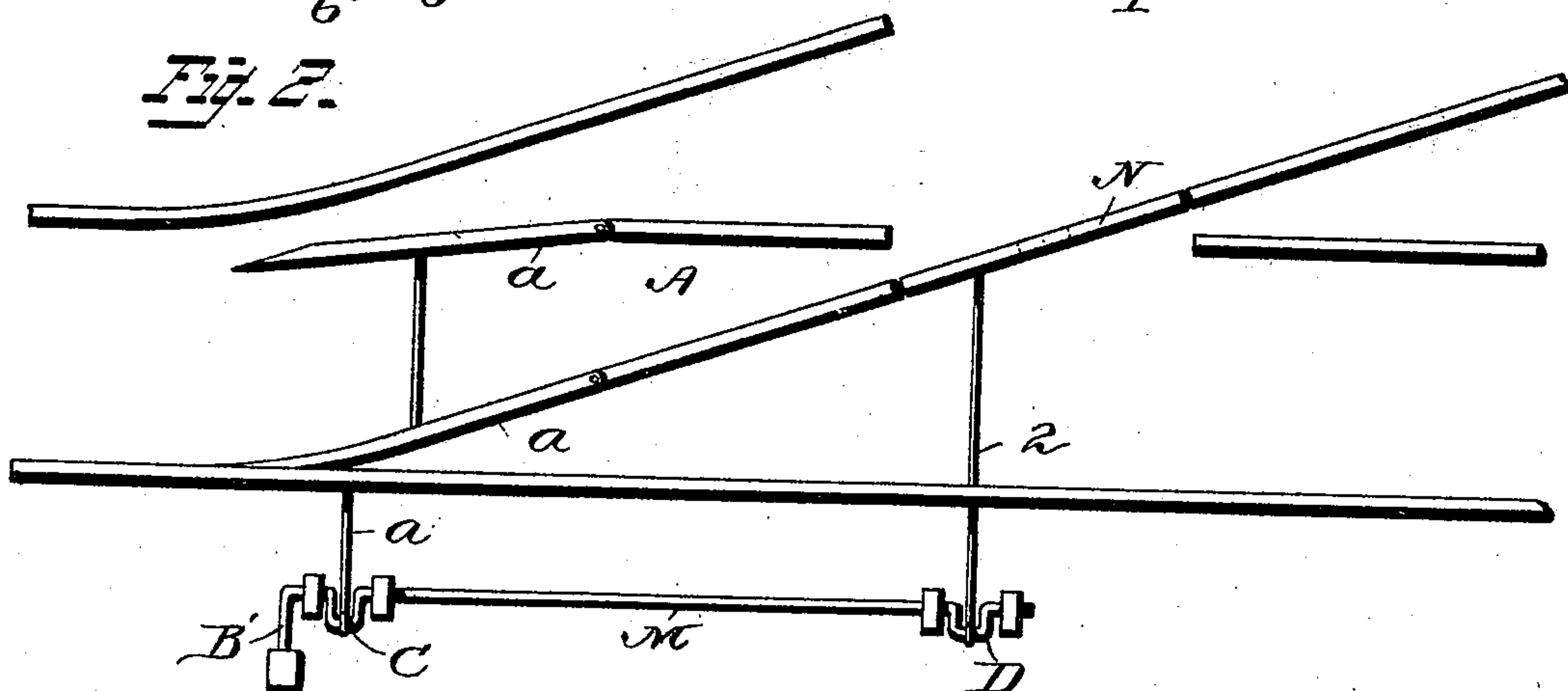


Fig. 3.

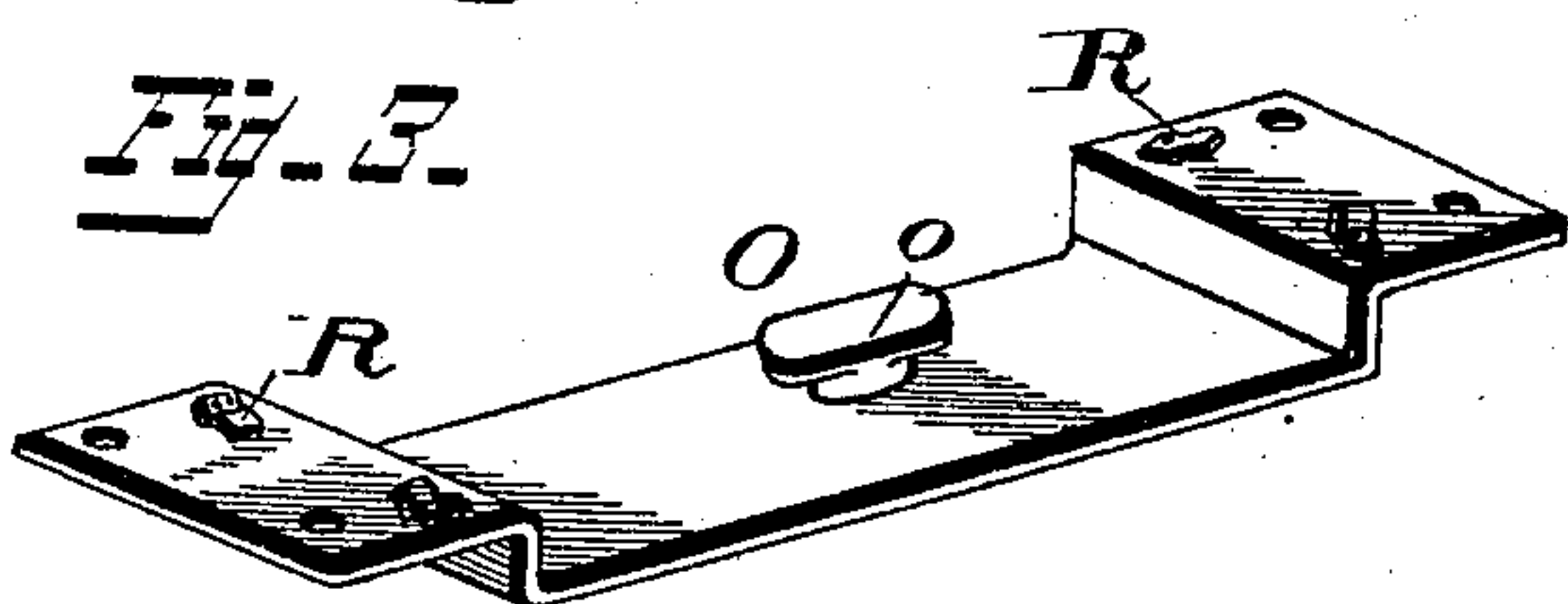


Fig. 4.

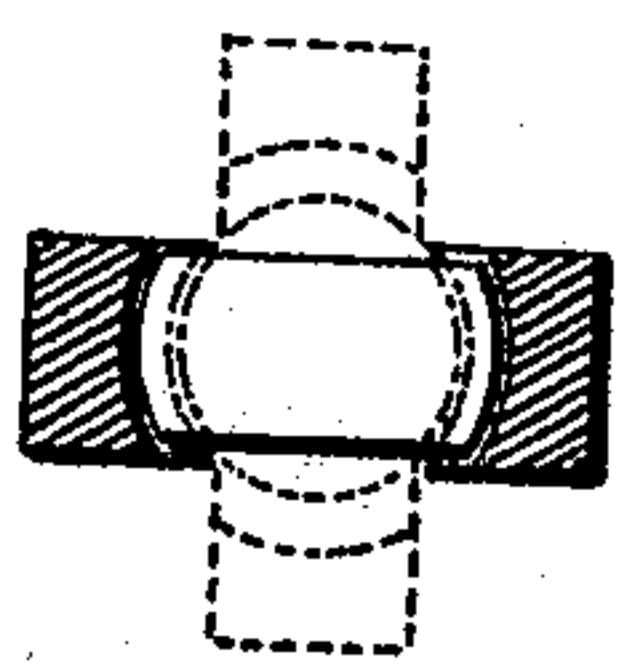


Fig. 5.

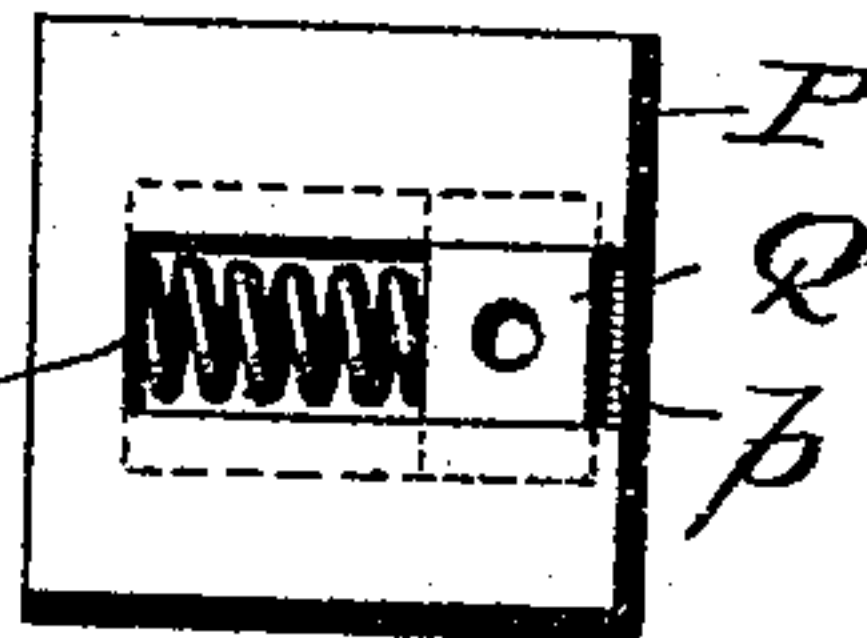


Fig. 6.

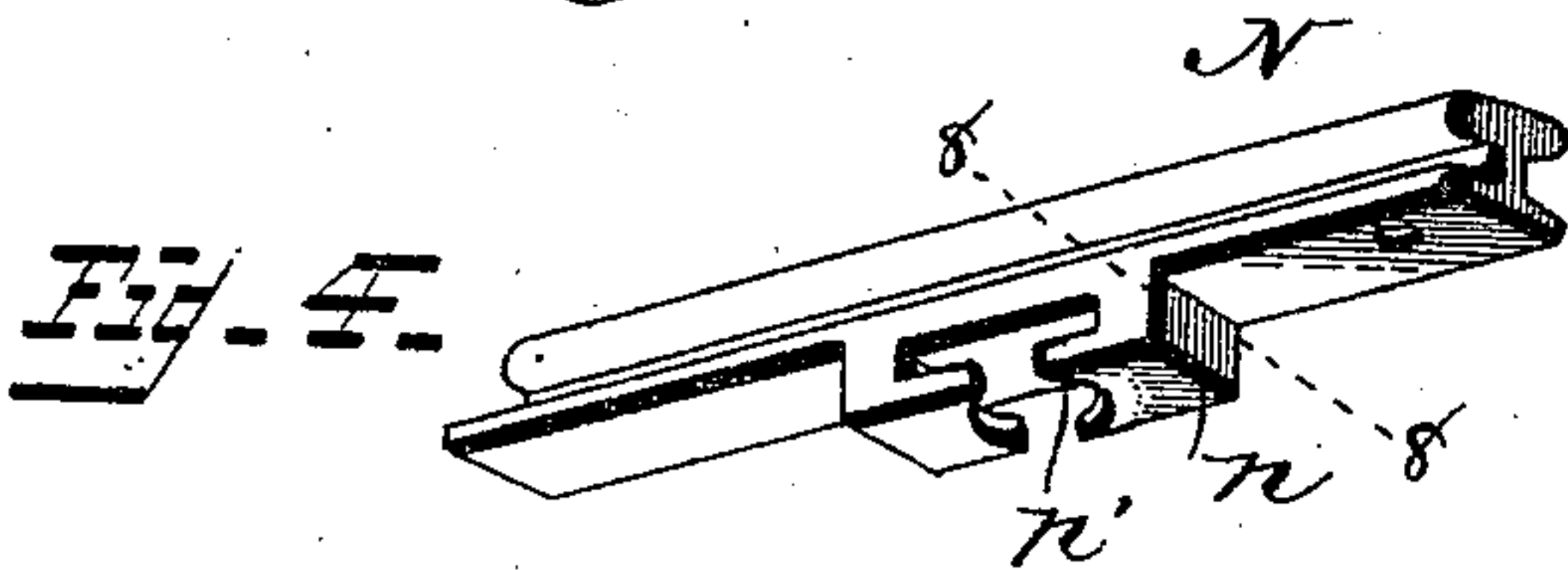


Fig. 7.

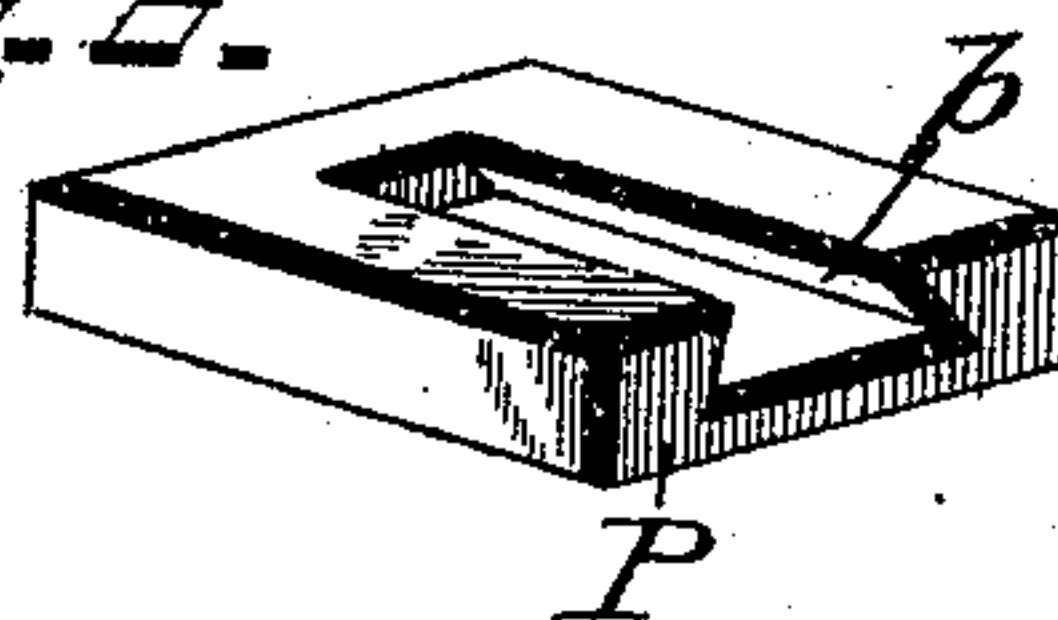


Fig. 8.



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UNITED STATES PATENT OFFICE.

FREDERICK HARDY AND LAURENCE WILLIAM McCANTS, OF BIRMINGHAM,
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RAILWAY-SWITCH.

SPECIFICATION forming part of Letters Patent No. 516,599, dated March 13, 1894.

Application filed November 22, 1892. Serial No. 452,839. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK HARDY and LAURENCE WILLIAM McCANTS, citizens of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented certain new and useful Improvements in Railway-Switches; and we do hereby 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.

The object of the present invention is to re-place the frog now used in connection with rail road switches by one of improved construction, thereby reducing the cost, obviating the pounding of the wheels which occurs in crossing the frog in general use, and enabling the frog to be readily detached from the supporting base and replaced by a new one when occasion requires.

A further object of the invention is to provide for the expansion and contraction of the operating rods by the interposition of a compensating device between the frog and the said operating rods.

The invention consists of the novel features and the peculiar construction and combination of the parts which will be hereinafter more fully described and claimed and which are shown in the annexed drawings in which—

Figure 1 is a plan view of a switch showing the application of our invention. Fig. 2 shows a modification of the instrumentalities for operating the switch and frog. Fig. 3 is a detail view of the base plate on which the frog is mounted. Fig. 4 is an inverted view of the frog. Fig. 5 is a plan view of the casting on which the compensating bell crank lever is mounted. Fig. 6 is a perspective view of said casting showing the undercut recess provided therein for the reception of the block to which the compensating lever is pivotally connected. Fig. 7 is a detail perspective view of the movable block. Fig. 8 is a horizontal section of the casting just below the bottom side of the frog and above the projection on the base, the relative position of the casting and projection when the frog is in position to be detached from or applied to the base being

shown by dotted lines, the full lines showing the parts attached.

Similar letters and figures refer to corresponding parts in the several views of the drawings.

The switch A may be of any approved form of construction and the switch rail *a* is connected with the switch lever by means of the rod *a'*.

As shown in Fig. 1 the switch lever B is provided with a series of arms *b*, *b'* and *b''* to which the various connecting rods are attached substantially as shown.

In Fig. 2 the switch lever B' is provided at one end of a shaft M which is journaled near its end and arranged to extend parallel with the main track, and which is provided near each end with crank portions C and D, respectively. In said Fig. 2 the connecting rods *a'* and 2 are attached at their outer ends to the crank portions C and D. The frog N is pivotally supported between its ends and is suitably connected with the switch lever to be simultaneously operated thereby when the switch is being actuated. This frog N is provided on its under side with a casting *n* that is provided with a recess *n'* that opens out through each edge of the casting, and which has the closed ends undercut and formed on the arc of a circle having the same radius. The base plate O is depressed between its ends and is provided in its depressed portion with a projection *o* of corresponding construction to the recess *n'* in the casting *n*. This projection *o* is constructed to interlock with the casting *n* in such a manner as to form a pivotal connection for the frog N to turn about and at the same time admit of the ready detachment of said frog from the base plate when the said frog is moved to about right angles to the length of the projection *o*. The precise manner of forming the projection *o* and the recess *n'* is immaterial so long as said projection *o* and the casting *n* mutually interlock in such a manner as to admit of the ready detachment of the frog and the turning of the same about a vertical axis. The ends of the frog will rest upon the elevated end portions of the base O, and the ends of the rails contiguous to the frog will be supported upon the said elevated end portions

of the base plate O. In Fig. 2 the frog N will be attached to the crank D by means of the connecting rod 2. Obviously, on operating the switch lever B' the switch rail *a* and the frog N will be simultaneously shifted.

Any well known means for connecting the switch rail and the frog with the switch lever may be provided without departing from the spirit of the invention so far as the frog and its connections with the base plate are involved.

In Fig. 1 a T-lever 3 is provided and has its various arms connected with the frog and corresponding arms of the switch lever B. The connecting rod 2 is attached at its end to an arm of the T-lever 3 and the remaining arms of said T-lever are connected by means of the rods 4 and 5 with corresponding arms *b* and *b'* of the switch lever B. Turn buckles 6 and 7 are provided in the rods 4 and 5 to admit of the ready adjustment of the same so that the frog N may occupy the proper relative position. The casting P having a recess *p* in its upper face which is adapted to receive a movable block Q is conveniently located to form a support for the T-lever 3. The sides of the recess *p* are undercut and the corresponding ends of the movable block Q are projected to engage with said undercut edges by means of which said block is retained in place on the casting P. A T-lever 3 is pivotally supported on the block Q. A spring *q* is interposed between the inner ends of the recess *p* and the opposing end of the block Q to force the latter out against the strain of the rods 4 and 5. This spring *q* is stout and of sufficient strength to maintain a tension on the connecting rods 4 and 5 after the parts have been properly adjusted.

In Fig. 1 the switch is shown open and the main track closed. To close the switch the

lever B is drawn out away from the track and through arm *b'* and rod 4 turns the lever 3 on its pivot and operates the frog N. The rod 5 simply follows the movement of and remains parallel with the rod 4 and assumes a position to reverse the operation and return the parts to the position shown in Fig. 1 when the switch is to be opened and the main line closed.

The base-plate O is provided with stops R, secured thereto by bolts, after placing the frog N in position; these stops are arranged to engage the lower flange of the section of rail forming the frog and to hold it in position, preventing the frog from turning over. Or, the same result may be secured by using stops S spiked to the ties on each side of the base-plate O and overlapping it a suitable distance.

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

In a switch, the combination of the switch rails *a*, frog N having depending casting *n* provided on its under side with an undercut recess to receive a corresponding projection on a plate to form a pivotal lock joint, T-levers B and 3 having one arm connected, respectively, with the said T-levers, the lever 3 being supported on a yielding support, and parallel rods 4 and 5 connecting corresponding arms of the said T-levers, substantially as described for the purpose set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FREDERICK HARDY.
LAURENCE WILLIAM McCANTS.

Witnesses:

J. W. DUKE,
M. D. ORCUTT.