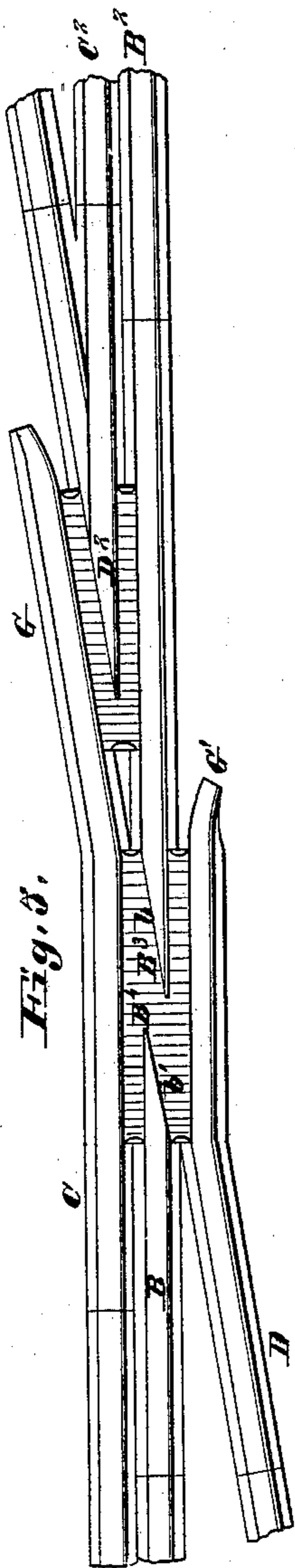


(No Model.)

H. ELLIOT.  
RAILWAY FROG.

No. 318,240.

Patented May 19, 1885.



Attest:  
Victor A. Lewis.  
Geo. S. Wheelock.

Fig. 1.

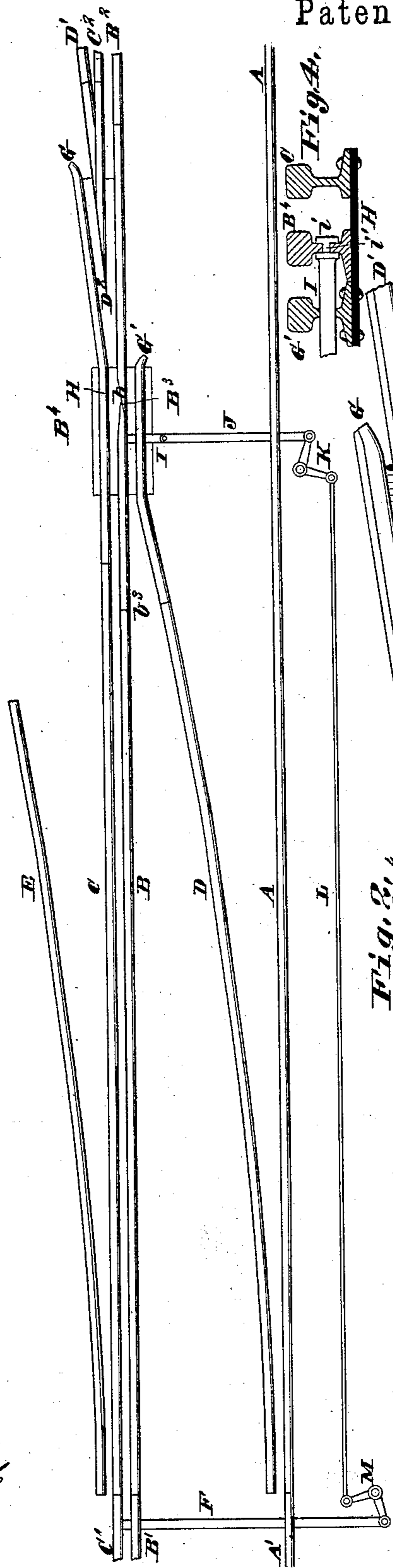


Fig. 4.

Fig. 2.

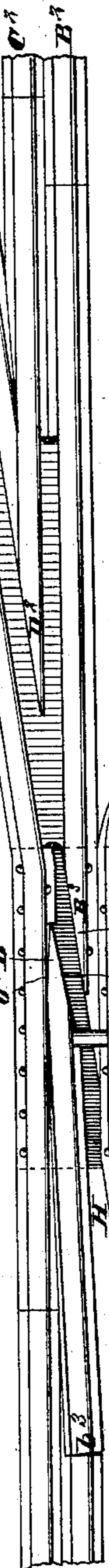
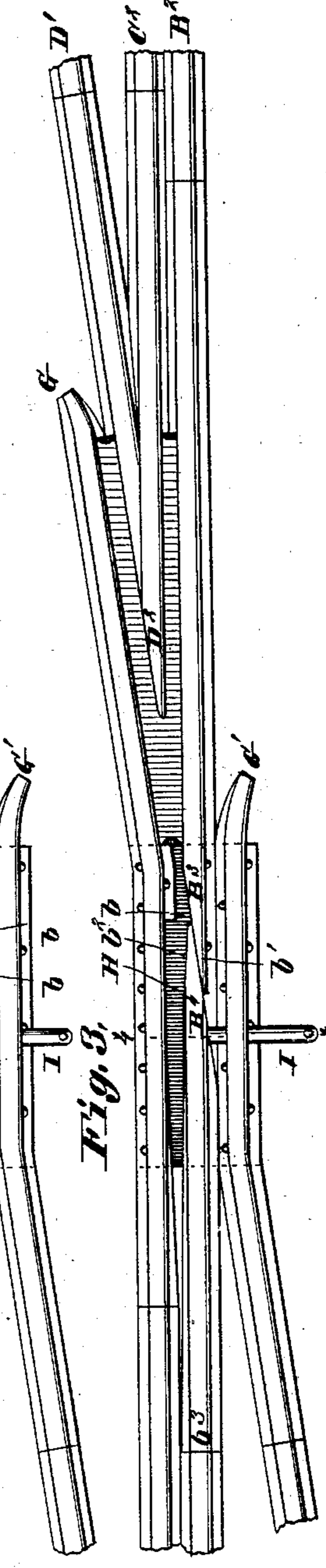


Fig. 3.



Inventor:  
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# UNITED STATES PATENT OFFICE.

HENRY ELLIOT, OF ST. LOUIS, MISSOURI.

## RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 318,240, dated May 19, 1885.

Application filed February 13, 1885. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY ELLIOT, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Railway-Frogs, of which the following is a specification, reference being had to the accompanying drawings, forming part of the same.

My improvement relates to the class of switches used where the track has more than one gage.

Figure 1 is a top view showing the improved frog in connection with a switch. Figs. 2 and 3 are top views of the frog, showing the movable tongue in its two positions. Fig. 4 is a transverse section at 4 4, Fig. 3. Fig. 5 is a top view of a switch not having the improvement, said figure being introduced to clearly indicate what is old and what is new and purpose of the improvement.

The drawings show a "left-hand three-rail frog."

The improvement will be described as applied to a track having the common gage of four feet eight and one-half inches and a five-foot gage; but of course is not confined to these gages.

For convenience the track having both the common and broad gages will be called the "main track," and that having only the broad gage will be called the "side track."

A, B, and C are the fixed rails of the main track, the rail A being common to both gages, the rail B being a common-gage rail and the rail C a broad-gage rail. The rails D and E form the broad-gage side track.

A', B', and C' are switch-rails that may form a continuation of the rails A B C of the main track, as shown, or may be moved so that the rails A' and C' are in line with the side-track rails D and E.

F is the switch-bar, to which the moving ends of the switch-rails are connected, and which may be connected to any suitable switch-stand or lever.

The rail A runs straight through without any connection with the frog. Wheels upon the rails B and C run straight through the frog onto the main-track rails B<sup>2</sup> and C<sup>2</sup> at the other end of the frog, and vice versa. A wheel on the rail D will run obliquely through the

frog onto the rail D' at the other end of the frog, and vice versa. The rails C and D end at the frog in guard-rails G and G'. The rails C<sup>2</sup> and D' end at the frog in a point, D<sup>2</sup>, whose sides are in line with the sides of the rails. The rail B<sup>2</sup> ends at the frog in a point, B<sup>3</sup>, one side of which is in line with the side of the rail, and the other side, *b*, is oblique and in line with the inner side of the rail D. This construction of frog is shown alike in Figs. 2, 3, and 5, and in the latter figure the end of the rail B (at the frog) is a fixed point, B<sup>4</sup>, one side of which is in line with the side of the rail, and the other side, *b'*, is inclined in a line parallel with the side *b*, so as to give room for the passage of the flanges of wheels running on the rail D and crossing the frog obliquely.

My improvement consists in lengthening the end portion or point B<sup>4</sup>, in making it movable, in modifying its construction and the construction of the rail C, and in connecting it with switch-lever or device for moving it to either side.

The points of novelty will now be described.

The point or tongue B<sup>4</sup> is so connected to the end of the rail at *b*<sup>3</sup> as to allow some side movement of its free end, (marked *b' b*<sup>2</sup>), which rests on the base-plate H, to which the rails C D, guard-rail G', and point B<sup>3</sup> are bolted or riveted. The point of the tongue is beveled off on both sides *b' b*<sup>2</sup>, the side *b'* fitting flatly against the side *b* of the point B<sup>3</sup>. The side *b*<sup>2</sup> is beveled off sufficiently to avoid all danger of being struck by the flange of a wheel running from the rail B<sup>2</sup> to the rail B. Sufficient of the bases of the tongue B<sup>4</sup> and the rail C in proximity to it are removed to allow the tongue to be moved out of the course of the flange of a wheel running from the rail D obliquely across the frog to the rail D'.

I is the switch-rod, passing through the web of the guard-rail G, and having a T-head, *i*, locked in the web of the tongue B<sup>4</sup>, said web having a slot, *b*<sup>4</sup>, through which the head *i* is passed, and in which it is locked by a quarter-turn. In constructing this rod I have taken an inch and a quarter round bar and turned near one end a neck, *i'*, whose length equals the thickness of the web of the tongue. The head is then cut away at both sides, leaving a head of T form. The rod I may be connect-

ed in any manner to a lever or switch-stand, by which the tongue D<sup>1</sup> may be operated. I have shown the rod I connected by a rod, J, to the bell-crank lever K, which is connected by a rod or gas-pipe, L, to a bell-crank lever, M, to which is connected the switch-bar F, the arrangement being such that when the switch-rails A' and C' are thrown in line with the side-track rails D E the tongue B<sup>1</sup> shall be thrown against the rail C and make way for the wheel-flange between the tongue B<sup>1</sup> and the point B<sup>3</sup>; whereas when the tongue B<sup>1</sup> is in contact with point B<sup>3</sup> the rails A, B, and C are in line with the switch-rails A', B', and C', respectively, and the cars of both gages run straight through the switch.

The tongue B<sup>1</sup> may, if preferred, be worked by an independent hand-lever or other independent device.

I do not confine myself to the described construction of switch-rod I; nor do I claim to be the inventor of the same.

The main purpose of my invention is to give a continuous bearing to the tread of car-wheels running straight through the frog on the rail B, tongue B<sup>1</sup>, point B<sup>3</sup>, and rail B<sup>2</sup>, in whichever direction the wheel may be running.

It will be seen by reference to Fig. 5 that there is a space between the points B<sup>3</sup> B<sup>1</sup>. Even beyond this space the thin ends of the points do not furnish adequate support, as they are mashed down by concentrated pressure of the wheels. To give the necessary support to the wheels at this place and prevent the de-

struction of the points, it has been customary to form a bearing for the flanges of the wheels; but such bearing has been found to wear away very quickly, owing to the backward slip of the flanges upon it resulting from the flange having a greater circumference than the tread of the wheel.

It will be understood that the points in ordinary frogs are protected by the support given by the guard-rails, and in a compound frog, as the present, the point D<sup>2</sup> (and in some cases B<sup>3</sup>) is so protected; but there is no space for the introduction of a guard-rail to underlie the tread of the wheel between the points B<sup>3</sup> B<sup>1</sup>, and consequently some other means must be adopted.

I have described the point B<sup>3</sup> as fixed and the point B<sup>1</sup> as movable; but the same end may be gained by reversing the conditions—that is, making the point B<sup>1</sup> fixed and B<sup>3</sup> movable. For practical reasons, however, the described construction is preferred.

I claim—

1. The combination, in a frog, of rails set to different gages and a movable tongue with device for moving the same from side to side.
2. The combination, in a frog, of the rails B C D, fixed point B<sup>3</sup>, and movable point or tongue B<sup>1</sup>, all constructed and arranged substantially as and for the purpose set forth.

HENRY ELLIOT.

Witnesses:

SAML. KNIGHT,  
BENJN. A. KNIGHT.