(No Model.)

H. ELLIOT.

SPRING RAIL FROG.

No. 474,726. Patented May 10, 1892.

Fig. I.

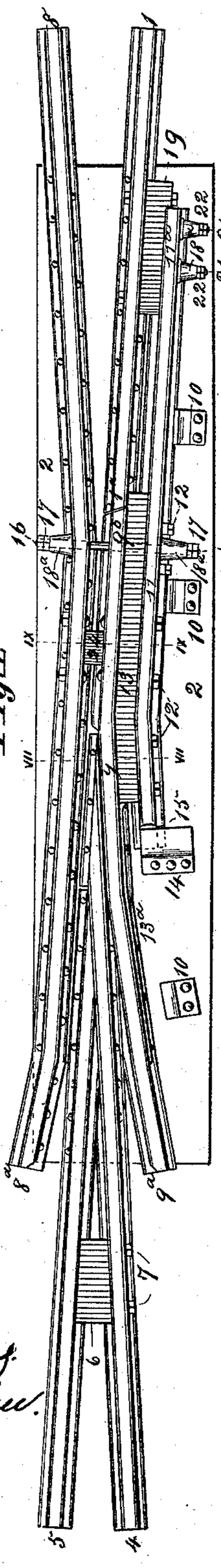

Fig. II.

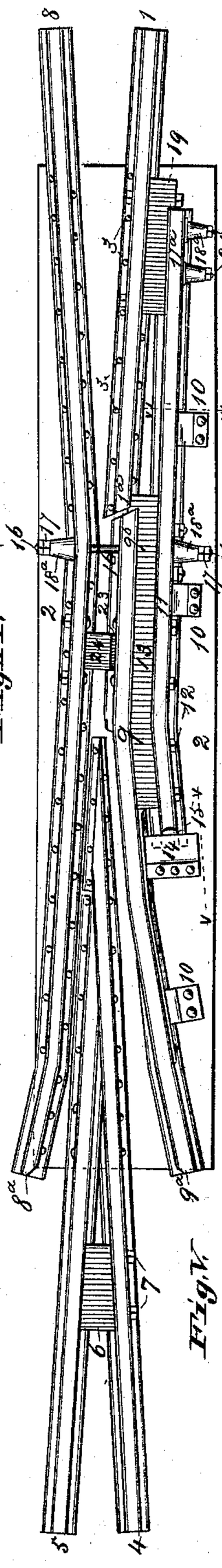

Fig. III.

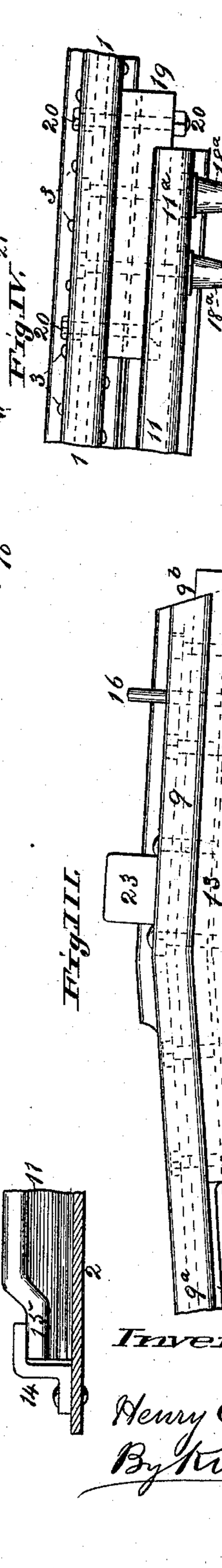

Fig. IV.

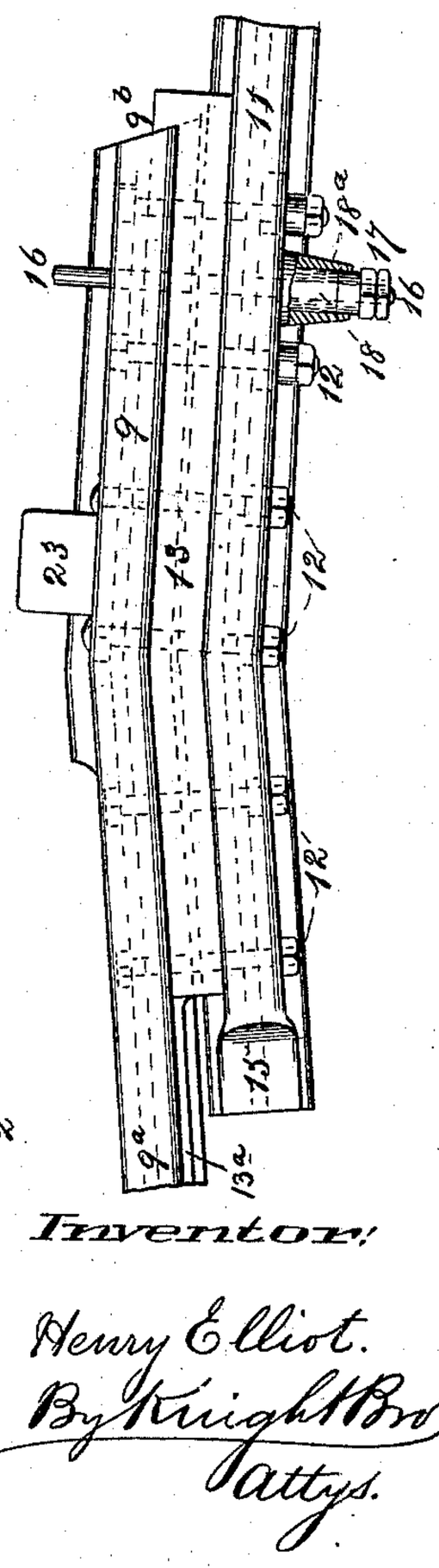

Fig. V.

Fig. VI.

Fig. VII.

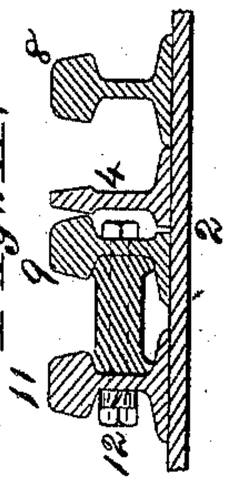

Fig. VIII.

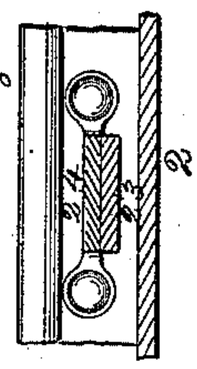

Fig. IX.

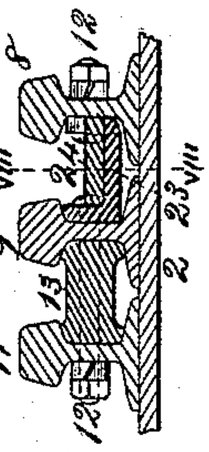

Fig. X.

Fig. XI.

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UNITED STATES PATENT OFFICE.

HENRY ELLIOT, OF EAST ST. LOUIS, ILLINOIS.

SPRING-RAIL FROG.

SPECIFICATION forming part of Letters Patent No. 474,726, dated May 10, 1892.

Application filed December 16, 1891. Serial No. 415,278. (No model.)

To all whom it may concern:

Be it known that I, HENRY ELLIOT, of East St. Louis, in the county of St. Clair and State of Illinois, have invented a certain new and useful Improvement in Spring-Rail Frogs, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This invention belongs to that class of frogs in which a movable or spring rail forms a continuous bearing between the fixed rail and the point of the frog upon a track, the spring-rail being adapted to be moved aside by the wheel-flanges of a train upon the other track. It will be assumed that the former is the main track and the latter a side track.

My improvement relates to means for preventing the endwise displacement of the moving or spring rail and for imparting stability to it.

The novel features of the invention will be set forth in the claims.

Figure I is a top view of the frog with the movable rail in normal position. Fig. II is a top view with the movable rail in its outer or open position. Fig. III is an enlarged detail top view of part of the movable rail. Fig. IV is an enlarged detail top view showing the connection between the movable rail and a part of a main rail that is bolted to the bed-plate of the frog. Fig. V is an enlarged longitudinal section taken at V V, Fig. II. Fig. VI is an enlarged transverse section taken at VI VI, Fig. II. Fig. VII is an enlarged transverse section taken at VII VII, Fig. I. Fig. VIII is a vertical longitudinal section taken at VIII VIII, Fig. IX. Fig. IX is an enlarged transverse section taken at IX IX, Fig. I.

1 is a track-rail and will be described as a main-track rail.

2 is the bed-plate of the frog. The end of the rail 1 is firmly fixed to the plate 2 by rivets 3, so that any change in their relative position is impossible. The frog-point is composed of two point-rails 4 and 5, secured together and firmly riveted to the plate 2.

6 is a filling or distance block fitting the webs of the point-rails and secured to the rails by horizontal bolts 7, running through it and the webs.

8 is the side-track rail, riveted fast to the plate 2 and ending in a guard-rail 8^a.

9 is the movable rail, which in its normal position, as seen in Fig. I, lies against the frog-point, the base of the rail being cut away sufficiently to allow the rail to take this position. This movable rail ends in a guard-rail 9^a. It is capable of sufficient transverse movement to allow a wheel-flange to pass between it and the point-rail 4—say about two inches. Its outward movement is limited by stops 10, that are adapted to bear against the web of the rail or attachments of the rail, as the case may be.

11 is a reinforce-rail, parallel in a part of its length with the rail 9 and firmly attached to it by bolts 12, running through the webs of the rails and through a filling piece or block 13, extending from web to web of the rails.

14 is a clip engaging over the free end 15 of the rail 11, the end of the rail being set down where engaged by the clip. (See Fig. V.) The clip allows free transverse movement of the rail, the stops 10 being relied upon to limit its outward movement.

16 is a bolt passing loosely through the webs of the rails 8, 9, and 11 and through the filling-piece 13 and carrying at the ends jam-nuts 17, resting against springs 18, inserted in cases 18^a. The purpose of this spring-bolt is to draw the movable rail to the frog-point and to retain it in such position, except when forced outward by the flange of a train passing between the rail and the point. The end 1^a of the main-track rail 1 and the end 9^b of the movable rail are made of a like bevel, so as to fit accurately together and form, practically, a continuous rail when the movable rail is in the normal position seen in Fig. I, thus supplying a continuous bearing for the tread of a car-wheel running on the main-track rail 1 between such rail and the frog-point. The acute angle or corner of the rail-head at the end 1^a is beveled to prevent a wheel running on the side track and toward the right butting against the corner when the movable rail is in its outer position, as seen in Fig. II. The end of the filling-piece 13 preferably extends

somewhat past the meeting ends 1^a and 9^b, so as to hold the ends in alignment against the force of the springs 18. The end 11^a of the reinforce-rail is so connected to the rail 1 as to allow the required movement of the rail 9 to and from the frog-point. This connection will now be described.

19 is a filling or distance block fitting the webs of the rail 1 and the end 11^a of the rail 11 and fixed to the rail 1 by transverse bolts 20. The end 11^a is held to the block 19 by bolts 21, that pass transversely through the rails and the block and carry at the ends nuts 22, that bear against springs, whose inner ends bear against the web of the rail end 11^a. These springs may be similar to the springs 18 and have similar cases 18^a.

The moving rail 9 and reinforce-rail 11 slide transversely on the bed-plate 2 and are held down by the clip 14. The side pressure of the wheel-flange against the head of the rail 9 tends to roll the rail upon its base, and the means for resisting this action of the wheel will now be described.

23 is a flat block or plate fixed to the inner side of the moving rail by two of the bolts 12 and projecting horizontally beneath a similar block or plate 24, attached and firmly bolted to the inner side of the rail 8. The top of the plate 23 is in contact with the bottom of the plate 24 and slides beneath it as the moving rail slides outward and inward.

The addition of the reinforce-rail 11 gives steadiness of movement to the moving rail, owing to the broad bearing upon the plate. The reinforce and filling-piece also give strength to the rail at the point most needed. It will also be seen that it is not possible for any of the parts to be deranged, as the frog-point and both track-rails are firmly pivoted to the base-plate, and the connection of the rail 11 to the fixed end of the rail 1 is such as to allow the required movement, but to preclude all endwise movement of the moving rail 9.

13^a is a reduced continuation of the filling-block bolted to the web of the outturned end 11^a of the rail 11 to give strength to it.

I claim herein as new and of my invention—

1. In a spring-frog, the combination of a base-plate, track-rails 1 and 8, and frog-point fixed to the plate, a moving rail forming in normal position a continuation of the rail 1 and adapted to move to and from the frog-point, a reinforce-rail 11, fixed to the moving rail and having hinge connection with the fixed rail 1, and a spring adapted to force the moving rail to the frog-point.

2. The moving rail 9 of a spring-frog, having an end 9^b, fitting the end 1^a of a track-rail 1 and forming a continuation of the rail 1, a base-plate 2, on which the moving rail slides and to which the end of the rail 1 is fixed, and a rail 11, fixed to the moving rail and having hinge connection to the fixed rail 1, substantially as set forth.

3. The combination, in a spring-frog, of a base-plate, a moving rail abutting at the end upon the end of a track-rail firmly secured to the base-plate, and a reinforce-rail 11, attached firmly to the moving rail and having hinge connection at 21 to the fixed rail, substantially as set forth.

4. The combination, in a spring-frog, of the base-plate, the track-rails 1 and 8, and frog-point, all firmly fixed to the plate, the moving rail 9, abutting at the end against the end of the track-rail 1, the reinforce-rail 11, fixed to the moving rail and connected to the track-rail 1 by a hinge at 21, and a stop, as 10, limiting the outward movement of the moving rail.

5. The combination, in a spring-frog, of a base-plate, the track-rail 1, firmly fixed to the plate and having its end 1^a beveled, the moving rail 9, having its end 9^b beveled to fit the rail 1 and in line with the rail 1, rail 11, firmly fixed to the moving rail and having a hinge connection with the rail 1, the frog-point firmly fixed to the base-plate, and a spring forcing the moving rail to the frog-point.

6. The combination, in a spring-frog, of the plate, the moving rail 9, having a projecting plate 23, and the fixed rail 8, having a plate 24 above the plate 23, substantially as and for the purpose set forth.

7. The combination, in a spring-frog, of the base-plate, the rail 1, extending onto the base-plate and fixed to the plate, a moving rail 9, abutting end to end on the rail 1 when in normal position, a rail 11, and filling-piece 13, fixed to the side of the moving rail and extending past the abutting ends of the rails 1 and 9 and connected with the rail 1 by a filling-block 9 and a hinge at 21, substantially as set forth.

HENRY ELLIOT.

Witnesses:
SAML. KNIGHT,
BENJN. A. KNIGHT.