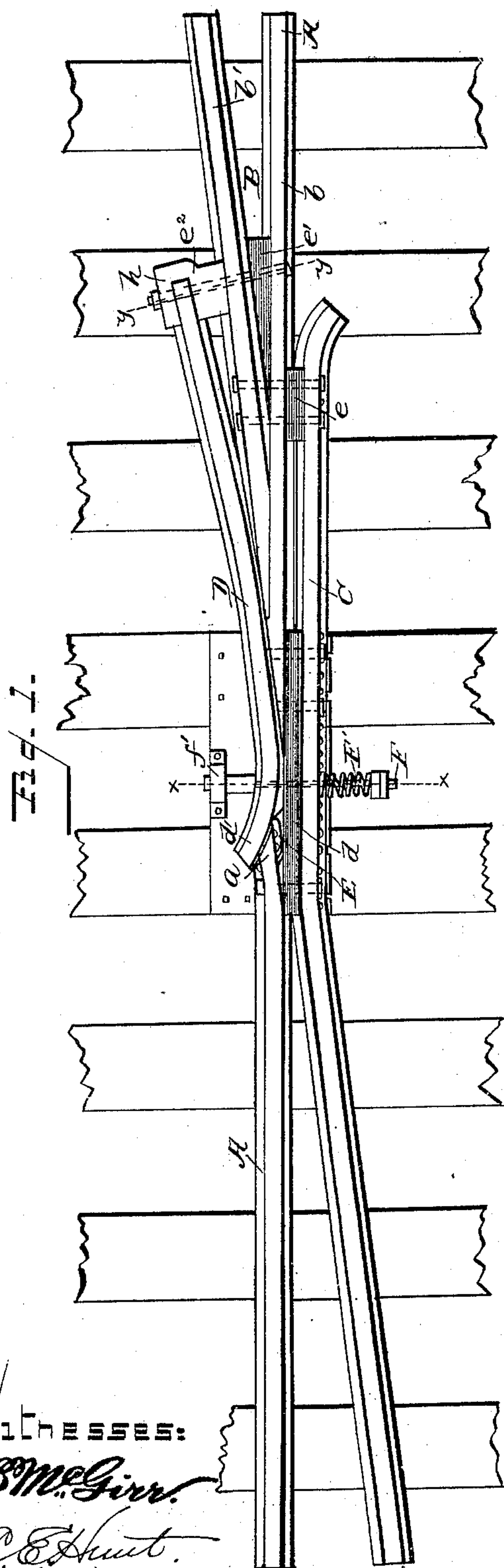


(No Model.)

D. F. VAUGHAN.
RAILWAY FROG.

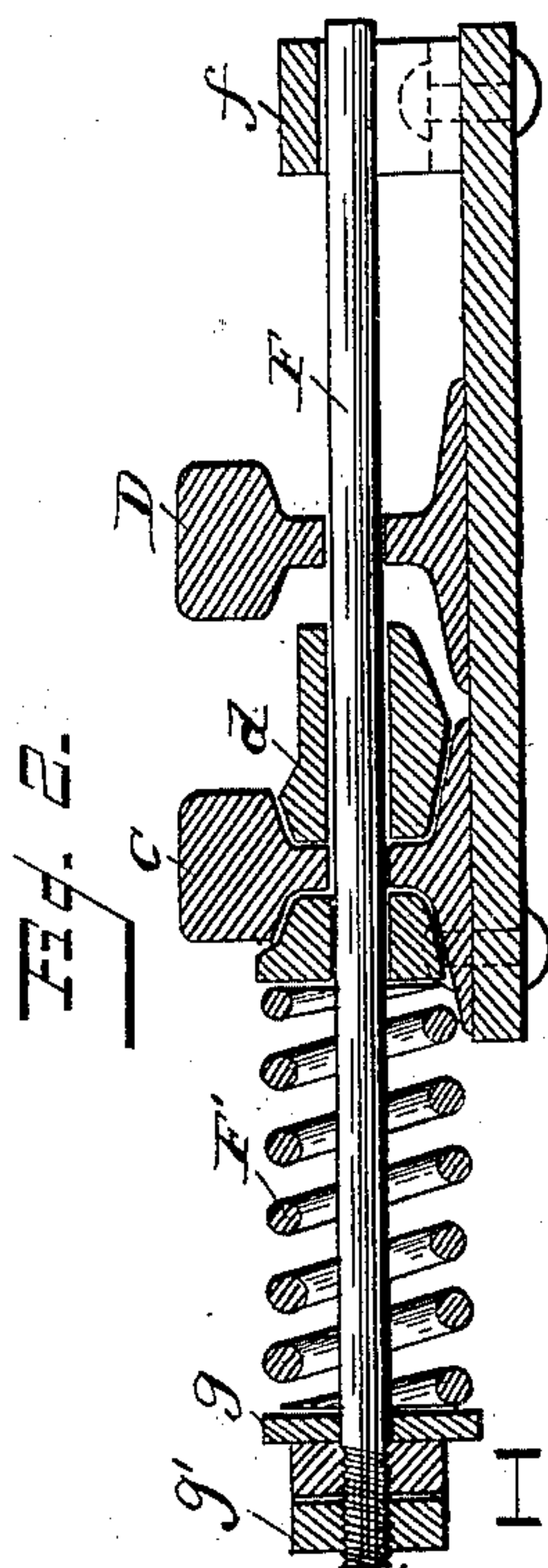
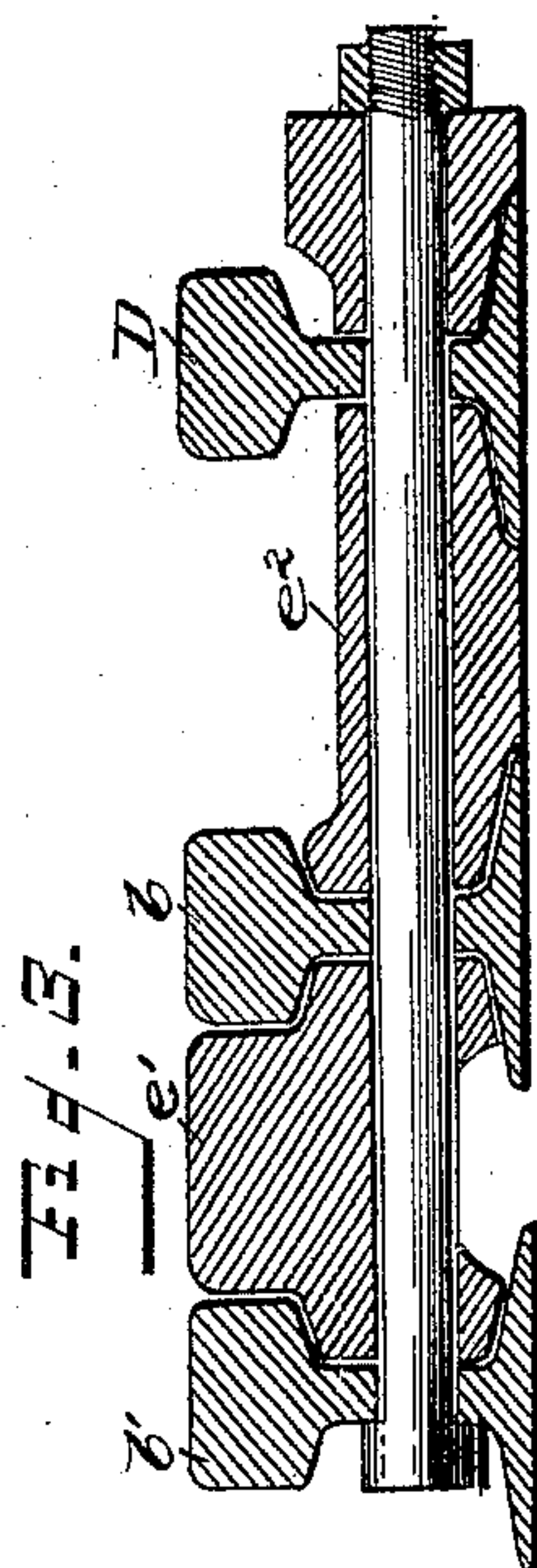
No. 474,200.

Patented May 3, 1892.



Witnesses:

J. M. Ginn.
C. E. Hunt.



Inventor:

David F. Vaughan
By his Attorneys,
Edson Bros

UNITED STATES PATENT OFFICE.

DAVID F. VAUGHAN, OF HADDONFIELD, NEW JERSEY, ASSIGNOR OF ONE-HALF TO McLEOD W. THOMSON, OF ALTOONA, PENNSYLVANIA.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 474,200, dated May 3, 1892.

Application filed October 7, 1891. Serial No. 408,013. (No model.)

To all whom it may concern:

Be it known that I, DAVID F. VAUGHAN, a citizen of the United States of America, residing at Haddonfield, in the county of Camden and State of New Jersey, have invented certain new and useful Improvements in Railway-Frogs; and I 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.

My invention relates to improvements in railway-track frogs of that class known to those skilled in the art as "spring-rail" frogs, which will be hereinafter fully described and pointed out.

The object of the present improvement is to combine in a practical and substantial form the safety of an ordinary stiff frog with the wearing and smooth-riding qualities of a spring-frog without the attendant danger of derailment, which is liable to occur with a spring-frog.

In the ordinary spring-rail frog the spring-rail is so arranged that the greater part thereof is utilized as a part of the main-track rail, and as this spring-rail is necessarily movable to permit the wheels to pass to and from the siding it sometimes occurs that said spring-rail is displaced by passing wheels riding on the main-track rails, causing derailment of the train with disastrous results.

To overcome these objections and attain the ends of my invention, I fasten the point and wing rails of the frog rigidly in place on the ties similar to the ordinary stiff frog and cut off a part of one of the wing-rails a short distance in advance of the frog-point in a manner to form a channel or way for the passing of the wheel-flanges in going over the frog to or from the side track, and to close this channel or way and make the main track continuous I combine with the stiff frog a spring-rail which is fixed or secured at one end outside of the body of the frog and has its inner end curved to fit into the channel or way so that the same is closed, and said end of the spring-rail is capable of use for wheel travel over the main-track rails. This construction of railway-frog possesses the safety of the ordinary stiff frog, as a very small part of the

spring-rail is used for wheel travel and is not therefore liable to become displaced, and at the same time the smooth riding and wearing qualities of a spring-frog are secured without liability of derailment to a train. If through any cause the spring-rail should become displaced, the gap or channel between the rigid point and wing-rails of the frog-body is not of sufficient width or extent to cause trouble and no derailment would follow, the parts being so proportioned and arranged as to leave only sufficient passage for wheel-flanges.

The invention further consists in the novel combination, construction, and arrangement of parts, which will be fully pointed out hereinafter.

The accompanying drawings illustrate my invention, in which—

Figure 1 is a plan view; Fig. 2, a vertical cross-section through the frog close to the point thereof on the plane indicated by the dotted lines *xx* of Fig. 1, and Fig. 3 is a vertical cross-section on the line *yy* of Fig. 1.

Like letters of reference denote corresponding parts in the several figures of the drawings.

A designates the main-track rail. B is the body of the frog consisting of the two-point rails *b b'*.

C is a fixed wing-rail, and D is the spring-rail, which is arranged and secured outside of the body of the frog and out of the line of wheel travel on both the main track and siding, except at its inner end, which fits in the way between the frog-point and the end of the main-line rail A. As is usual in stiff frogs, the point-rail *b* is arranged in line with the main-track rail A, and the other point-rail *b'* is inclined at an angle, so as to form a continuation of the wing-rail C, the meeting ends of the rails *b b'* forming a frog-point of any approved pattern. The wing-rail C is bent or deflected alongside of the main-track rail, the spring-rail, and the point B, so as to form a guard-rail at the point of the frog, as is usual.

One of the important parts of my improvement consists in securing all the rails, except the spring-rail, fixedly in place on the ties, which can be effected in any suitable way, after the manner of securing the "legs" of a stiff frog, and in the drawings I have shown

the filling-block *d* between the main track and point-rails at the point of the frog, a similar filling-block *e* between the point-rail *b'* and the guard-rail of the wing-rail, and a third filling-block *e'* between the two-point rails *b b'*, the rails and filling-blocks being suitably secured by transverse bolts.

Instead of extending the end of the main-track rail to and beyond the point of the frog, as is usual in spring-rail frogs, I cut the end of said rail off so that it terminates in advance of the point, and the end of said rail *A* is inclined or deflected, as at *a*, and the inner side of said deflected end is beveled or inclined, the rail *A* being arranged in such juxtaposition to the point as to leave a channel or way *E* between the terminal of rail *A* and the point for the passage of the flanges on the wheels when coming to or from the siding.

The spring-rail *D* is arranged and secured, except a small part of its inner end, wholly outside of the body of the frog and the line of wheel travel on the siding and main-track rails, and this rail *D* is inclined at such an angle to the point-rail *b'* as to lap against the same for a considerable portion of its length, the inner end of said rail *D* being curved or bent at *d'*, so as to fit in the channel or gap *E* and lie close to the outwardly-deflected end *a* of rail *A*, the inner end of the spring-rail thus filling the gap or channel *E* and affording, practically, a continuous rail along *A*, *d'*, and *b* of the frog for wheel travel. The spring-rail is held normally against the rails *A b'* to close the channel by means of the spring-rod *F*, which passes through the webs of the rails *C D* and a guide *f'*, and on this rod is fitted a coiled tension-spring *F'*, which bears against the rail *C* and a washer *g*, interposed between the other end of the spring and the nuts *g'*.

As shown, the spring-rail *D* is secured rigidly in place at its outer end to a chair *h* or its equivalent, which lies in rear of the frog-point; but although this arrangement is desirable, as it enables the spring-rail to lap the point-rail *b'*, yet I do not wish to strictly confine myself to this specific disposition of the

spring-rail, as it can be reversed and secured in advance of the frog-point by bending the inner end of the spring-rail somewhat differently.

In operation the spring-rail is normally held against the rails *A b'*, and its inner end presents a continuation of the rails *A b* for the continuous travel of wheels on the main track; but in crossing the frog, either in going onto the siding or coming from the same, the wheel-flanges ride against the inner side of the spring-rail *D* and move the latter sufficiently to permit the wheel-flanges to pass between the spring-rail and the point-rail *b'*, after which the spring instantly returns the spring-rail to its normal position.

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

1. A railway-frog having the stiff point-rails, the stiff wing-rail, the main-track rail *A*, having its end terminating in advance of the frog-point and forming the channel or way between said frog-point and the end of the main-track rail, and a spring-rail secured at one end outside of the line of wheel travel and having its inner end curved and fitting in the channel or way between the rail *A* and the frog-point, substantially as described.

2. In a railway-frog, the combination, with the stiff point-rails and the wing-rail, of the main-track rail having the deflected beveled inner end terminating in advance of the frog-point and forming the channel or way between said point and rail, the spring-rail *D*, secured at one end outside of the line of wheel travel and having its inner end deflected or bent and fitting in the channel or way between the frog-point and main rail, and means to hold the spring-rail in position, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

DAVID F. VAUGHAN.

Witnesses:

P. E. TURNER,
J. E. SHIVERS.