

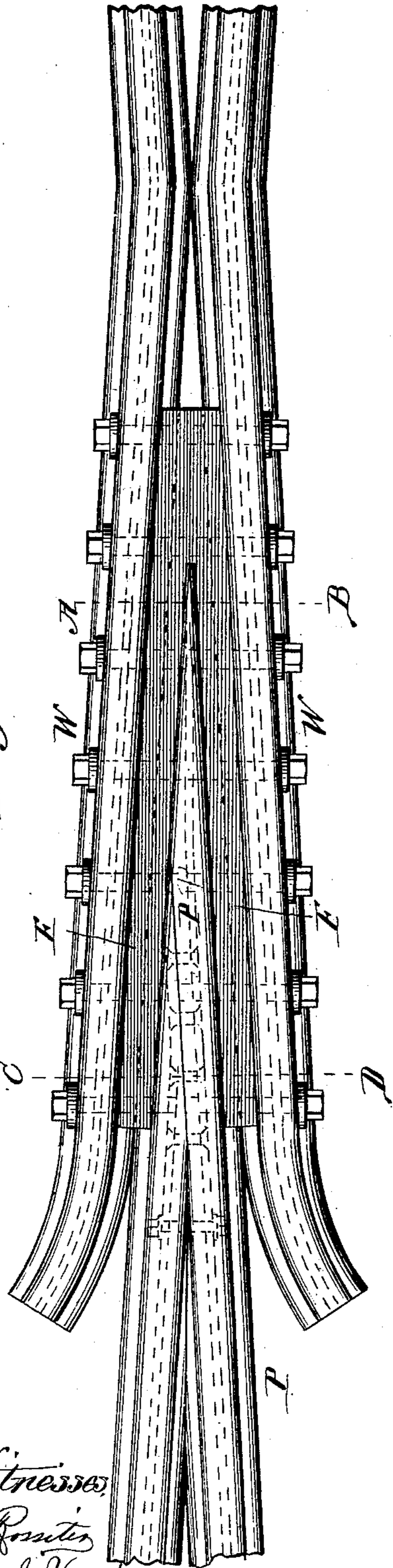
(No Model.)

T. A. GRIFFIN.  
FROG.

No. 360,683.

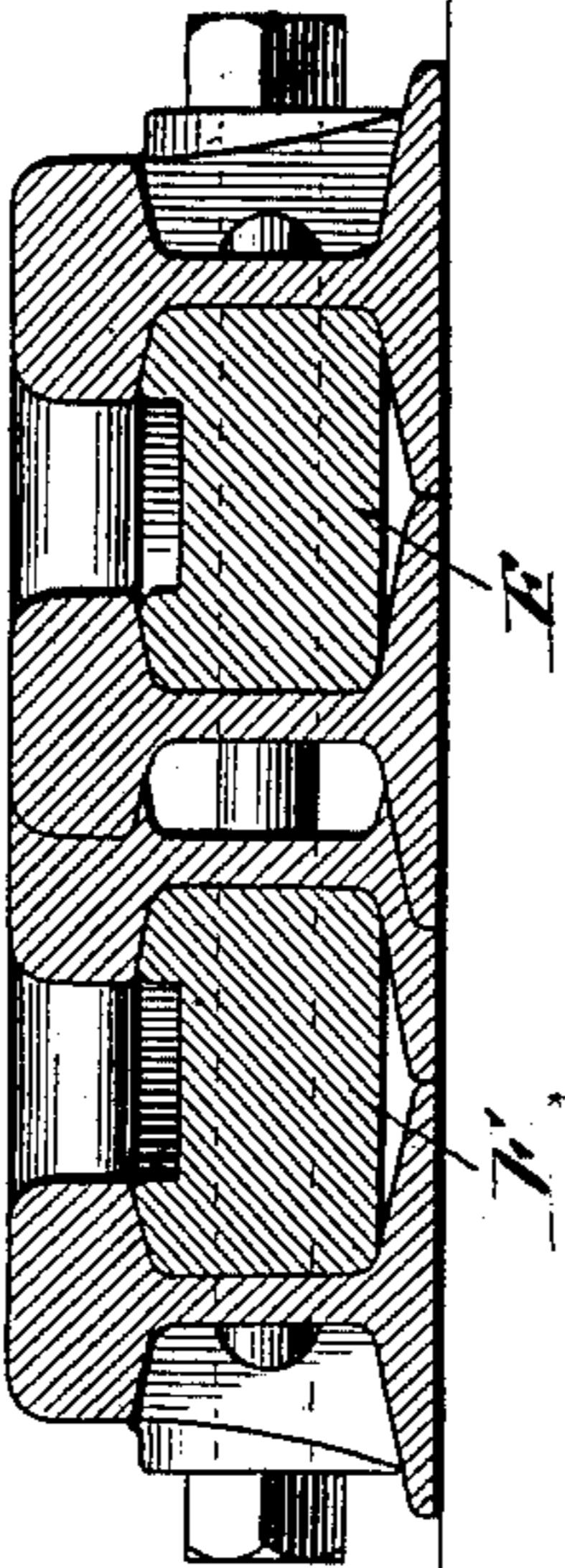
Patented Apr. 5, 1887.

*Fig. 1.*

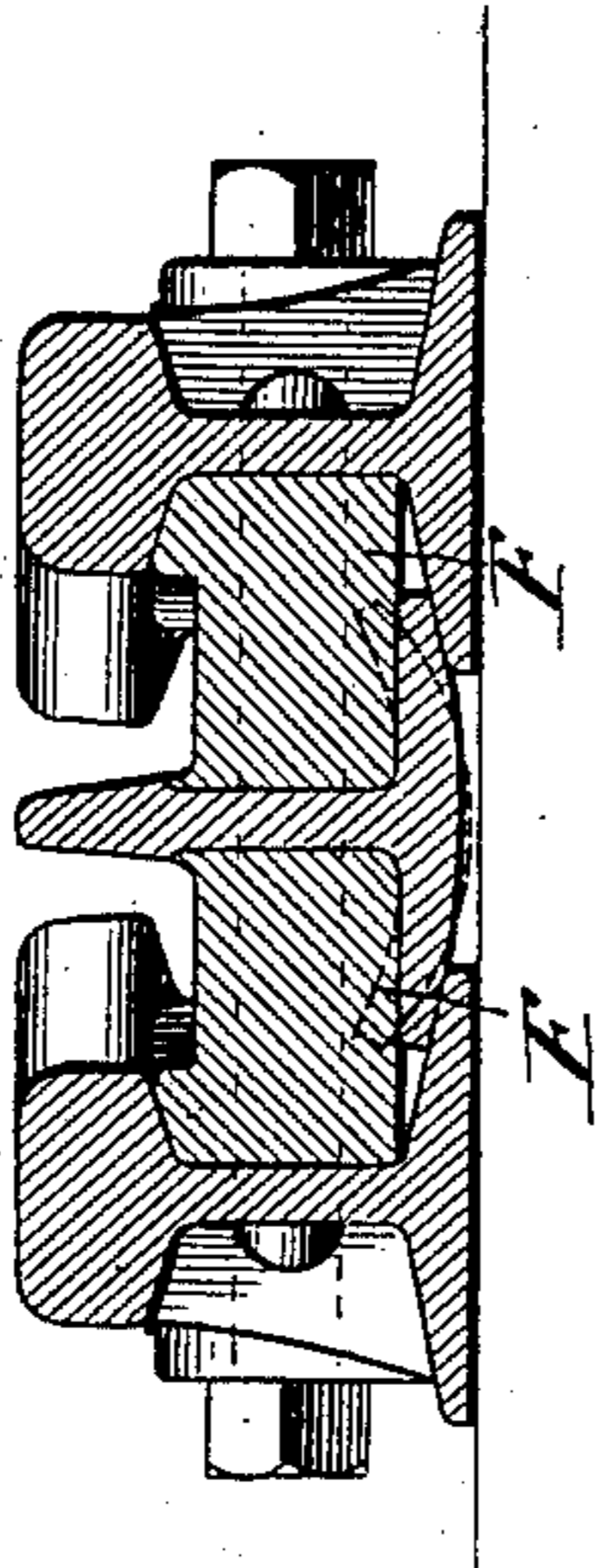


Witnesses  
W. Roster  
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*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



Inventor  
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# UNITED STATES PATENT OFFICE.

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## FROG.

SPECIFICATION forming part of Letters Patent No. 360,683, dated April 5, 1887.

Application filed January 7, 1887. Serial No. 223,646. (No model.)

*To all whom it may concern:*

Be it known that I, THOMAS A. GRIFFIN, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Frogs for Railways, of which the following is a full specification.

My invention relates to frogs built of rail-sections; and it consists, first, in a point-rail of peculiar shape as to its flange, which still substantially conforms to the shape of the upper surfaces of the flanges of the wing-rails; and, second, in such a point-rail made of a rail-section originally of the full height of the wing-rails and upset as to its web, as and for the purposes hereinafter fully set forth.

In the drawings, Figure 1 is a plan view of the frog; Fig. 2, a cross-section at line C D; Fig. 3, a section at line A B, and Fig. 4 shows the point-rail in the first stage of manufacture.

P is the point-rail, and W W are the wing-rails. F is the filling of the ordinary type.

It will be seen by reference to Fig. 3 that the shape adopted for the flanges of the point-rail where it rests on the wing-rails is approximately the arc of a circle.

The result of the peculiar shape adopted for the flanges of the point-rail is that no die forging or swaging is necessary for bringing said flanges to the proper form; but in lieu thereof the web of the point-rail, if of the same height as the wing-rails, is upset by an amount equal to the thickness of the lateral extremities of the flanges of the wing-rails; or, in lieu of so upsetting the web of the point-rail, a rail of correspondingly-smaller height may be used in making the frog-point.

The process of making my improved point-rail so as to embody both features of my invention may be as follows: First heat the flange and web only of the rail, so that the head will not be altered in shape by subsequent operations. Then raise the flange by thickening the web by concussion or pressure applied upon the head of the rail, thus raising the flange by an amount about equal to the thickness of the edge of the flanges of the wing-rails and for a longitudinal distance equal at least to the length of the intended bearing on the wing-rails. Fig. 4 shows the rail at this stage. Then place the point-rail in position

between the wing-rails of the frog (or more conveniently between a pair of short rail-sections, which are duplicates for the wing-rails in section and in inclination to each other) and by pressure or concussion on the head give the desired shape, as shown, to the flange-base, (approximating the arc of a circle and without angular offsets,) and thus finally bringing the head of the point-rail level, or nearly so, with the heads of the wing-rails. A block or filling-piece of the desired thickness may be used under the base of the point-rail in line with the web. It has hereinbefore been said that, in lieu of upsetting the web, a rail of less height may be used for the point; but one of these expedients is necessary, the result of the omission of the upsetting when using a point-rail of full height being shown by dotted lines in Fig. 3.

It is my practice to use in constructing this point-rail a section of rail of the full height of the wing-rails and to upset the same, as above described, thereby strengthening the web of the point-rail and avoiding the weakening of the flanges by drawing out or abruptly curving them. A point-rail so shaped and so strengthened and made of a rail originally the full size of the wing-rails possesses manifest superiorities over all other point-rails not necessary to be specified. The rail is thus made to conform precisely to the foundation upon which it is to rest in the best and most expeditious manner, and all the advantages of solidity and unity of all parts of the frog arising from the resting of the point-rail on the wing-rails is attained. It is of course understood that the remainder of the fitting and the planing of the point-rail is to be performed in the ordinary way after the shaping of the flange, as before described.

I do not claim, broadly, the shaping of the point-rail so as to rest upon the flanges of the side or wing rails, as that has heretofore been done in various ways; but

I claim as my invention--

1. In a railroad-frog, the point-rail constructed of a rail-section of less height than the wing-rail and having its flange-base curved approximately to the arc of a circle, the extremities of which fit upon the flanges of the wing-

rails, substantially as and in the manner described.

2. In a railroad-frog, the point-rail constructed of a section of rail of the full height  
5 and size of the wing-rails, having its flange-base curved approximately to the arc of a circle and fitting upon the flanges of the main

rails, and upset as to its web to correspond with the height of the wing-rails, substantially as set forth.

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Witnesses:

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