

No. 713,547.

G. W. WHITEMAN.
RAILWAY FROG.

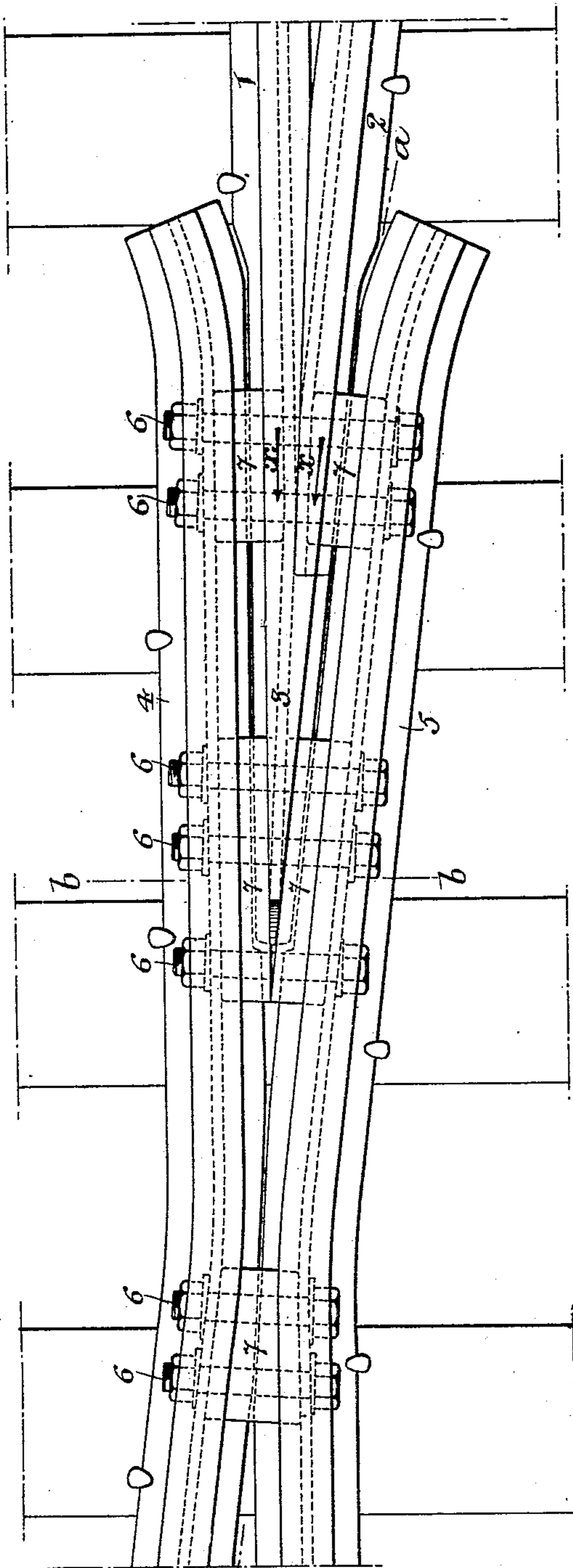
(Application filed Jan. 29, 1902.)

Patented Nov. 11, 1902.

(No Model.)

2 Sheets—Sheet 1.

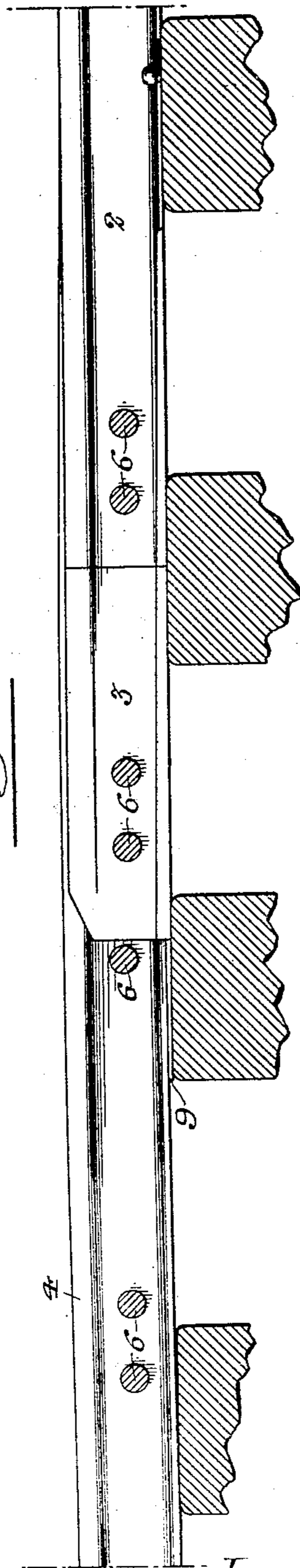
Fig. 1.



Witnesses:-

Frank L. Abraham.
Herman E. Metcalf.

Fig. 2.



Inventor:

George W. Whiteman,
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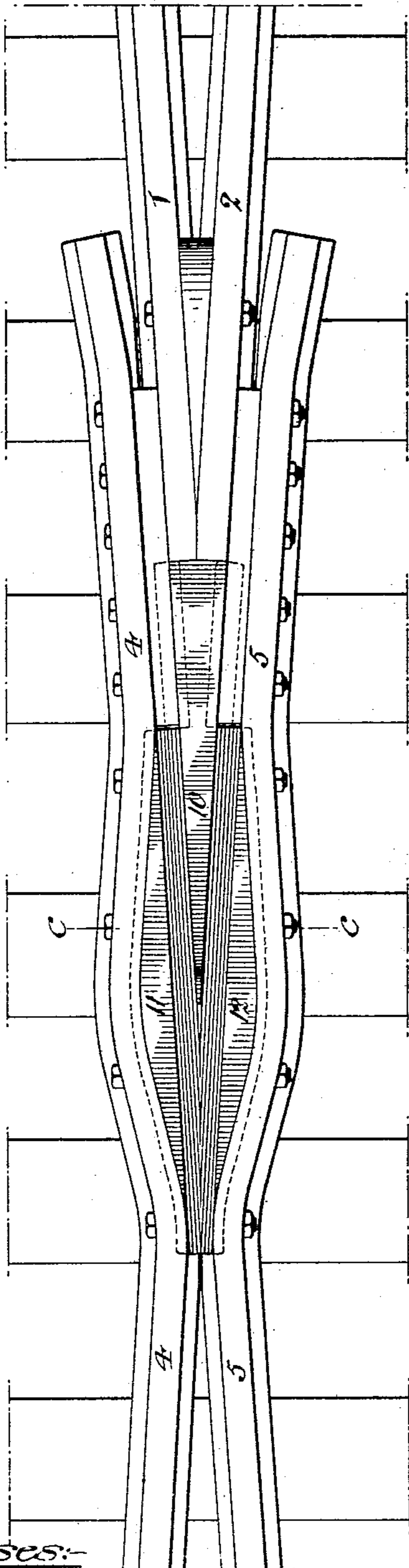
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(No Model.)

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Fig. 4.



Witnesses:

Frank L. Graham
Herman E. Mettles.

Fig. 5.

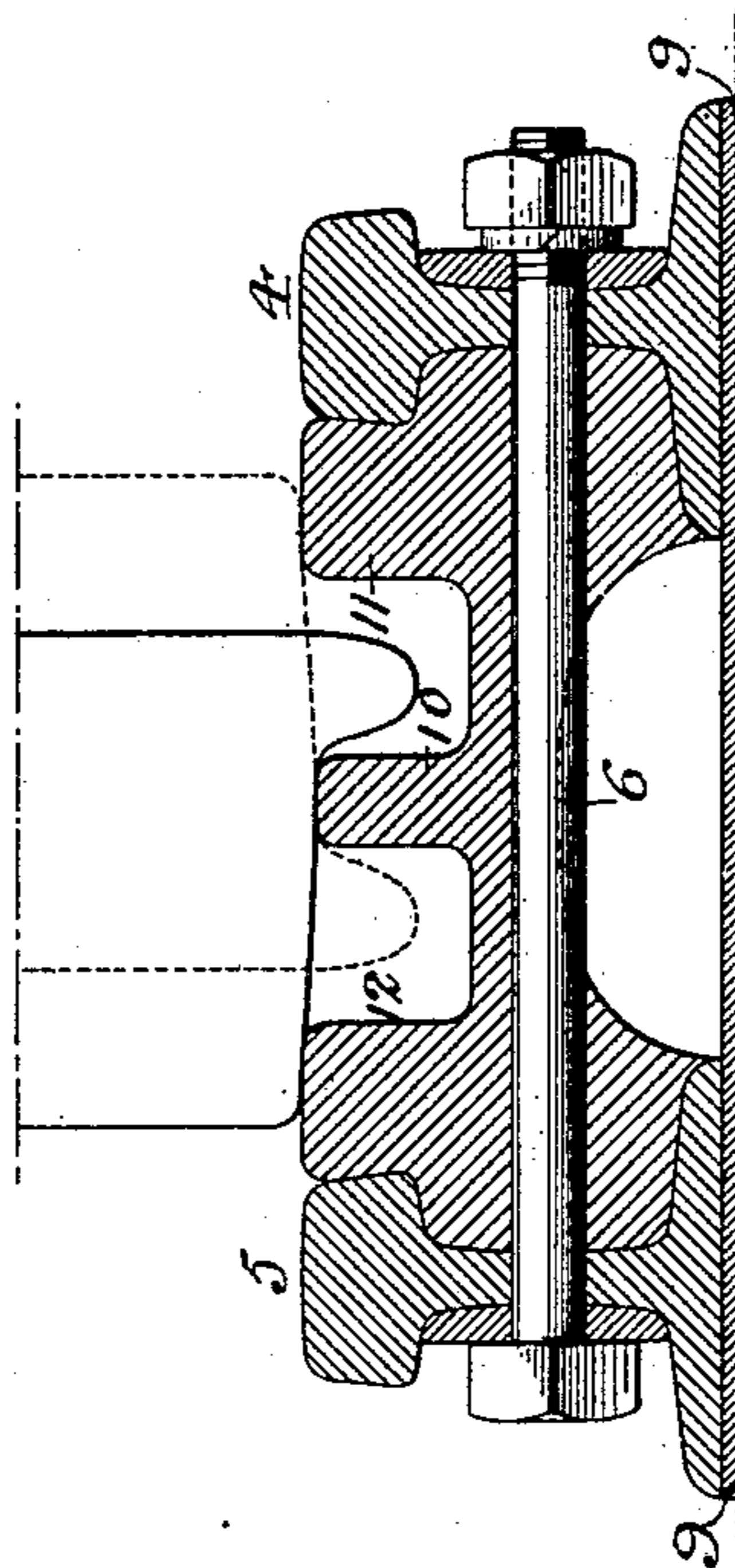
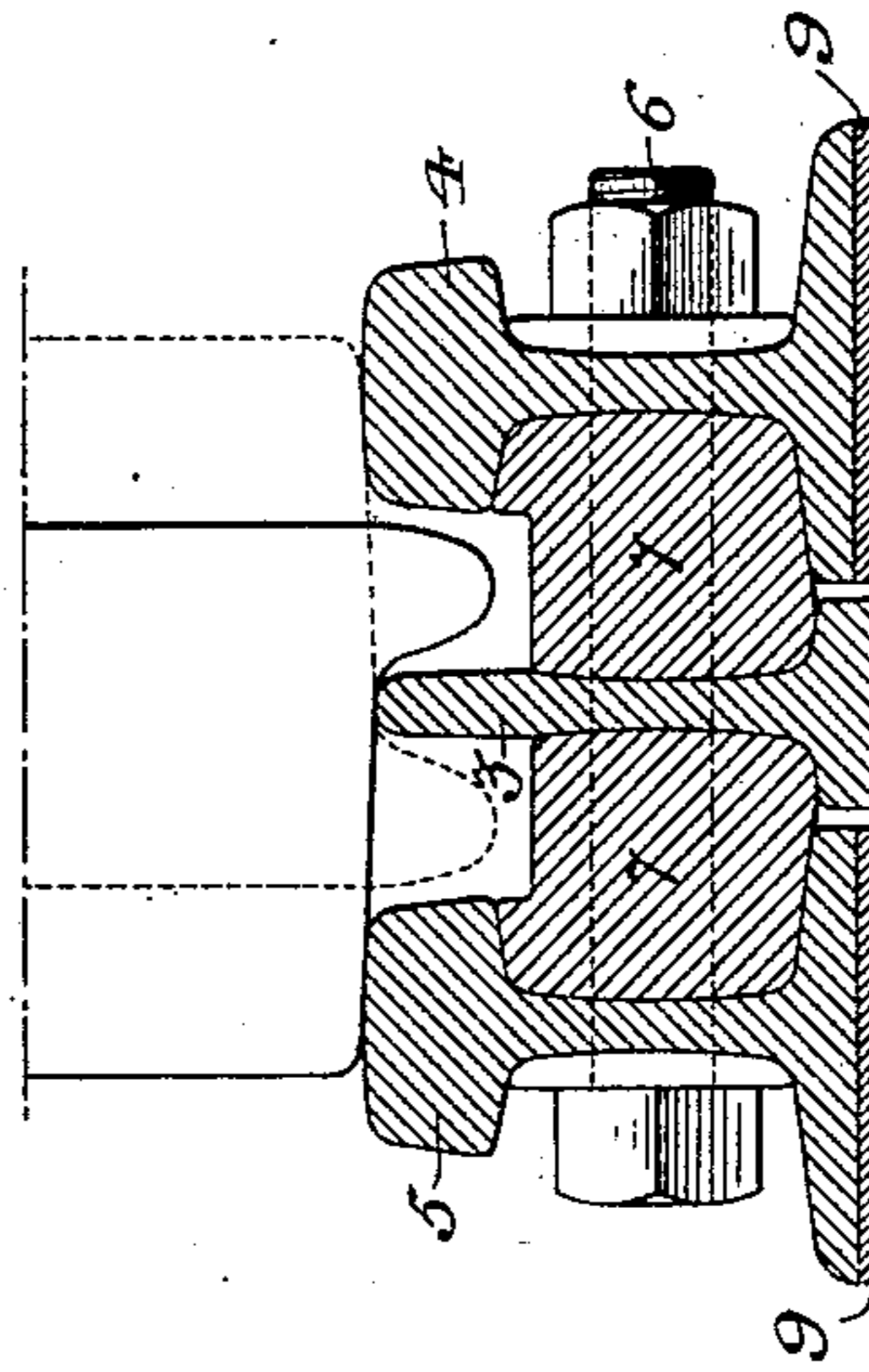


Fig. 5.



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UNITED STATES PATENT OFFICE.

GEORGE W. WHITEMAN, OF PHILADELPHIA, PENNSYLVANIA.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 713,547, dated November 11, 1902.

Application filed January 29, 1902. Serial No. 91,782. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WHITEMAN, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Railway - Frogs, of which the following is a specification.

The object of my invention is to so construct a railway-frog as to provide proper support for the wheels of a locomotive or car passing over the same, and thereby prevent that injury to the frog and to the rolling-stock which is now caused by the pounding of the wheels upon the rails of the frog, because of the improper support provided for said wheels when the same strike or leave the point of the frog.

In the accompanying drawings, Figure 1 is a plan view of an ordinary type of railway-frog to which my invention is adapted. Fig. 2 is a longitudinal section of the same on the line *a a*, Fig. 1, illustrating the feature of construction to which my invention particularly relates. Fig. 3 is a transverse section, on an enlarged scale, on the line *b b*, Fig. 1. Fig. 4 is a view similar to Fig. 1, but illustrating a construction of frog to which my invention is especially applicable; and Fig. 5 is a transverse section, on an enlarged scale, on the line *c c*, Fig. 4.

In Fig. 1 of the drawings, 1 and 2 represent the converging rails of an ordinary frog structure, 3 the point of the same, formed by cutting away the tread and base-flanges of these rails, and 4 and 5 the wing-rails, these parts being secured together in proper relation to each other by means of transverse bolts 6 and interposed filling-blocks 7. Usually the top of the point 3 and the tops of the wing-rails 4 and 5, flanking the same, are in the same horizontal plane, and as a consequence of this construction the wing-rails fail to afford any support for a wheel approaching the point of the frog in the direction of the arrows *x*—that is to say, from either of the rails 1 and 2—owing to the fact that the treads of the wheels are beveled, and as the point of the frog supports the wheel at the throat or close to the flange, where the diameter of the tread is greatest, the outer portion of the tread, where its diameter is least, is free from contact with the wing-rail. Hence when the wheel leaves the point of the frog it drops until the outer portion of its tread strikes the

wing-rail, and there is consequently a pounding or hammering action which is injurious both to the rails and rolling-stock. When, on the other hand, a wheel is approaching the point of the frog in a direction opposite to that indicated by either of the arrows *x*, the outer portion of the tread of the wheel bears upon a wing-rail. Hence the throat of the wheel is below the level of the top of the point, and the latter is therefore compelled to lift the wheel when it strikes the same with like result of pounding or hammering and injury both to the frog-point and rolling-stock. In order to overcome this objection, I raise the wing-rails 4 and 5, as shown in Fig. 2, throughout those portions which are adjacent to the point of the frog, the elevation being to an extent commensurate with the bevel of the wheel-tread. Hence when the wheel is approaching the point of the frog in the direction of the arrows *x* it will be supported equally by said point and by the wing-rail, as shown in Fig. 3, and when approaching the point in the opposite direction the wheel will be so supported by the wing-rail that its throat is level with the top of the point, whereby in either case the objectionable pounding or hammering of the wheel and rails will be prevented. Any desired means may be adopted for effecting this elevation of the treads of the wing-rails in respect to the point of the frog, the most convenient plan and that which I therefore prefer being to introduce filling-pieces between the flanged bases of the rails and the ties, as shown in Figs. 2 and 3. By this means the treads of the wing-rails at and near the end of the point-rail are raised to the proper height above the tread of said point-rail, but descend in each direction to the normal height, as shown in Fig. 2, so as to prevent jarring contact of the tread of the wheel with the wing-rail when the wheel is moving in either direction.

My invention is especially applicable to that form of frog in which the point and wings are composed of manganese steel or other hard metal used for the purpose of resisting wear. Such hard metal is more brittle than the rails. Consequently when subjected to a pounding or hammering action it is liable to be broken, thereby so injuring the frog as to prevent it from performing its proper function and cause

derailing or other accident to a locomotive or car passing over the frog.

In Figs. 4 and 5 I have illustrated the application of my invention to one such form of frog which has a point 10, forming a continuation of the rails 1 and 2, and cheek-pieces 11 and 12, constituting the wings of the frog and occupying recesses formed by bending the wing-rails 4 and 5. In a frog of this character the upper surfaces of the cheek-pieces 11 and 12, as well as the treads of the wing-rails 4 and 5, are in a higher plane than the top of the point 10, so as to provide proper support for the tread of a wheel passing said point, although, if desired, the tops of the cheek-pieces 11 and 12 alone may be thus elevated, the tops of the wing-rails retaining their normal level.

Although I have shown my invention as applied to a frog in which the rails are rigidly retained in position in respect to each other,

it will be evident that it is applicable as well to spring-frogs.

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

A railway-frog having a point flanked by a wing whose upper surface at and near the end of the point is in a plane higher than the upper surface of the point, the difference in height being commensurate with the bevel of an ordinary locomotive or car wheel, the tread of the wing-rail descending in each direction from this higher level to the normal height, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

GEORGE W. WHITEMAN.

Witnesses:

WALTER CHISM,
JOS. H. KLEIN.