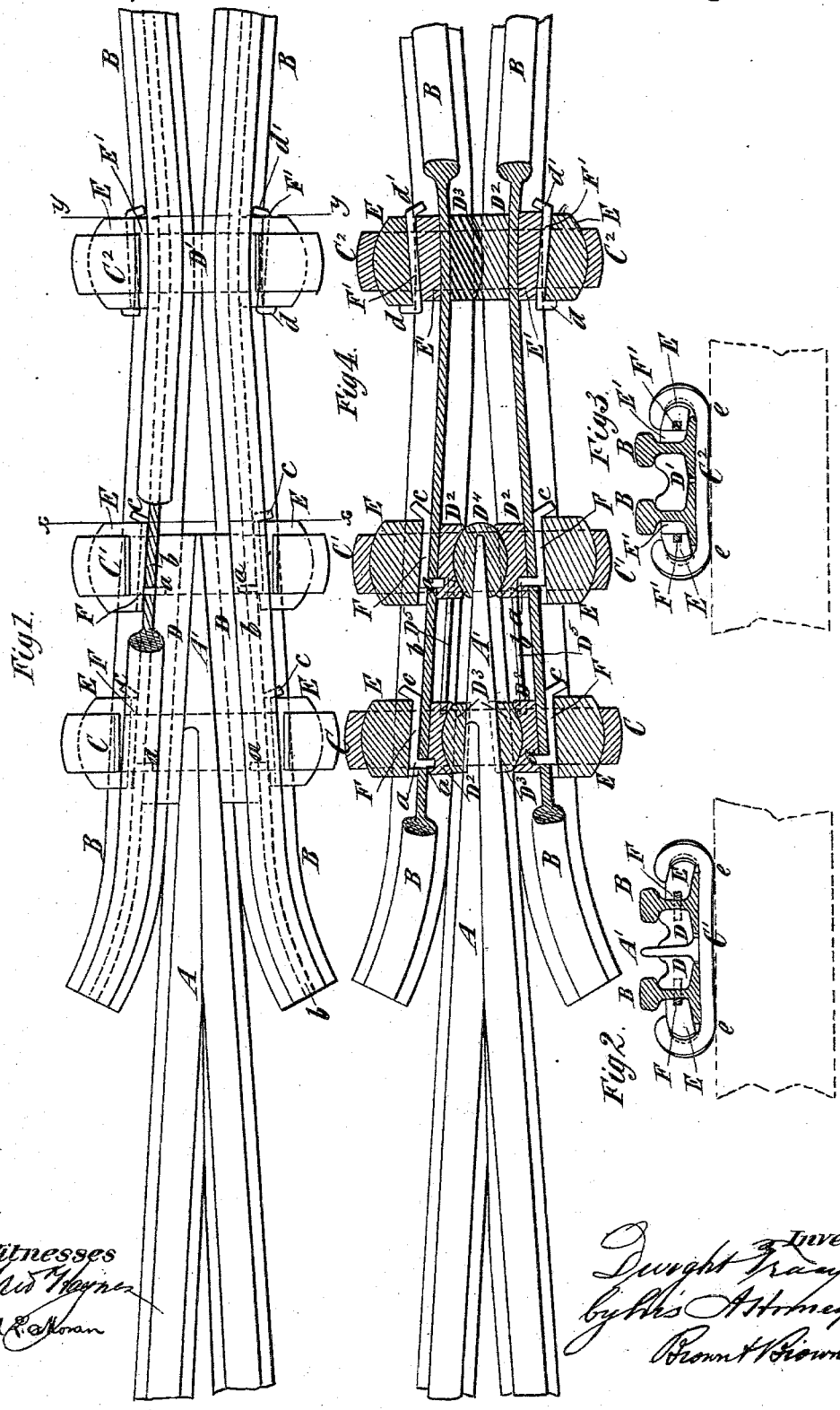
(No Model.)

D. TRACY.

RAILWAY FROG.

No. 303,076. Patented Aug. 5, 1884.



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DWIGHT TRACY, OF SUFFERN, NEW YORK.

RAILWAY-FROG.

SPECIFICATION forming part of Letters Patent No. 303,076, dated August 5, 1884.

Application filed September 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT TRACY, of Suffern, in the county of Rockland and State of New York, have invented a new and useful Improvement in Railway-Frogs, of which the following is a specification.

My invention relates to what are known as "yoke-frogs," in which the frog-point rails and wing-rails are secured together and in proper relative position by means of yokes, which embrace the rails and clamping parts, consisting of distance-pieces or spacing-blocks, with or without wedges, inserted between the point-rail and wing-rails and between the wing-rails and the upturned ends of the yoke.

The principal objects of my invention are to enable the same blocks and wedges, if the latter are used, to readily adapt themselves to wing-rails having various angles of divergence, so that they will form a perfect fit between the rails and between the yoke and the rails, and to enable said blocks and wedges to be readily secured so as to hold the wing-rails at the desired angle of divergence without danger of their working loose; also, to give the frog a slight degree of elasticity under the weight of the train, and to cause a tightening up or increase of grip of the yokes and clamping parts by the weight of a passing train.

The invention consists in the combination, with the point-rail and wing-rails of a frog, of a yoke and a block fitting the end thereof, the bearing-surfaces of the yoke and block being curved or rounded in a horizontal plane, so that the block will readily adapt itself to the angle at which the adjacent wing-rail crosses the yoke, and said bearing-surfaces being also preferably rounded or curved in a vertical direction.

The invention also consists in the combination, with the rails and yoke of a frog, of the blocks or clamping parts between the wing-rails and the ends of the yoke, and other clamping parts or blocks placed between the wing-rails, and having their surfaces, which are in contact with each other, curved or rounded in a horizontal direction.

The invention also consists in the combination, with the frog-point, wing-rails, and yoke of a frog, of a central filling or distance block fitting and receiving within it the frog-point, and having its opposite sides curved or rounded, and other blocks between the central block and the wing-rails, and curved or rounded to fit the opposite sides of said central block.

The invention also consists in the combination, with the rails and yoke of a frog, of filling or distance blocks between the wing-rails, outside blocks fitting between the wing-rails and the ends of the yoke, and locking rods or bolts, one end of each of which projects through the wing-rail and engages with a filling or distance block, while the other end is engaged with an outside block, whereby the several parts are held in place.

The invention also consists in the combination, with the rails and yoke of a frog, of a block and wedge fitting between a wing-rail and the end of the yoke, and a locking-rod having one end engaging with the block at the point of the wedge and the other end engaging with the head of the wedge, whereby the wedge is prevented from working loose.

The invention also consists in the combination, with the wing-rails of a frog, of a yoke for confining said rails in place, and blocks fitting between the ends of said yoke and the wing-rails, the bearing-surfaces of said yoke and blocks being rounded or curved in a vertical direction, and the yoke having supporting-bearings at the ends only, and being arched or curved upward between the ends. This construction gives the yoke a slight degree of elasticity, and causes the rounded or curved ends of the yoke to more tightly embrace and confine the blocks and rails when the yoke is deflected by the weight of a passing train.

In the accompanying drawings, Figure 1 is a plan of a frog embodying my invention. Fig. 2 is a transverse section on the line *x x*, Fig. 1. Fig. 3 is a similar section on the line *y y*, Fig. 1; and Fig. 4 is a horizontal section of a frog embodying my invention in a modified form.

Similar letters of reference designate corresponding parts in all the figures.

Referring to all the figures, A designates the point-rail, A′ the frog-point, and B the wing-rails of the frog.

C C′ C² designate the yokes, any number of which may be employed to hold the rails in their proper positions.

I will first describe the construction shown in Figs. 1, 2, and 3.

Between the frog-point A′ and wing-rails B are "filling" or distance blocks D D, which in this instance extend from the yoke C to the yoke C′; but separate blocks for each yoke might be employed. The wing-rails B are kept at a proper distance from the frog-point A′ by the blocks D. The ends of the yokes C C′ C² are turned up in the usual way, and between the ends of the yokes C C′ and the wing-rails B are fitted blocks E, which hold the wing-rails in proper place. The outer sides of the blocks E and the surfaces of the yokes on which they bear are curved or rounded in a horizontal direction, as shown in Fig. 1, and are also preferably, though not necessarily, curved or rounded in a vertical direction, as shown in Figs. 2 and 3. Hence it will be seen the blocks will readily adjust themselves in the yokes in a horizontal direction to suit different angles of divergence of the wing-rails B, the angle of divergence being controlled or governed by the angles of the frog-point A′.

In applying the yokes C C′ they, after the blocks D E are in place, are forced up on the diverging wing-rails until they come to a tight bearing, and are held against slipping back by means of locking keys or rods F, which lie between the blocks E and the wing-rails, and one end, *a*, of each of which extends through the web *b* of the rail and into the fitting-block D, while the other end, *c*, is bent over the end of the block E. The locking keys or rods F have their bent ends *a* inserted through the web of the rails before the yoke is forced up on the rails, and after the yoke is forced up to its proper position the ends *c* of the rods or keys F are bent outward over the ends of the blocks E.

In lieu of bending the end *c* of the rod F, the latter may extend through a hole in the block E at a little distance from its inner side, and have a nut applied to it, so as to bear against the end of the block. The tightening of the nuts on the two rods F will draw the yoke up farther onto the diverging wing-rails. The yoke C² is applied at the narrowest part of the frog.

Between the wing-rails B is a block, D′, and on the outer side of each rail, and between it and the adjacent end of the yoke C², are a wedge, E′, and a block, E. The ends of the yoke and the outer sides of the blocks E are curved both in a horizontal and vertical direction, as before described, and the several parts are held together by tightening up the wedges E′. Between each wedge and its adjacent block is a locking-rod, F′, which rests in a groove in one or the other of said parts, and after tightening up the wedge, one end, *d*, of the rod is bent over the block at the point of the wedge, and the other end, *d*′, is bent over the head of the wedge. By this means the loosening of the wedges is prevented.

As clearly shown in Figs. 2 and 3, the yokes C C′ C² have supporting-bearings *e* at the ends only, and between said bearing-points are curved upward or arched, so that they will be out of contact with the ties. This curving or arching of the yokes is produced by the tightening of the yokes on the frog, either by driving up the yokes or wedges or by shrinking on the yokes, and as the yoke has bearing-points at the ends only, it will be somewhat elastic and will yield under the weight of a train. This yielding will tend to bring the ends of the yoke together, and thereby will more tightly clamp together the parts embraced by the yoke.

In the frog shown in Fig. 4 the construction of the yokes C C′ C², the outside blocks, E, the wedge E′, and the locking-rods F F′ is the same as before described; but a different construction of filling or distance blocks is employed.

In the yoke C there are two filling-blocks, D² D³ on each side of the frog-point A′, and these blocks have their adjacent faces curved or rounded in a horizontal direction, so as to adjust themselves readily to different angles of the frog-point and wing-rails.

In the yoke C′ there are three filling-blocks, D² D² D⁴, between the two wing-rails B, the central block, D⁴, being notched so as to receive and fit the frog-point A′, and the surfaces of said blocks, which bear on each other, are curved or rounded, as above described, and for a like purpose. The blocks D² D² in the two yokes C C′ may be connected by rods D⁵.

In the yoke C² there are two filling-blocks, D² D³, between the wing-rails B, and the surfaces of these blocks which bear on each other are curved or rounded in a horizontal direction, as above described.

It will be understood that the curved bearing-surfaces of the yoke ends and outside blocks, E, and the curved bearing-surfaces of the filling-blocks D² D³ D⁴ are of great importance, as by this means I am enabled with blocks and yokes of the same size and form to secure together the frog-rails, no matter what the degree of divergence within wide limits.

I am aware of Patent No. 197,827, granted December 4, 1877, to Wilson B. Chisholm, for improvement in rail-joints, and do not here claim anything shown therein as of my invention.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, with the point-rail and wing-rails of a frog, of a yoke and a block fitting the end thereof, the bearing-surfaces of the said yoke and block being curved or rounded in a horizontal direction, substantially as and for the purpose described.

2. The combination, with the point-rail and wing-rails of a frog, of a yoke and a block fitting the end thereof, the bearing-surfaces of

said yoke and block being curved or rounded in both a horizontal and vertical direction, substantially as and for the purpose described.

3. The combination, with the rails and yoke of a frog, of blocks between the wing-rails, and the ends of the yoke and other blocks placed between the wing-rails, and having their surfaces, which are in contact with each other, curved or rounded in a horizontal direction, substantially as and for the purpose described.

4. The combination, with the frog-point, wing-rails, and yoke of a frog, of a central filling or distance block, fitting and receiving within it the frog-point, and having its opposite sides curved or rounded, and other blocks between the central block and wing-rails, and curved or rounded to fit the said central block, substantially as described.

5. The combination, with the rails and yoke of a frog, of filling or distance blocks between the wing-rails, outside blocks fitting between the wing-rails and the ends of the yoke, and locking rods or bolts, one end of each of which projects through the wing-rail, while the other end is engaged with an outside block, substantially as described.

6. The combination, with the rails and yoke of a frog, of a block, E, and wedge E′, fitting between a wing-rail and the end of the yoke, and a locking-rod, F′, having one end engaging with the block at the point of the wedge and the other end engaging with the head of the wedge, substantially as described.

7. The combination, with the wing-rails of a frog, of a yoke for confining said wing-rails, and blocks fitting between the ends of the yoke and the wing-rails, the bearing-surfaces of said yoke and blocks being rounded or curved in a vertical direction, and the yoke having supporting-bearings at the ends only, and being arched or curved upward between the ends, substantially as and for the purpose herein described.

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