(No Model.)

E. BARNES.

RAIL FOR STREET RAILWAYS.

No. 321,414. Patented July 7, 1885.

Fig. 1.

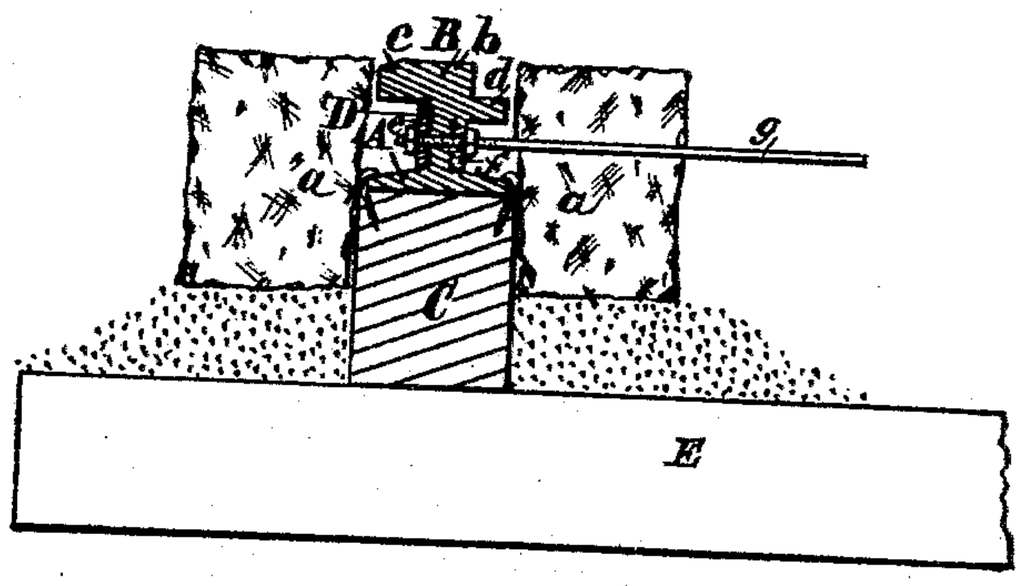
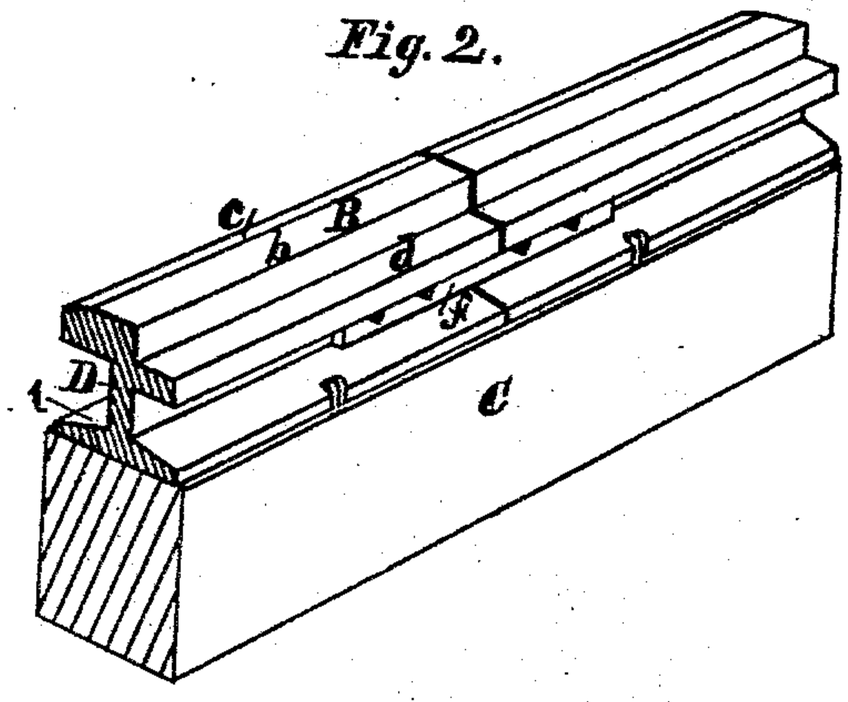


Fig. 2.



Attest;

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ELIZUR BARNES, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO CALVIN A. RICHARDS, OF SAME PLACE.

RAIL FOR STREET-RAILWAYS.

SPECIFICATION forming part of Letters Patent No. 321,414, dated July 7, 1885.

Application filed February 7, 1885. (No model.)

To all whom it may concern:

Be it known that I, ELIZUR BARNES, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Rails for Street-Railways, of which the following is a specification, reference being had to the accompanying drawings.

The rail in common use for street-railways is thin. It springs when the wheels pass thereon, and hence becomes loose, the spikes which fasten the rail to the longitudinal timber being slightly withdrawn, and the timber becoming worn under the rail. Where two rails meet there is a jar given to the car, owing to the springing and looseness of the rails. The upper part of the longitudinal timber is also likely to rapidly decay, since, owing to the thinness of the rail, it comes very near the upper part of the ground or pavement, so that it frequently changes from a moist to a dry, and from a dry to a moist, condition.

It is the object of my invention to obviate these objections by making the rail of sufficient depth to prevent the same from springing, to permit fastening the ends of the rails together by means of fish-plates, and to tie opposite rails together by tie-rods, and also to have all of the longitudinal timbers so far below the surface of the ground or pavement that it will not be likely to frequently change its condition with reference to moisture, the rail being adapted for the travel of the wheels thereon, and to be inclosed by the pavement, as hereinafter specifically set forth.

In the drawings, Figure 1 is a transverse section of my improved rail, and of so much of the pavement and supporting-timbers as serve to illustrate my invention. Fig. 2 is a perspective view of a part of two rails, joined by means of the fish-plates and of the longitudinal timber.

My improved rail has, in general, somewhat the appearance of an ordinary T-rail used on steam-railways, but differs from such a rail not only in relative proportion of parts, but particularly as to its upper part, which is especially adapted for a street-railway. The base A is of nearly or quite the same width as the upper part or head, B. The longitudinal timber C is of about the same width or but little wider than the base of the rail; hence I am able to bring the blocks *a* of the pavement against the sides of the upper part of the rail. The base A is in form substantially like that of an ordinary T-rail. There is also the single vertical web D, as in a T-rail. The main or bearing part of the tread *b* is over the web, the tread being beveled somewhat at *c*, and extending out to meet the pavement-blocks. The upper part or head of the rail is let down on the inner side, so as to form a flange, *d*, which also extends to meet the blocks of the pavement on that side, which are so set that their upper surfaces are on a level with the surface of the tread of the rail and the balance of the pavement. The flange *d* is quite narrow, leaving sufficient space between the tread of the rail and the pavement for the flanges of the car-wheels, but not wide enough for carriage-wheels. The tread *b* may be made as thin as desired, and also the flange *d*. The space between the tread and the base is greater than that between the flange *d* and the base, so that the fish-plate *e* is wider than the fish-plate *f*. I prefer to have each of the fish-plates of the same width as the corresponding one of the said spaces. The fish-plates are bolted to the rails, as is shown, and in the ordinary manner. Tie-rods *g*, as many as may be desired, extend from a rail to the opposite one of the railway. The rail is laid and spiked on a longitudinal timber, C, which will not come near the surface of the pavement, and hence is not likely to soon decay for the reasons given above, and need not be so deep or heavy as required with the thin rails of ordinary use. The longitudinal timbers are placed on sleepers E in the common manner.

I claim as my invention—

1. Two rails, each having a base, A, vertical web D, and head B, provided with a flange, *d*, in combination with two fish-plates, *e* and *f*, for joining the rails, of different widths, each of a width equal to the depth of the cor-

responding space between the tread or flange of the head and the base, substantially as specified.

2. In combination with longitudinal timber C, two rails, each composed of base A, vertical web D, and head B, substantially as described, and the two rails joined by means of fish-plates *e* and *f*, substantially as specified.

ELIZUR BARNES.

Witnesses:
EDW. DUMMER,
WM. H. SOLOMON.