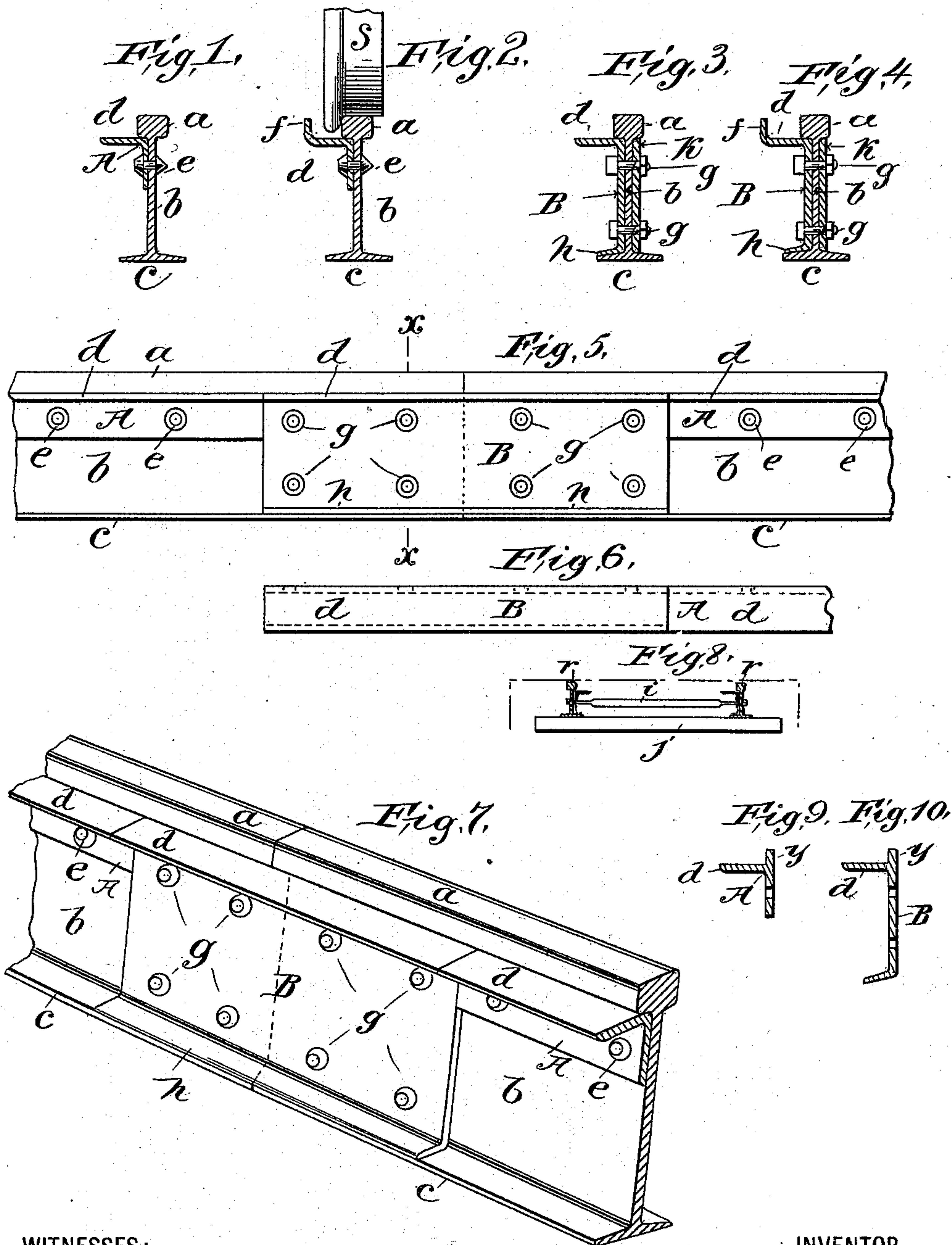


(No Model.)

C. E. EMERY.
RAIL FOR STREET RAILWAYS.

No. 560,786.

Patented May 26, 1896.



WITNESSES:

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RAIL FOR STREET-RAILWAYS.

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To all whom it may concern:

Be it known that I, CHARLES E. EMERY, of Brooklyn, in the county of Kings and State of New York, have invented a new and Improved Rail for Street-Railways; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification.

Street-rails are in common use of the T-rail type provided with a lateral integral flange under one side of the head, which forms a tread for the wheel of an ordinary vehicle, called herein the "wagon-tread," a sufficient distance below the top of the rail to give room for the flange of the car-wheel. In some forms of this rail the outer edge of the flange is bent upward, so that the wagon-tread is in a groove between the upturned edge and the rail-head. Rails of this kind are secured together by fish-plates, but the depth of those on one side is lessened by the thickness of the wagon-tread flange, and for this reason and the consequent position of the bolts the fish-plate joint is not as stiff as it would be if such plates could be carried from the overhanging rail-head down to the flange at the base of the rail. There is, moreover, no opportunity to repair the wagon-tread separately in case, for any reason, it should wear more rapidly than the head of the rail.

The object of the invention is to construct a compound rail for street-railways having a wagon-tread, but also having a fish-plate the full depth from the overhanging head of the rail to the flange at the base.

A further object is to make the wagon-treads separable from the T-rails proper, so that they may be repaired independently, if desired, on account of unusual wear or for other reasons. This is accomplished by constructing a flange on the upper edge of the inner fish-plates to form a wagon-tread and filling in the space between such fish-plates with angle-irons secured to the web of the rail, so that one flange of each angle-iron will form a continuation of the wagon-tread on such fish-plates. The result is that T-rails, fish-plates, and angle-irons are necessary to form the complete compound rail in place, although the parts would be separately constructed.

In the drawings, Figure 1 represents a sec-

tion of an ordinary T-rail with angle-iron wagon-tread attached. Fig. 2 is a section of an ordinary T-rail with special angle-iron wagon-tread attached, of which the outer edge is turned upward to form a groove to receive the flange of a car-wheel. Fig. 3 represents a section of an ordinary T-rail with fish-plate attached thereto provided with a wagon-tread. Fig. 4 represents a section of an ordinary T-rail with fish-plate attached thereto provided with a wagon-tread with the outer edge turned upward to form a groove to receive the flanges of the car-wheels. Fig. 5 is a side view of a compound rail with the fish-plate shown in Fig. 3 and angles in continuation of the same shown in section in Fig. 1. Fig. 6 is a top view of the same fish-plate and of a part of one of the angles abutting against the same. Fig. 7 is a perspective view of the construction shown in the side view, Fig. 5. Fig. 8 is a cross-section of a railroad-track formed of the rails above described. Fig. 9 is a section of a modified form of angle-iron wagon-tread. Fig. 10 is a section of a modified form of fish-plate.

The same letters in all the figures refer to corresponding parts.

In Fig. 1 is shown the section of an ordinary T-rail, preferably with a web of such depth that it will rest upon cross-ties below the paving. The head is designated *a*, the web *b*, the base *c*. To one side of the upper part of the web is secured one leg of an angle-iron *A*, preferably by means of rivets *e*. The other leg, *d*, protrudes laterally from under the head of the rail, forming a tread for the wheel of an ordinary vehicle or a "wagon-tread," as herein designated. It is located sufficiently below the head of the rail *a* to give room for the flange of the car-wheel. Fig. 2 is also a cross-section of a similar rail, to which is also secured in a similar way an angle *d* with the outer edge *f* turned upward, leaving a groove for the flanges of car-wheels, forming also a wagon-tread. A section of a car-wheel *s*, with flange extending into such groove, is also shown. Fig. 3 is a cross-section of a similar rail near one of its ends—for instance, on the vertical line *x x*, Fig. 5. The cross-section is therefore, also, through a fish-plate, (designated *B*.) This fish-plate extends from the under side of the overhanging

head *a* down to the top of the base *c* in the customary way, but is to be provided at the top with a flange *d*, forming a wheel-tread which when in place will be in continuation of that formed by the flange *d* of angle A. On the opposite side of the rail an ordinary fish-plate *k* would in general be used and the rail ends secured together in line by bolts or rivets *g g* through the two fish-plates and the rail ends. Fig. 4 is a corresponding section of a T-rail and fish-plate provided with a wheel-tread *d*, the outer edge *f* of the same being turned upward to form a groove corresponding to that shown in Fig. 2.

In practice the ordinary T-rails, special angle-irons, and fish-plates described would be rolled separately and cut to length in the customary way. The lengths of the angles would be less than that of the rails by the length of one fish-plate, and one such angle would be accurately secured to each rail, preferably by rivets, leaving a half-fish-plate length vacant at each end. The angles on some of the rails could be secured with bolts to facilitate cutting rails in actual construction. The rails would be laid practically the same way as other rails, as each flanged fish-plate would exactly fill the space between the angles attached to the rails and make the wagon-tread *d* continuous. The rails in place in the track with their attached angles and fish-plates form a compound rail which is stiffer than the ordinary construction. Moreover, when wear takes place on the wheel-tread, as is frequent in certain locations along the line of the road, it is not necessary to entirely throw away the rails, but new angles, and if necessary new fish-plates, can be used with the old rail and the wear continued until the rail is worn out. If on the contrary the rail-head wears faster than the wheel-tread, the latter may be removed and angle-irons and fish-plates with sections approximating those shown in Figs. 9 and 10 may be employed,

which will give greater room for the flanges of the car-wheels, there being provided on the side of the angle and fish-plate which attaches to the web of the rail an upwardly-projecting rib *y* to fit under the head of the rail, the treads *d* being dropped lower down. This form of angle and of fish-bar may evidently be employed in the first place when it is desired for any reason to make the heads *a* less in depth than is required for the flanges of the car-wheels. At points where the traffic is heavy (or if desired) the fish-plates B may be the full length of the rails, arranged to break joints therewith, and the angles A be omitted. The term "T-rail" used herein is intended to apply to any form of bearing-rail adapted to receive a fish-plate with wagon-tread thereon, a bearing-rail being considered one that carries the car-wheels.

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

1. A compound street-railway rail embodying in its construction the following elements: first, a bearing-rail adapted to receive a fish-plate provided with a wagon-tread; second, a fish-plate adapted to be secured to the ends of the rails in a customary manner and provided with a flange forming a wagon-tread; third, an angle-iron secured to the rail between the spaces for the fish-bars, in such location that one of the flanges will form a wagon-tread in continuation of that on the fish-bars, all constructed, arranged and operating substantially as specified.

2. Separately-attached wagon-treads for bearing-rails, provided with flanges *y* to fit under the rail-heads and thereby carry the wagon-tread flanges *d* the desired distance below the top of the rail, substantially as described.

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Witnesses:

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