H. Belfield,

Railway Rail.

No. 97,593. Patented Dec. 7, 1869.

Fig. 1.

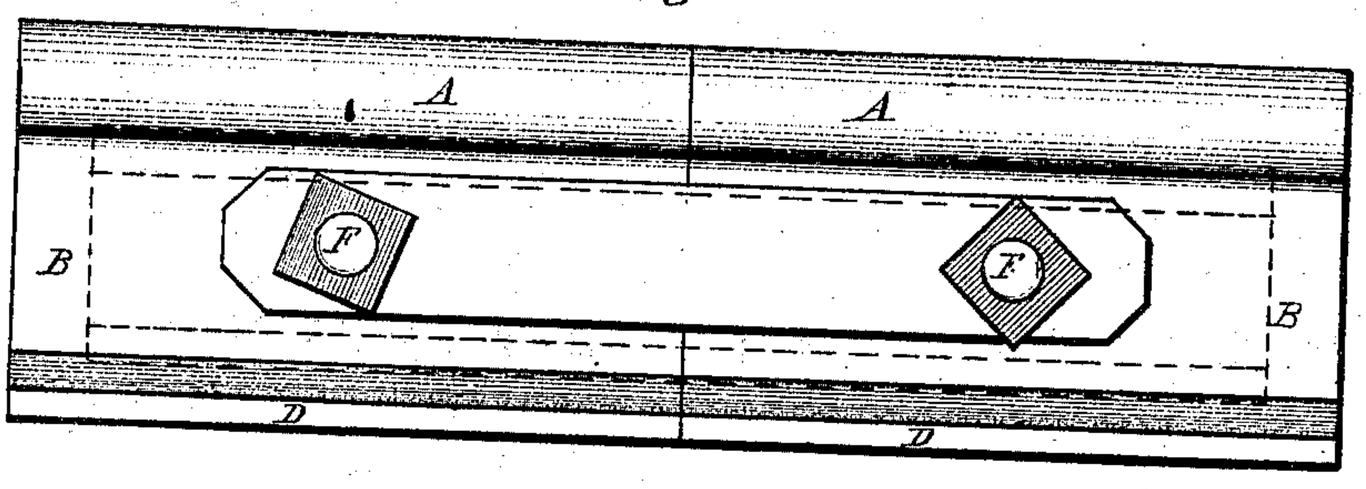


Fig. 2.

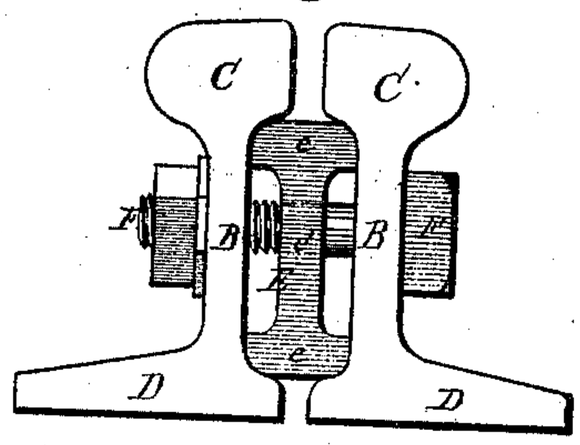
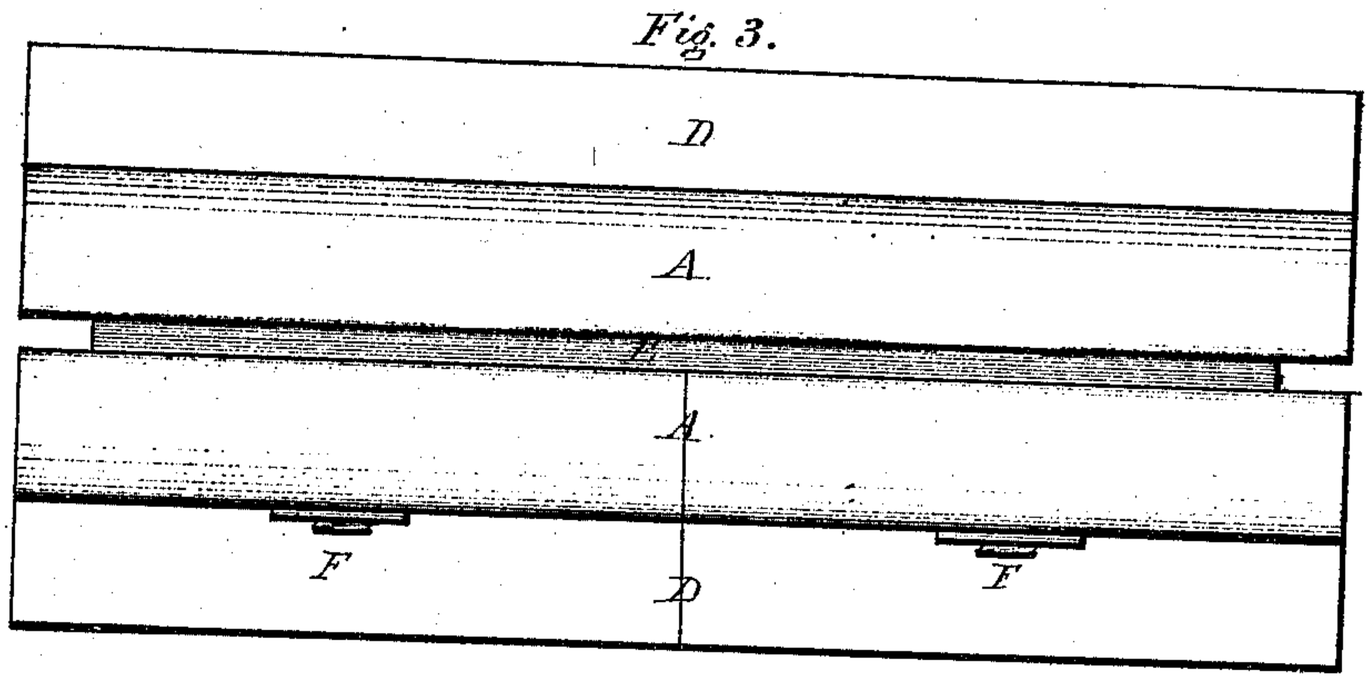


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

HENRY BELFIELD, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVED RAILWAY-RAIL.

Specification forming part of Letters Patent No. **97,593**, dated December 7, 1869.

To all whom it may concern:

Be it known that I, HENRY BELFIELD, of Philadelphia, in the county of Philadelphia, and in the State of Pennsylvania, have invented certain new and useful Improvements in Railroad-Rails; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a side elevation of my improved rail. Fig. 2 is an end elevation, and Fig. 3 is a plan view of the same.

Letters of like name and kind refer to like parts in each of the figures.

My invention relates to a class of railroad-rails formed of two vertical longitudinal sections secured together, so that the ends thereof shall break joints; and it consists in the employment of a rail consisting of two longitudinal sections connected together by fish-plates, placed at short intervals between said sections, and secured thereto by means of bolts passing through both sections and plates, the whole forming a "truss-rail," in which is obtained a maximum of strength with a minimum of material, as is hereinafter shown.

It also consists in the peculiar form of the sections, and of the intervening fish-plates, by means of which a vertical longitudinal space is left between said sections, substantially as and for the purpose hereinafter specified.

In the annexed drawings, A and A represent the longitudinal sections or halves of the rail, each constructed, as shown in Fig. 2, with the web B placed directly over the center of the head C. The foot D extends outward to the usual distance upon one side of each section, while upon the other or inner side it is removed upon a line vertically with the side of the head, so that the combined breadth transversely of the feet of both sections shall only equal that of an ordinary rail. The sections thus constructed are placed with the joint between the ends, upon one side, opposite the center of the opposite section, and a fish-bar or plate, E, consisting of a double head, *e*, connected together by means of a web, *e'*, placed at short intervals between, and the whole firmly secured together by means of two or more bolts, F, passing through said sections and through each plate. The fish-plate E conforms to and fills the space vertically between the lower side of the head and the upper side of the foot of each section, while its width is such as to hold the contiguous edges of the head and feet of said sections from one-fourth to one-half of an inch apart, by which means the breadth of bearing for the tread of the wheel is proportionably increased, as is also the bearing of the rail upon the tie, without increasing the weight of the rail.

It will be seen that the fish-plates not only hold the sections together transversely, but also vertically, and that the whole, thus constructed and combined, forms a truss-rail, possessing throughout its entire length great strength, rigidity, and stability, with no greater weight than the ordinary solid rail.

Another advantage possessed by this rail is that water cannot accumulate within the space between the sections, and by freezing burst said sections apart and break the bolts, as would be the case were not said space open at its upper and lower sides.

As the inner half of the rail receives the largest proportion of the wear, it is believed that if the inner section were made of steel and the outer section of iron, equal durability to the best steel rail would be secured at less than two-thirds of its cost.

Having thus fully set forth the nature and merits of my improvements, what I claim as new, and desire to secure by Letters Patent, is—

1. The within-described truss-rail, consisting of the sections A and A, held apart by the fish-plates E, and connected with each other by means of said plates and the bolts F, substantially as and for the purpose specified.

2. In a rail composed of vertical longitudinal sections, the connecting together of said sections, so as to leave between the same a vertical longitudinal space, open at both top and bottom, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 9th day of September, 1869.

HENRY BELFIELD.

Witnesses:
L. BROOM BELFIELD,
W. C. BUCHANAN.