J. B. JOHNSTON.

Improvement in Railway-Rails.

No. 131,880. Patented Oct. 1, 1872.

fig. 1.

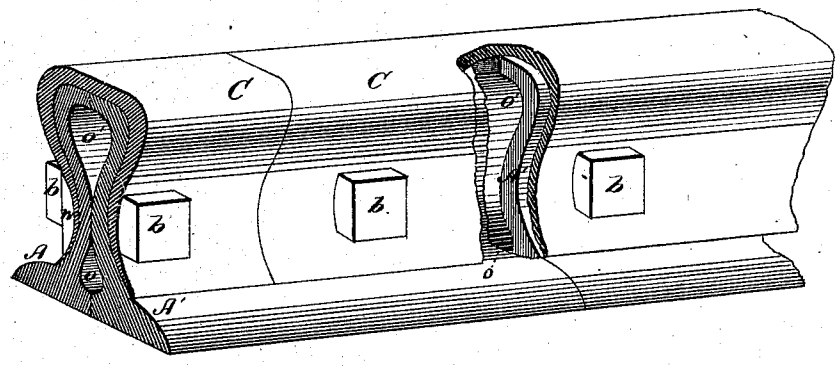


fig. 2.

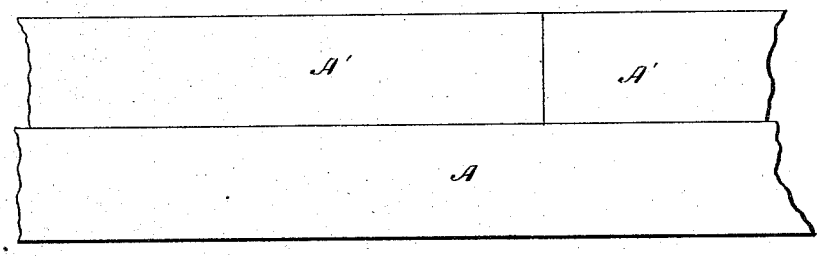
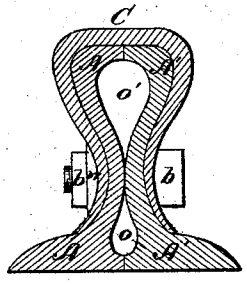


fig. 3.



Witnesses.
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AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

JAMES B. JOHNSTON, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILWAY-RAILS.

Specification forming part of Letters Patent No. **131,880**, dated October 1, 1872; antedated September 30, 1872.

To all whom it may concern:

Be it known that I, JAMES BOORMAN JOHNSTON, of New York city, county, and State, have invented an Improved Rail for Railroads; and I do hereby declare the following to be a full and exact description of the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 is a perspective view, a portion of the rail having been broken away to reveal the internal structure; Fig. 2 is a bottom view; and Fig. 3 is a vertical transverse section.

Similar letters of reference in the accompanying drawing denote the same parts.

The object of this invention is to provide for public use, as an improved article of manufacture, a continuous compound steel-capped railroad rail, so constructed as to dispense with chairs and fish-plates, and having the following advantages, viz.: first, greater cheapness of material than steel rails; second, greater strength of material, and durability and smoothness of tread than iron rails; third, less sensitiveness to changes of temperature in the weather than other rails, and, therefore, more effectual protection against the possibility of undue expansion or contraction; fourth, diminished liability to fracture in frosty weather; fifth, greater continuity of material than other so-called continuous rails; sixth, increased strength in proportion to weight of material; and seventh, a more effectual combination of firmness and strength with elasticity than heretofore. To this end the invention consists in constructing the rail in the manner which I will now proceed to describe.

In the drawing, A A′ represent the body of the rail, the same consisting of two iron plates of exactly similar dimensions rolled into such a form that when placed together to serve as the sides of the rail, as shown in Fig. 3, they are in contact with each other in three places—viz., at the tread, at the base flange, and at the middle of the web—the points of contact being all in the same vertical line, and two large spaces, *o o′*, being left between the plates, one below and the other above the central point of contact. These pieces are arranged to break joints with each other, as clearly shown in Fig. 2. Over the iron rail thus constructed I place a rolled steel cap, C, which envelopes the top and sides of the rail, its lower edges coming nearly or quite down to the base flanges. The cap is, preferably, of uniform thickness across the tread of the rail, but diminishes in thickness from each side of the tread to the flange, its lower edges being quite thin and sharp. It is rolled to fit closely upon the rail and clamp the parts A A′ firmly together, and it is preferably arranged to break joints with both of the side pieces A A′. At the joints where the half section of the iron rail abut against each other, and, if preferred, at the joints where the sections of the steel cap abut against each other, I bolt the whole firmly together by means of bolts *b b* extending through both the web and the steel cap, as shown in Figs. 1 and 3, the bolt-holes being suitably elongated, if necessary, to accommodate the expansion and contraction of the rails. Washers *w w*, beveled to fit the web of the rail, may be employed in connection with the bolts.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The improved railroad rail herein described, consisting of the iron pieces A A′, arranged to break joints and to form the spaces *o o′*, when covered and connected on top and sides by the steel cap C, and bolted to each other and to the cap, substantially as and for the purposes set forth.

JAS. B. JOHNSTON.

Witnesses:
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