

RUFUS S. SANBORN.

Improvement in Railway Rails.

117,933.

Patented August 8, 1871.

Fig. 1.

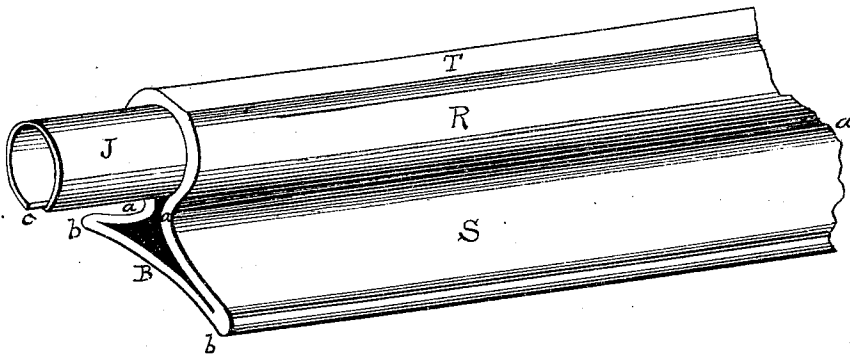


Fig. 2.

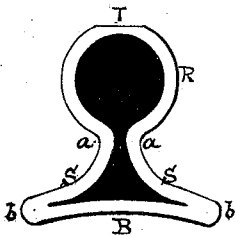


Fig. 3.

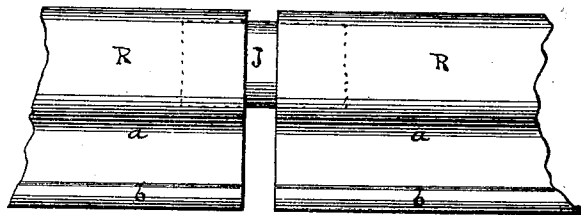
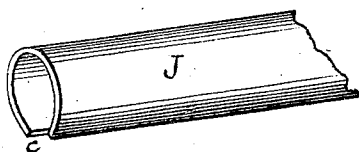


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

RUFUS S. SANBORN, OF ROCKFORD, ILLINOIS.

IMPROVEMENT IN RAILWAY RAILS.

Specification forming part of Letters Patent No. 117,933, dated August 8, 1871.

To all whom it may concern:

Be it known that I, RUFUS S. SANBORN, of Rockford, in the county of Winnebago and State of Illinois, have invented an Improvement in Rails for Railroads; and I do hereby declare the following to be a full and correct description of the same, reference being had to the accompanying drawing, in which—

Figure 1 is a perspective view of a part of a rail of my improved construction, having the spring-joint inserted. Fig. 2 is a transverse vertical section of the rail. Fig. 3 is a side elevation of the ends of two adjacent rails with the spring-joint inserted and uniting them. Fig. 4 is a perspective view of the spring-joint detached.

The same letter indicates the same part in the several figures where it occurs.

The object of the invention is to impart to the rail of a railroad, by the material used in its manufacture and by its form, the requisite degree of elasticity to enable it to sustain the weights and shocks to which it is subjected, with the minimum of wear to itself and of injury to the rolling-stock which passes over it. This I secure by making the rail of steel or elastic metal, tubular in form, and having such configuration that the application of a sufficient weight to the top of the rail shall cause it to yield within proper limits, when its further movement is checked by the yielding parts being brought to a fixed bearing against each other or against the top of the ties on which the base of the rail is supported, all as hereinafter more particularly described.

In the accompanying drawing the shape of my rail is clearly represented. Its upper portion R is nearly cylindrical with the top, flattened sufficiently to afford a good tread to the wheels of locomotives and cars. At the neck of the rail *a a* the sides approach within about a quarter of an inch of each other. From the points *a a* the sides S S diverge in a concave curve till they meet the base B at the angles *b b*. The base B is slightly arched, as shown in Figs. 1 and 3. The joint or connecting-tube used is a cylindrical spring, J, open at the line *c*. This joint is compressed when inserted in the adjacent ends of the rails, and, while binding them securely, is capable of yielding simultaneously with them and to the same degree.

It is apparent that the tendency of a weight applied to the top of the rail will be to approximate the sides at the points *a a*. A weight might be applied that would make them touch. There will exist at the same time a lateral thrust of the sides S S in the direction *a b*, which will tend to flatten out the base B, the yielding of which affords a reserve of elasticity available after the sides of the rail have been brought together at *a a*. The closure of the neck of the rail at *a a* is attended with a slight change in the form of the arch of the cylindrical portion of the rail, which enhances its strength while it does not sensibly affect the bearing-surface on the top of the rail with which the tread of the car-wheel comes in contact.

The advantages of a limited elasticity in a railroad rail are too well understood to need extended reference. The wear, both of the permanent way and of the rolling-stock, must be vastly increased by a device which effectually relieves the shocks to which they are continually subjected. In addition to this I claim that this rail possesses great strength, while effecting a large saving of metal. The process of manufacture is not more expensive than that used in the production of the ordinary steel rails.

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

1. A railroad rail, constructed of steel, tubular in form, and having the configuration described and represented, for the purpose of securing a limited and definite amount of elasticity sufficient to relieve the shocks to which the rails and rolling-stock of railroads are usually subjected, all as set forth.

2. The elastic cylindrical joint or connecting-tube J, constructed as described, for the purpose specified.

The above specification of my said invention signed and witnessed at Washington this 18th day of July, 1871.

RUFUS S. SANBORN.

Witnesses:

H. S. MILLER,
CHAS. F. STANSBURY.