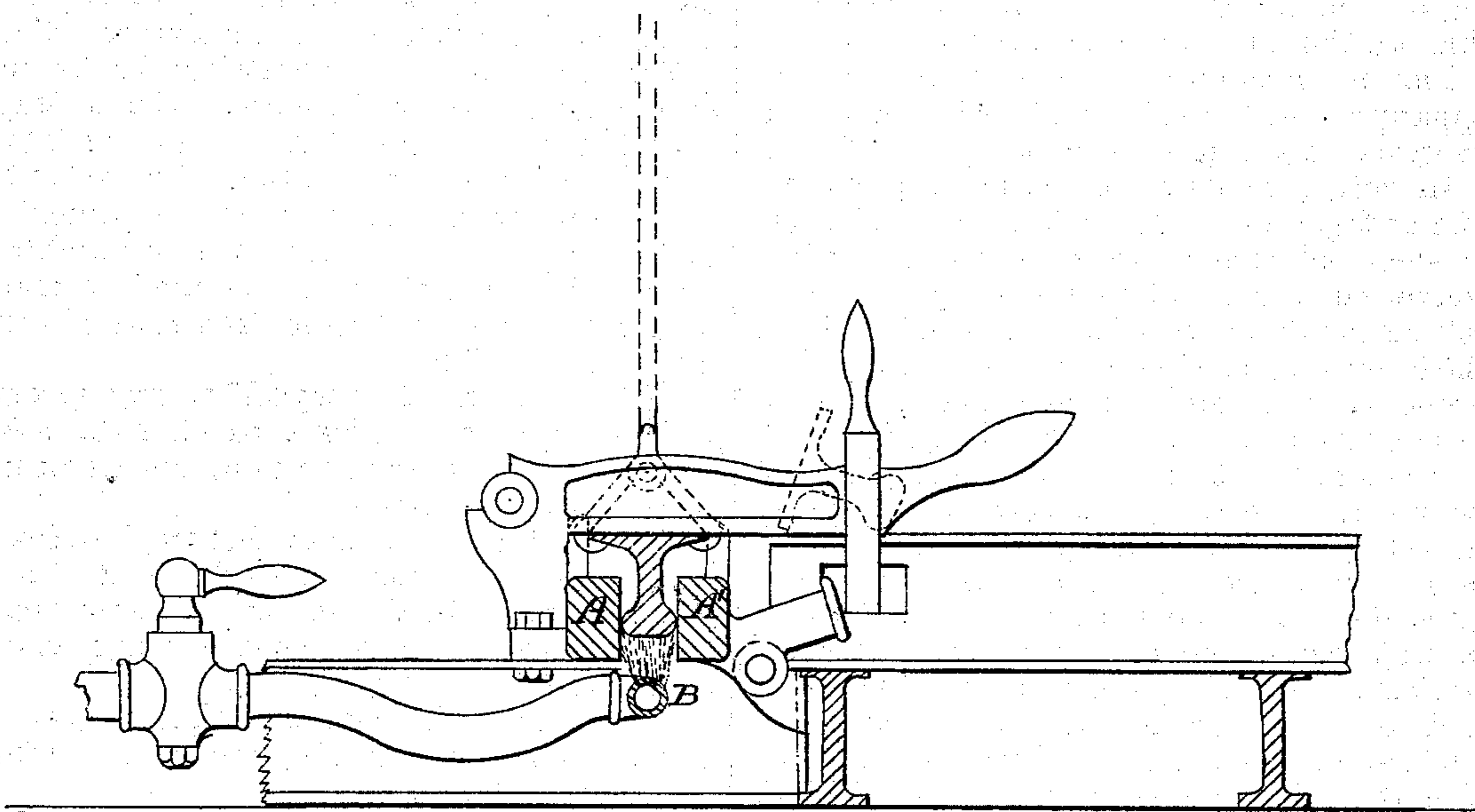


JAMES A. WOODBURY.

Improvement in Railway Rails.

No. 125,648.

Patented April 9, 1872.



Witnesses.

A. H. Norris
D. R. Howl

James A. Woodbury
By his attys.
Horsman & Son

UNITED STATES PATENT OFFICE.

JAMES A. WOODBURY, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN RAILWAY RAILS.

Specification forming part of Letters Patent No. 125,648, dated April 9, 1872.

Specification describing an Improvement in Railroad Rails, invented by JAMES A. WOODBURY, of Boston, Massachusetts.

My invention consists of railroad rail having a body of wrought iron and a tread of hardened steel, merging into a soft steel backing or foundation, as described hereafter, so that it will be more durable than ordinary rails.

The accompanying drawing represents an apparatus which may be employed in the manufacture of my improved rails.

In carrying out my invention I prepare a pile or fagot, of which such a portion consists of steel and such a portion is iron, that when converted into a rail by the usual process of rolling the tread of the rail will be of steel and the lower portion of wrought iron. The relative proportions of iron and steel may be varied as circumstances and the character of the rail may suggest, but in all cases the iron should be much in excess of the steel; the latter may in fact be very thin, care being taken that it is so distributed that it will be prominently presented over that portion of the rail which is subjected to the greatest wear. After the rolling and straightening of this combined iron and steel rail, I harden the steel tread at the surface leaving a soft steel backing or foundation at the junction with the iron body. This may be accomplished by first heating the rail, and then confining it while in a hot state and in an inverted position between the clamps A A', above a perforated tube, B, extending the

entire length of the rail, water or other hardening liquid being forced into the tube, so that it will escape therefrom in forcible jets or streams against the hot tread. No claim is here made to the said apparatus as it forms the subject of a separate application for a patent for hardening solid steel rails, which I filed on or about the 4th day of September, 1871.

The proportion of wrought iron in the rail is so much in excess of the proportion of steel, that the hardening of the face of the latter has no tendency to render the rail more brittle than ordinary iron rails, while the hardening of the steel surface renders it of so durable a character, that it will retain its integrity much longer than either steel or iron rails of ordinary construction.

Without restricting myself to any specific process or apparatus for hardening the steel tread, I claim as my invention, and as an improved manufacture—

As a new article of manufacture, a railroad rail of combined iron and steel, the steel portion having a hardened or tempered tread which merges into a soft-steel backing, as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES A. WOODBURY.

Witnesses:

WM. A. STEEL,
JNO. B. HARDING.