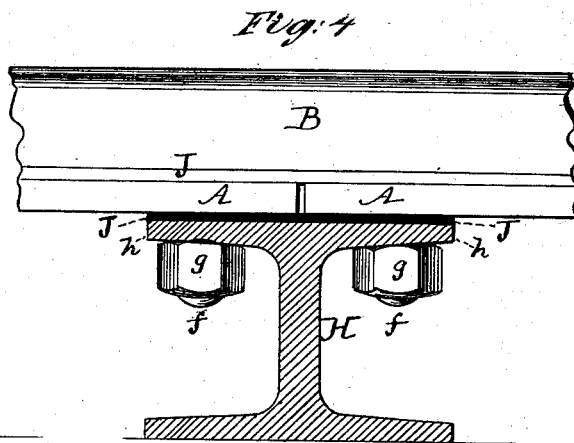
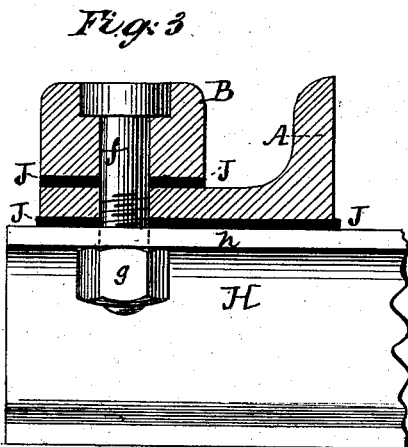
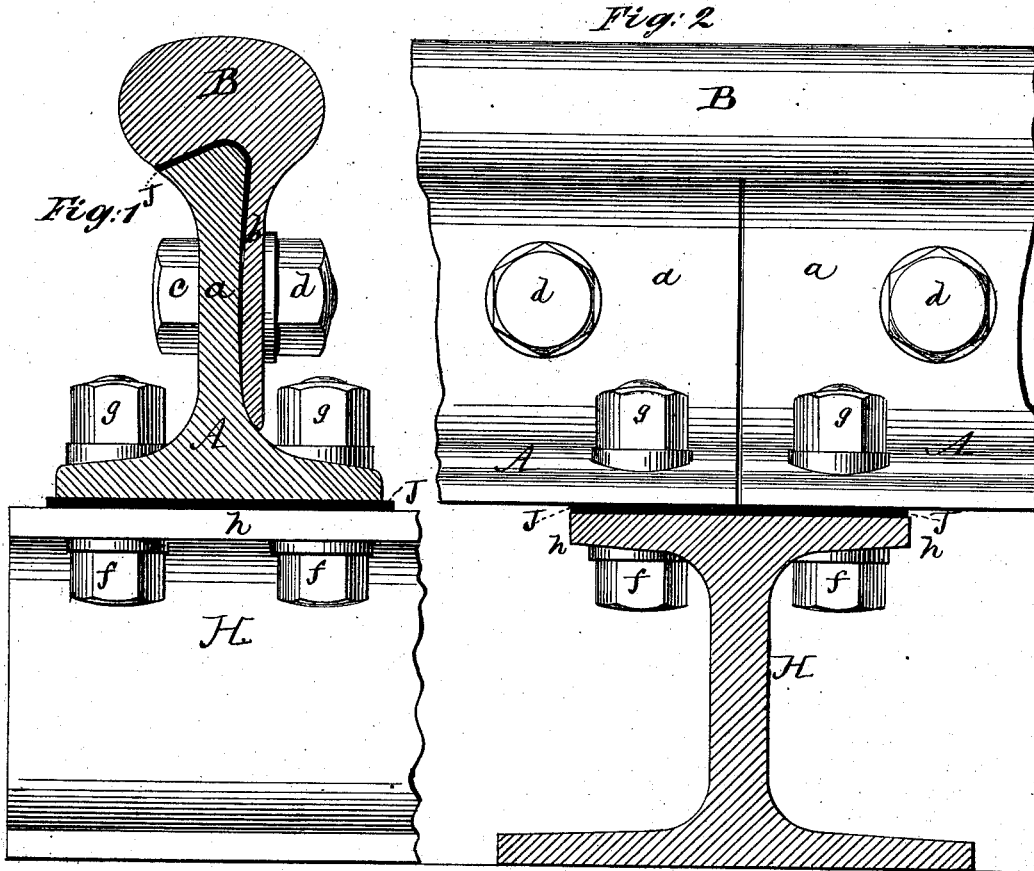


R. BANOLAS.  
 Railway-Track.

No. 164,793.

Patented June 22, 1875.



Witnesses:  
 Michael Ryan  
 Fred Wagner

Ramon Banolas  
 by his Attorneys  
 Brown & Allen

# UNITED STATES PATENT OFFICE.

RAMON BAÑOLAS, OF MADRID, SPAIN.

## IMPROVEMENT IN RAILWAY-TRACKS.

Specification forming part of Letters Patent No. **164,793**, dated June 22, 1875; application filed May 17, 1875.

*To all whom it may concern:*

Be it known that I, RAMON BAÑOLAS, of Madrid, in the Kingdom of Spain, have invented certain Improvements in Rails for Railways; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, making part of this specification.

My invention relates to certain improvements, which are applicable to railways and tramways of every description.

My invention consists of a novel construction and combination of parts, which will be fully hereinafter described, and specifically pointed out in the claim.

In the accompanying drawing, Figure 1 represents a vertical sectional view of the rail and a side view of the iron tie of my invention; and Fig. 2, a side view longitudinally of the rail and transversely of the tie.

A represents the lower part of the rail, the foot or base portion of which is of the usual or any suitable form. The web *a* is somewhat thinner than the web of an ordinary rail, but yet sufficiently thick to give it the necessary degree of strength. The top edge of the web *a* is widened, and is inclined downward from a horizontal line, as shown in Fig. 1. B represents the cap or upper part of the rail, which is made of steel or very hard and durable iron. Its top or upper portion forms the bearing-surface for the wheels, and is of the usual form in its cross-section. The under side is recessed to correspond with the top edge of the web *a*, and is extended downward to form a web, *b*, somewhat thinner than said web *a*. The lower part A is secured to the ties by bolts *f*, passed through its foot or base flanges and through the ties, and fastened by nuts *g*. The cap or head B is secured to the lower part A by bolts *c* passed through the webs *a* and *b* and fastened by nuts *d*. The recessed under side of the head B fits the top edge of the web *a*, and the webs *a* and *b* fit closely against and are secured firmly to each other. The two parts thus attached together form a firm and substantial rail, having a general external form in its cross-section similar to that of a solid rail.

By this construction and arrangement of parts the head or cap B may be removed and replaced without interfering with the lower part A, which lower part may remain permanently attached to the ties, and, not being exposed to wear and friction from the wheels, will not require to be removed when worn-out rails are to be replaced. Also, the cap or head may be made of steel and the foot or lower part of less expensive metal. Moreover, the two parts may be arranged to break joints with each other, by which means the use of fish-plates is rendered unnecessary, and the smoothness of the track is increased. The recessed lower side of the cap or head and the top edge of the web *a* fit each other closely, so as to insure uniformity of pressure on all parts.

A rail thus constructed may, if desired, be reversed as readily as a solid rail when the inner side becomes worn from friction of the flanges of the wheels.

The iron ties H are formed with flanges or ribs *h* on their upper portions, perforated for the passage of the bolts *f*, by which the rail is secured to the tie. The lower portion of the tie may be of any suitable construction, preferably with a broad base, in order to facilitate the ballasting of the road.

In order to preserve the necessary degree of smoothness and elasticity in the permanent way when the rails are attached to iron ties, I interpose a soft or elastic substance between the upper and lower parts of the rail, and also between the bottom of the lower part of the rail and the top of the tie. This soft or elastic packing may consist of sheets of india-rubber, or of other suitable substance, such as paper, card-board, leather, or lead, which will give the necessary degree of elasticity to prevent injury to the road or rolling stock. I prefer, however, to use india-rubber, because of its many advantages.

The elastic packing J is interposed between the ties and the bottom of the rail, and between the two parts of the rail, as shown in the drawing; and when the parts are bolted together the packing is held firmly in place. By means of this packing a degree of elas-

ticity is imparted to the track which could not be obtained in the ordinary mode of construction, and the shock and injury to the road and rolling stock are materially lessened.

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

The combination, with the **I**-iron ties **H** and rubber packing **J**, of the base or foot **A**,

web **a**, cap or head **B**, web **b**, and interposed packing **J**, the whole being constructed and arranged as and for the purpose specified.

RAMON BAÑOLAS.

Witnesses:

VICTOR HARLIN, Jr.,  
J. N. HÉVIN.