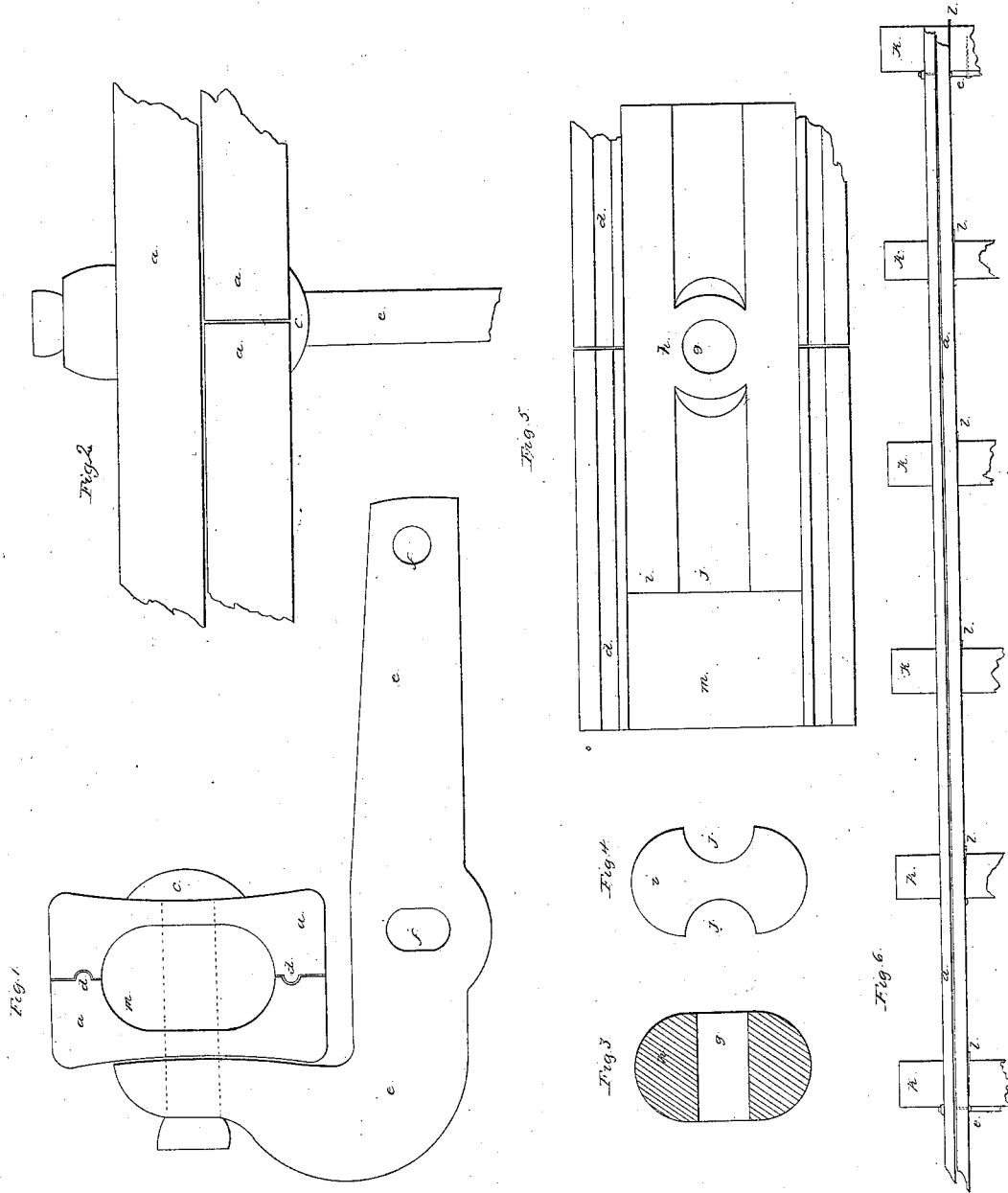


J. Elgar, Railroad Rail,

No. 6164-

Patented May. 10, 1849



UNITED STATES PATENT OFFICE.

JOHN ELGAR, OF BALTIMORE, MARYLAND.

IMPROVED TUBULAR TWO-PART RAIL.

Specification forming part of Letters Patent No. 6,164, dated March 10, 1849.

To all whom it may concern:

Be it known that I, JOHN ELGAR, of the city and county of Baltimore, in the State of Maryland, have invented a new and Improved Mode of Constructing Rails for Railways; and I do hereby declare that the following is a full and exact description.



My invention consists in forming a rail that shall combine as near as may be the properties of a rail were it made in one piece without joints the whole length of the line of railway, which properties would be uniform strength, a smooth and even surface, and security against longitudinal movement and lateral displacement at joinings. So essential are these properties to a good railway that the talents of engineers have been long and earnestly exerted to obtain them in the joinings of the common rails. A variety of chairs and splicing-plates has been used with very imperfect success. A three-part rail has been designed in England with the view of obtaining the properties above stated; but it fails in two important points. The cap-piece is difficult to secure against movement endwise, and it has thorough cross-joints, which makes a notch across the whole surface for the wheels to jolt over.

The rail which I have designed is made in two equal and exactly-similar parts, of either cast or wrought iron, and bolted or riveted together. Each part is a bar four inches wide and one and one-fourth inch thick, more or less according to the proportion and strength required for different roads; but it is made concave on one side, so deep as to reduce the thickness of the body of the bar to about three-eighths of an inch. The other side may remain flat or be slightly concave; but the deep concavity does not extend to the edges of the bar by about three-fourths of an inch, which leaves those parts the full thickness of one and one-fourth inch, and on one of those parts there is raised a rib of about one-fourth inch projection and in the other is sunk a groove, so that when the two bars are reversed they fit together. These two bars are bolted together, with their deep concavities inward, forming a tube whose cross-section is an oblong. The bars are bolted together with about five-eighths-inch bolts in spaces of about three feet, and the bars are

made to break joint by bringing their ends to meet in the middle or as near the middle of the opposite bar as may be convenient, and so on in splicing position to the end of the line, showing on the surface a continuous longitudinal joint and a semi cross-joint every ten feet, or half the length of the bars.

To make the combined rail as strong at the semi cross-joints as elsewhere, there is inserted an iron core seven inches long, more or less, which fits in and fills the tube or hollow of the rail at the joint, but tapers in thickness toward its ends, and through the middle of which a bolt passes that holds the bars together at the end joints.

I use a two-part rail, because it enables me to preserve half of the surface at the cross-joints for the support of the wheels in passing over those parts and prevents concussions at these places.

I prefer the tubular form of rail, for the reasons that it is strong in proportion to its weight and possesses the advantages which a bridge or  rail has in vertical strength at the corners, where the greatest pressure of the wheels occurs, and it has an advantage over the -rail in its capability of being twice reversed, and it offers a neat and effectual mode of restoring the loss of strength occasioned by the semi cross-joints by inserting the iron core.

To support the rail in its place in the track, I use a dovetailed notch about one inch deep in the sleepers and a thin iron wedge; but at each semi cross-joint it is held in the proper position by an iron stanchion which is made to stand up on the outside of the rail and is bolted to it with the same bolt which passes through the core, while the lower part of the stanchion is bent and lies against and is bolted or spiked to the side of the sleeper. I use this mode of fastening in preference to the chair, because it is not so liable to be loosened from the sleeper by the action of the locomotives and trains, and it also avoids the injury arising from the unequal alternate bearings of wood and iron under the rail, as the latter does not rest on the stanchion. The stanchion is so set as to incline the rail a little inward to let its surface conform to the conical tread of the wheels. As this rail is exactly similar in form on each opposite side or

face, it admits of being reversed, and will fit in the same bearings, and when one surface is worn too uneven for use the rail may be turned upside down, and as the inner corner is subjected to most wear from the action of the cone and flange of the wheels the outer corner may be brought into use by shifting the rails from one side of the track to the other. By this means the rail admits of being twice reversed, and should therefore last twice as long as ordinary rails.

In the drawings, Figure 1 is a cross-section of the rail and elevation of the stanchion. *a a* are the two parts of the rail; *d d*, the ribs; *c*, bolt-head; *e*, stanchion; *f f*, bolt-holes. Fig. 2 is a plan of rail and stanchion, showing the surface upon which the wheels roll with the semi cross-joint. Fig. 3 is a section of core in the middle, with bolt-hole *g*. Fig. 4 shows the end of core. *j j* are hollows to reduce the weight. These figures correspond with the hollow *m* in Fig. 1. Fig. 5 is an elevation showing inside of one-half the rail at a cross-joint, and the core in its place. Fig. 6 is a plan of rail in the track, showing a half-length of each part, and two semi cross-joints, and the sleepers *k k k k k k*, and wedges *l l l*

l l l, and stanchions *e e*, nailed to the side of the sleeper.

The same letters are used in the same parts in the several figures.

I do not claim a compound two-part rail with alternating cross-joints; but

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

1. The forming of each part of a two-part compound break-joint rail, as above described, so that when bolted together with a vertical joint they form a tube.

2. In combination with said rail, a core of iron inserted at each semi cross-joint in the hollow of such a rail, with a view of obtaining equal strength at those points with any other part and of holding each part in its place vertically at the cross-joints.

3. The stanchion to be bolted or nailed to the side of the sleeper for the support of the rail, constructed substantially as herein described.

JOHN ELGAR.

Witnesses:

F. ELGAR,

CHA. E. SHERMAN.