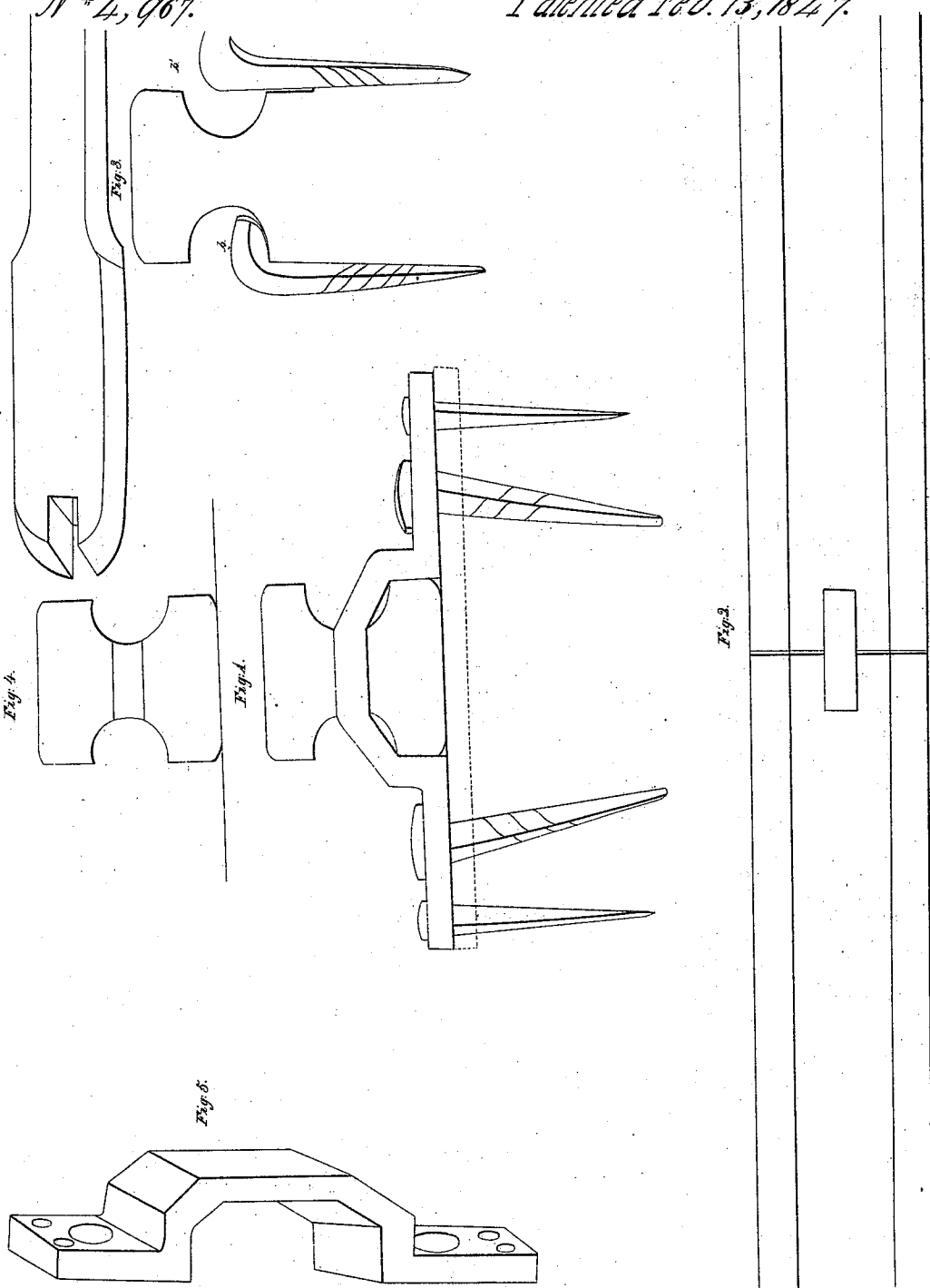


*T. Grenell.*  
*Railroad Chair*

*N<sup>o</sup> 4,967.*

*Patented Feb. 13, 1847.*



# UNITED STATES PATENT OFFICE.

THOMAS GRENNELL, OF NEWARK, NEW JERSEY.

## FASTENING RAILS ON RAILROADS.

Specification of Letters Patent No. 4,967, dated February 13, 1847.

*To all whom it may concern:*

Be it known that I, THOMAS GRENNELL, of Newark, New Jersey, have invented new and useful Improvements in Fastening Rails on Railroads, of which the following is a specification.

In order to enable others skilled in the art to make and use my improved wrought iron rail, I will proceed to describe its construction and operation, reference being had to the annexed drawing making part of this specification, in which—

Figure I, is a cross section of the rail with the mortise, saddle, and bolts. Fig. II, is an elevation. Fig. III, is a view of the screw, spikes and mode of fastening; Fig. IV, end of a rail; Fig. V, the saddle.

The principal features of the rail consist in its form and mode of fastening to the sleeper. The form is such that the base and wheel surface, shall be similar in size, and the object of making it so is to give two wearing surfaces to one rail, and the peculiar mode of fastening is, to adapt this rail, and thereby obtain convenience, security and economy.

The rollers to construct this rail are of such a form, as to give to the base and wheel surface equal dimensions, and these may be similar to the most approved rail in use. On each side of the rail half way between the top and bottom, a deep concave or semi-circle is formed to lighten the rail, as seen in Fig. I, at each end of the rail where they butt together a mortise (Fig. II), is cut through the concave. The rail is secured to the sleepers by means of the saddle *a*, which passes through the mortise cut in the end of each rail, and laps half on each side, thus keeping the ends of both down and

exactly in line with each other; the saddle is then secured to the sleeper by bolts or screws.

For the intermediate fastenings, I drive a peculiar screw, spike, into the sleeper. These are pointed at one end and have a hook at the other, as seen at *b b'* Fig. III. These are driven into the sleeper beside the rail, with the hook outward (*b'*). The hook is then turned into the concave part of the rail with a proper wrench, and in doing so, the screw brings the hook down hard upon the rail, as seen at *b*, binding the sleeper and rail both together.

The advantage this rail has over others in use is to afford two surfaces for the wheel to wear upon, for when one side is worn so as to be useless, the lower side can be turned up, and the worn out side put on the sleeper for a base, and can also change sides of the line presenting each of the four corners of the rail alternately to the flange of the wheel. Thus the time required to lay new rails and the cost of rolling them will be greatly extended.

What I claim as my invention and desire to secure by Letters Patent is—

The peculiar arrangement of the saddle, and the mortise in the ends of the rail for securing it to the sleeper, and by this peculiar fastening, I am enabled to form a rail which can be worn on both sides, by shifting the rail from track, to track, and reversing the base and top, as often as the wear requires it; thus bringing all the four corners to the action of the wheels, as described.

THOMAS GRENNELL.

Witnesses:

JOSEPH P. PIRSSON, Jr.,  
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