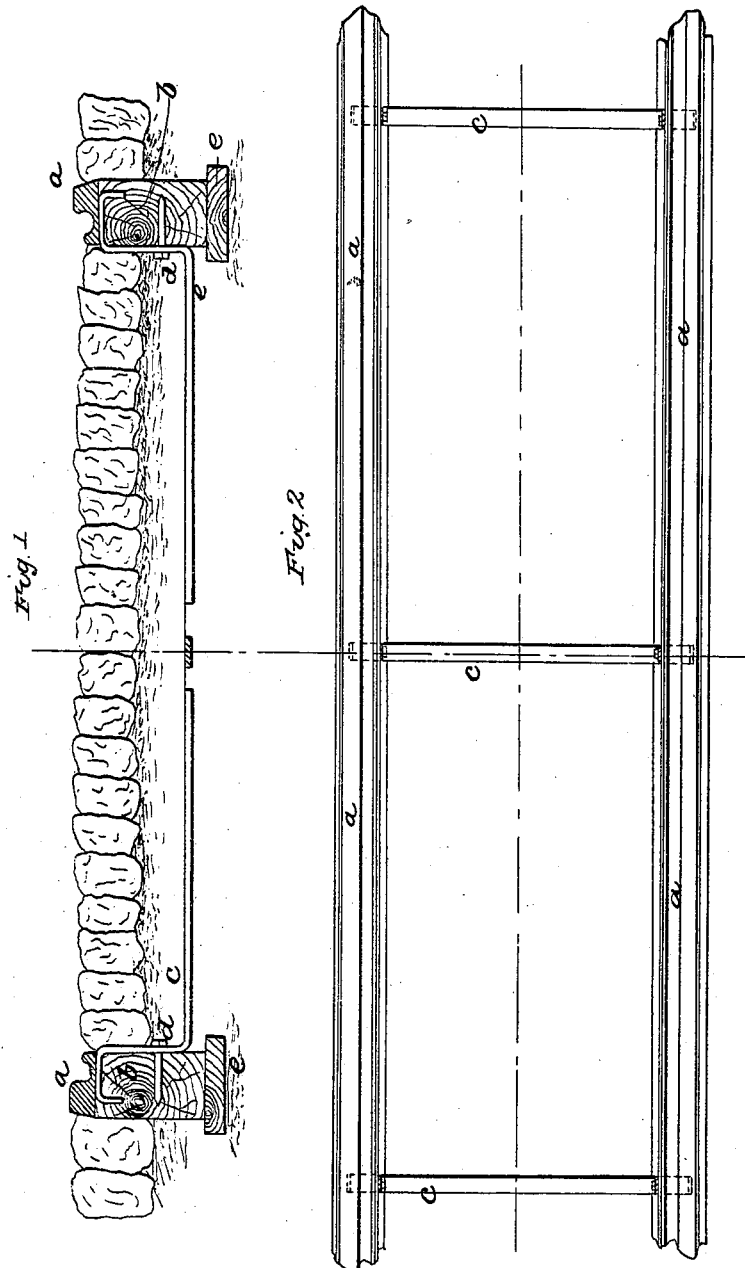


J. S. HYDE.
Construction of Railways.

No. 51,904.

Patented Jan'y 2, 1866.



Witnesses
François H. Keller
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UNITED STATES PATENT OFFICE.

WILLIAM PEET AND MARIAN L. HYDE, OF BROOKLYN, N. Y., ADMINISTRATORS OF THE ESTATE OF JAMES S. HYDE.

IMPROVEMENT IN CONSTRUCTION OF RAILWAYS.

Specification forming part of Letters Patent No. 51,904, dated January 2, 1866.

To all whom it may concern:

Be it known that JAMES S. HYDE, deceased, late of Brooklyn, in the county of Kings and State of New York, did invent certain new and useful Improvements in the Construction of Railways; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, and to the letters of reference marked thereon.

In the ordinary systems of constructing city-railways a light iron rail is laid upon a longitudinal wooden sleeper or sill of about the same width, which in turn rests upon a series of wooden cross-ties that are spaced about five feet apart. The sills and cross-ties are sometimes merely spiked together; but they are generally furnished with iron brackets at their junction, which cannot be fitted into their places until both the sills and ties are laid, owing to the necessity for cutting the wood in making the necessary adjustments. These fastenings are liable to become loose, and they require constant supervision and care to keep them secure, so that the track may be retained in its proper gage. When repairs are required in this timber substructure, as well as when it is first laid, it becomes necessary to remove the entire line of pavement between the rails in order to get at the fastenings and the bedding of the cross-ties.

The object of the said invention is to furnish an iron cross-tie that will not be liable to decay, and which will be easily made at first of the requisite size and form, so that the sills and rails to which it is applied must necessarily be set at the desired gage without further adjustment, and which will lock into the longitudinal sleeper and be held firmly in its place by the rail placed above it, so that the fastenings of the rail contribute materially and almost completely to the consolidation of the entire structure. To accomplish this result the said invention consists in making the cross-ties with the ends bent at right angles at the exact distance required between the sills, so that when the sills are placed against the ends thus turned up they require no further adjustment for the gage. The ends of the ties are further turned over the upper surfaces of the

sills into recesses mortised therein for their reception, and are again finally turned so that the ends may be driven down into the body of the sills. It will thus be seen that the first-mentioned angles in the ties prevent the sills and rails coming together, and that the outer angles of the ties that are sunk into the wood prevent their spreading, and that the rails placed upon them and secured in the ordinary manner keep the ties in their places.

To enable others skilled in the arts to which it appertains to make and use the said invention, I will proceed to describe its construction and operation with reference to the drawings.

Figure 1 is a cross-section of a railway constructed according to the said invention, with iron ties locking into the wooden sleepers, and Fig. 2 is a plan of the same drawn on a smaller scale.

The rails *a* are placed upon the longitudinal sills or sleepers *b*, to which they may be secured in the usual manner. The cross-ties *c* are turned up on the inner sides of the sills, and then over the upper faces into mortises cut for their reception, to leave a flush surface for the bearings of the rails, and then finally down again, so that the ends turn into the sills, in which they are tightly driven in the manner shown, to prevent any undue strain upon the angles of the ties. A fastening, *d*, is used for which a screw, spike, or bolt is peculiarly adapted.

In carrying the invention into effect it is preferable to bed the sills upon boards or planks *e*, that are somewhat wider than the sills, for the purpose of extending the area of the support, and that have been previously prepared with coal-tar, or asphalt, or other similar material, to exclude moisture and prevent decay. The joints of the sills and the planks should be made alternately to form a continuous and uniform support for the rails placed upon them. The planks are first laid in longitudinal trenches duly prepared for their reception. The sills are then laid and secured and the ties placed in the few narrow transverse trenches that may be required and driven into the sills and fastened; and, finally, the rails are laid and spiked or bolted in their places over the ties, thus securing, with their

fastenings, the combination of the ties and sleepers.

In a similar manner to that which has been described in connection with city-railways, the said invention may be applied and used to any kind of rails or chains where the latter may be required.

It will be observed that the ties are spaced wider apart in the drawings than is usual, and this economy, arising from the invention, is permitted by the fact that the mortising of the ties into the sills holds them more rigidly than is possible with any extraneous fastening, and

hence admits a less number being used with equal efficiency.

What we claim as the invention of the said JAMES S. HYDE, deceased, and desire to secure by Letters Patent, is—

The combination of the iron cross-tie with the wooden sleepers, when constructed and arranged substantially as described.

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Witnesses:

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