(No Model.) 2 Sheets—Sheet 1.

J. HILL.

RAILROAD TIE AND JOINT.

No. 378,930. Patented Mar. 6, 1888.

Fig 1

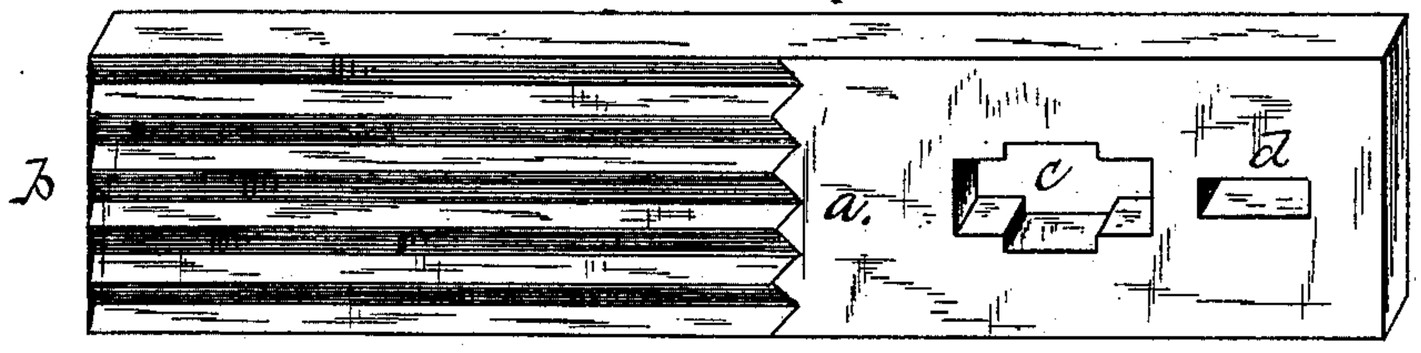


Fig 2.

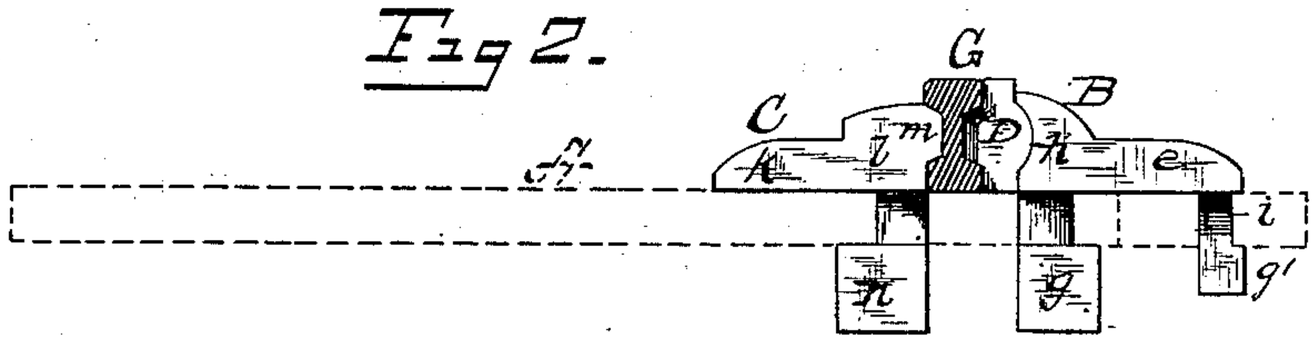
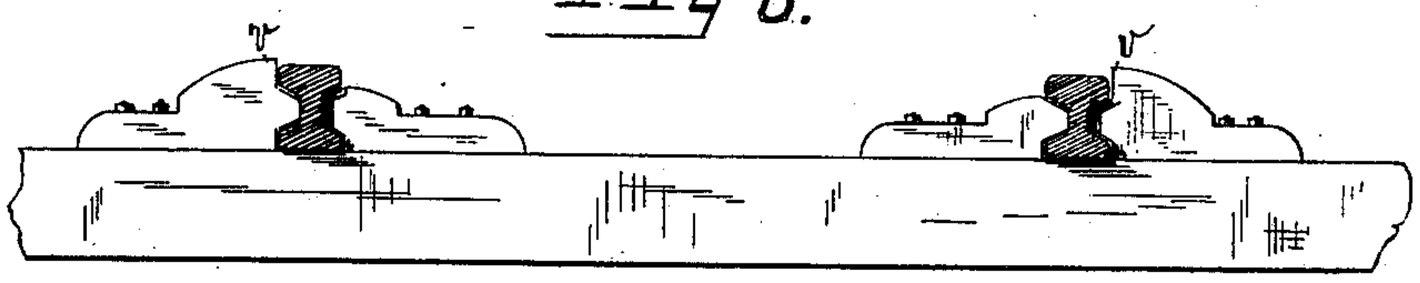


Fig 6.



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(No Model.) 2 Sheets—Sheet 2.

J. HILL.

RAILROAD TIE AND JOINT.

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Fig. 3.

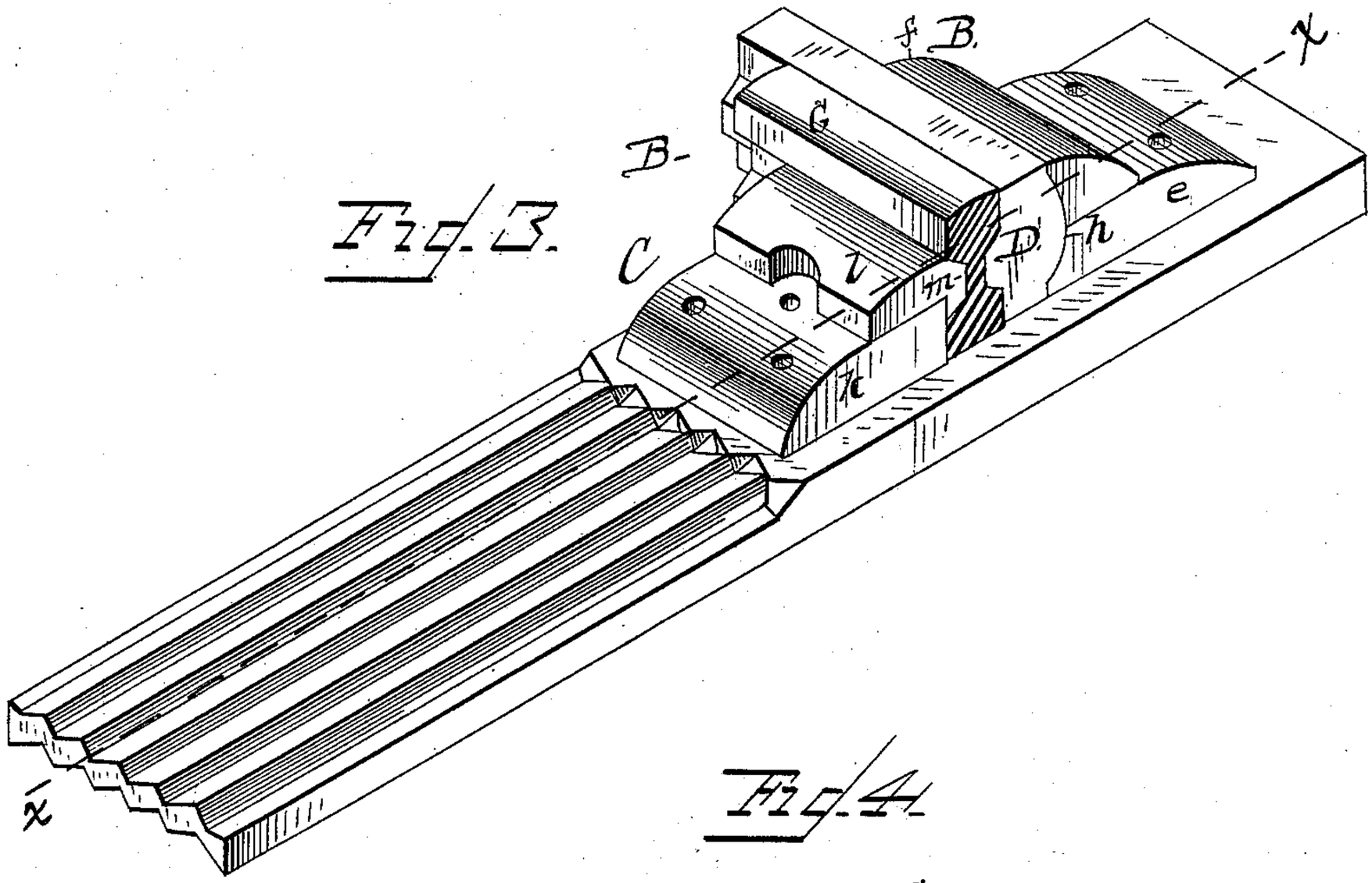
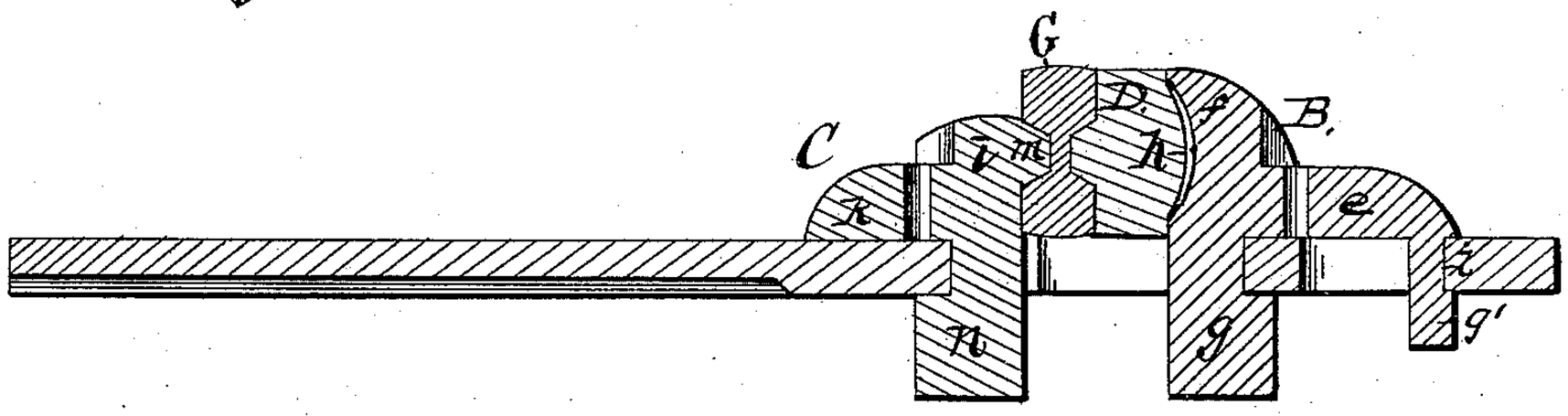


Fig. 4.



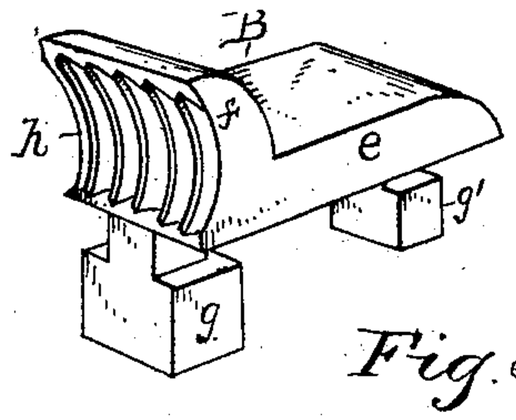


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES HILL, OF ARKANSAS CITY, KANSAS.

RAILROAD TIE AND JOINT.

SPECIFICATION forming part of Letters Patent No. 378,930, dated March 6, 1888.

Application filed August 13, 1883. Serial No. 103,606. (No model.)

To all whom it may concern:

Be it known that I, JAMES HILL, a citizen of the United States of America, residing at Arkansas City, in the county of Cowley and State of Kansas, have invented certain new and useful Improvements in Railroad Ties and Joints; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention has relation to improvements in railroad-tracks, and has for its objects, first, to provide a cross-tie on and to which the track may be speedily and accurately and durably laid and secured; second, to provide chairs and joints which seat the rails firmly and protect and preserve the ends of the meeting rails, the ultimate object being to provide a complete system of laying track; and with these and other objects in view my invention consists in the novel construction and combination of parts, as will be hereinafter more fully described and specifically claimed.

To effect the objects intended I have invented the means, things, or appliances hereinafter described, and which are demonstrated in the annexed drawings, wherein—

Figure 1 is a view of a section or part of my improved cross-tie. Fig. 2 is a side view of my improved chair and joint assembled in connection with a rail, the cross-tie being shown in dotted lines. Fig. 3 is a perspective view of one-half of the cross-tie having the chair and joint applied. Fig. 4 is a longitudinal sectional view through the cross-tie and transversely through the chair and rail, taken on the line *x x* of Fig. 3. Fig. 5 is a perspective view of the outside chair-section, showing the corrugations upon the inner face thereof. Fig. 6 is a view showing a modification of my improved chair applied to an ordinary wooden cross-tie.

The letter A (see Fig. 1) represents the cross-tie, formed with the flat end plates, *a*, and intermediate corrugated portion, *b*. In each end plate are also formed the slots *c* and *d*, the former of which has the center cut out, substantially as shown, to receive the heads of the depending lugs or arms of the chair or joints, and the latter is intended to receive the small depending lug or arm of the outside chair, as hereinafter stated.

The letter B (see Figs. 3 and 4) represents the outside section or part of my improved chair and rail-joint, composed of the integral parts *e*, which is the body and rests on the tie or plate; *f*, a projecting lip, and *g g'* depending lugs or arms. The face *h* of this chair is corrugated and formed circular, substantially as shown, and the lug *g* is cut away at the upper portion to suit the dimensions of the narrow extension in the main slot in the tie, and the cut-away portion is in length the same as the thickness of the cross-tie at the place of attachment. The arm or lug *g'* passes through the small slot *d* in the outside end of the cross-tie, and is shouldered, as at *i*, in order that when the chair is slipped back in place this shoulder will pass under the cross-tie and keep the chair from tilting or twisting.

The letter C, Figs. 3 and 4, represents the inner section or portion of the chair or joint, consisting of the integral parts *k*, which sits on the tie or tie-plate, and the elevated part *l*, and the inner face, *m*, which is formed to fit the shape of the stem of the rail, and also formed with the depending lug *n*, the lower portion of which is passed through the largest part of the slot in the tie, and the upper portion being cut away, as shown, to fit into the smaller slot in the tie, in order that when put in position it locks in place.

The letter D represents a hard-wood wedge or key formed somewhat wedge-shaped in the direction of its length, and with one side to fit the circular face of the outside chair or joint and the other face to fit the stem of the rail. This key fits between the outer chair-section and the side of the rail, and its function is to adjust and secure the parts together and in place.

It will now be observed that the parts described are readily set in place, and when secured, as indicated, with relation to the rails they present a simple, safe, and durable track, the integrity of which cannot be disturbed by ordinary wear and tear.

The conformation of my improved cross-tie with chairs admits the road to be ballasted up to the ball on the head of the rail, and no part of the track need be visible or exposed

but the head of the rail. The depending lugs or arms which extend through the cross-tie into the foundation of the road aid materially in keeping the track in place and from sliding.

In Fig. 6 of the drawings I have shown a modification of my improved chair fixed to a common wood tie and adapted to hold a common rail or a double-headed rail firmly in position, the sections being secured to the ties by spikes, bolts, or wooden pins. The sections or parts are shaped to fit the configuration of any rail adapted by the line; and hence may be made to suit the common T-rail or double-headed rail. In this instance the outside section is provided with a raised portion, *v*, which starts at each end level with the rail and gradually rises toward the center, where it is a little higher than the tread or face of the rail. The purpose of this construction is to carry the car-wheels over the rail-joint without damage to the rail ends. It is obvious that the conformation of the inner faces of the different chair-sections may be made to suit the conformations of any rail adapted to any road; or, if necessary, they may be formed to take the meeting ends of a common T-rail or a double-head rail. The plates may have suitable perforations through which spikes or bolts may pass, and by which they may be secured to the cross-ties.

It will now be observed that the parts respectively applicable to be conjointly used, as herein described, being applied for the purposes intended, make a completed track.

The letter G represents an improved double-headed rail so constructed that when one side becomes battered by use it may be turned over and the other face put to use.

In laying track with my improved appliances the plates and joints for the outer ends of the ties can be placed on the ties in the yard, or ahead of the track, setting the track at once to gage, when it remains to put the rail in place, push the inner part of the joint or holder in place, and drive the key or wedge into position.

It will be observed that the sections of my improved joint act conjointly, but are independent of and separate from each other. In other words, they are not connected at the base. Further, by the adoption of a wooden key or wedge I attain two essentials in a perfect joint. It is essential that the rails be free to contract and expand within the joints, and that they be allowed to give a little with the oscillation and jar of the passing trains when the flanges of the wheels strike against the side of the rails, and these essentials are obtained and assured by the wooden wedge used to secure the parts. Were iron used instead, the strain of the train on the rail would break the chair.

By constructing my sections solid, and so that they serve their purpose without being bolted to the rail, I obviate the objections resulting from perforating the joint-sections and rail and bolting them together. The bolts break, and with them often the rails and chairs. Furthermore, the practice of bolting these solid chairs through the rails necessitates making the joint chair-sections joined or solid on one tie, and this only admits the expansion and contraction of the rail by moving the tie under the joint.

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

1. A cross-tie formed with an intermediate longitudinally-corrugated portion and flat end portions, each of the latter provided with a slot, *c*, cut out at its center, substantially as shown, a plain slot, *d*, and fastening devices, as and for the purpose specified.

2. The rail-chair consisting of outside and inside sections, the former curved and corrugated upon its inner face and composed of a body, *e*, adapted to rest upon the tie or plate, a projecting lip, *f*, and depending lugs *g g'*, integrally formed, and the latter composed of integral parts *k*, adapted to rest upon the tie or plate, elevated part *l*, the inner face, *m*, constructed to fit the rail-stem, and a depending lug, *n*, substantially as described.

3. In combination with a railroad-rail and cross-tie, the independent chair-sections B C, the former curved and corrugated upon its inner face and provided with depending lugs or arms *g g'*, and the latter constructed upon its inner face to fit the rail-stem, and provided with a depending lug or arm, *n*, and a wooden fastening-wedge adapted to fit the rail-stem and the curved inner face of the outer chair-section, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES HILL.

Witnesses:
J. FORREST HAMMOND,
HENRY E. ASP.