No. 22,168. PATENTED NOV. 30, 1858.

C. E. DETMOLD.

MODE OF SECURING THE ENDS OF RAILWAY BARS.

Fig 4

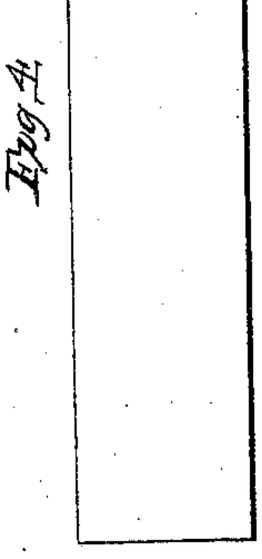


Fig 6.

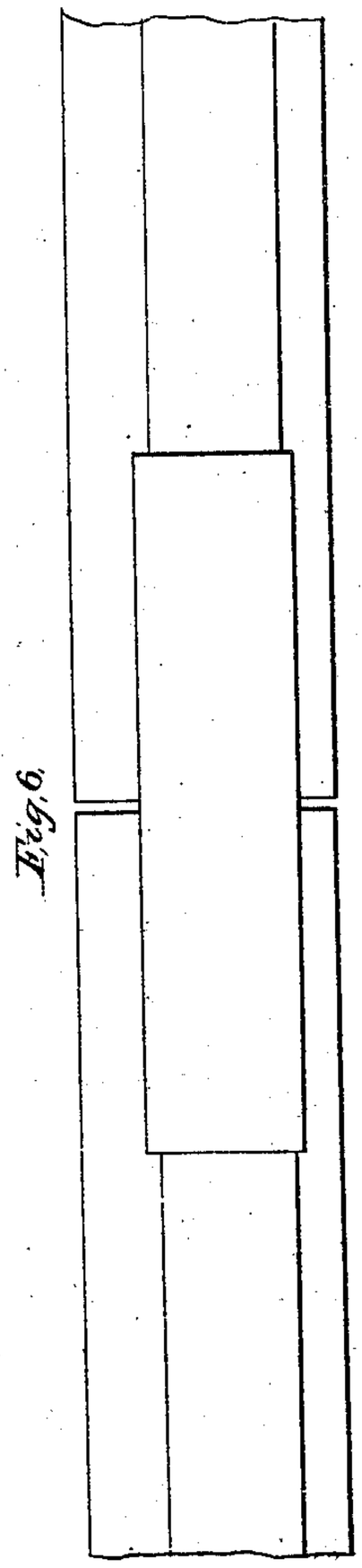


Fig 10.

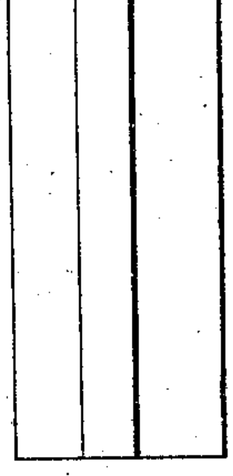


Fig 9.

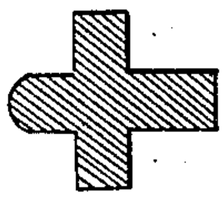


Fig 12.

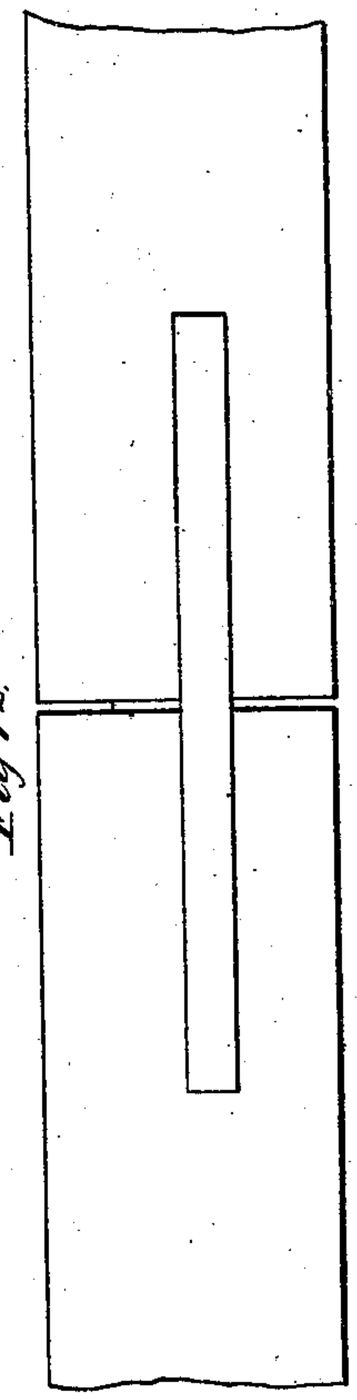


Fig 3

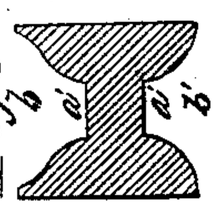


Fig 8.

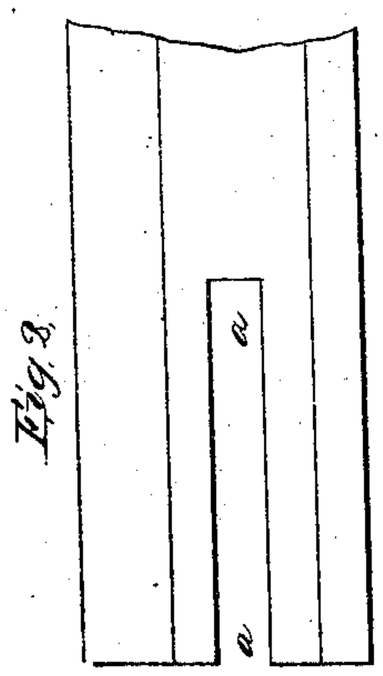


Fig 8.

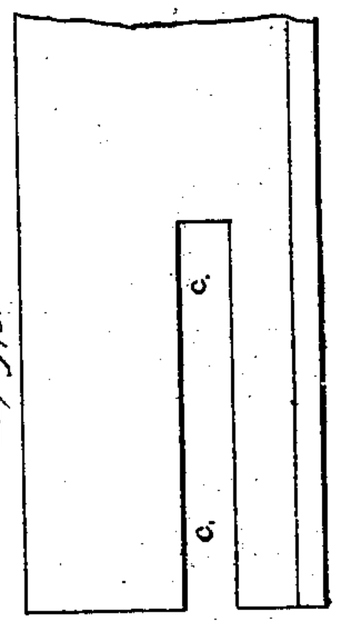


Fig 12.

Fig 1

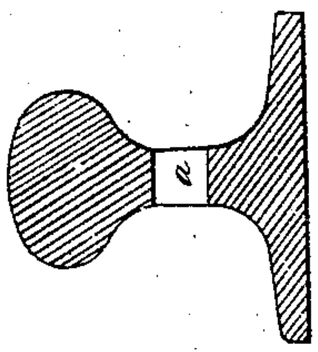


Fig 5.

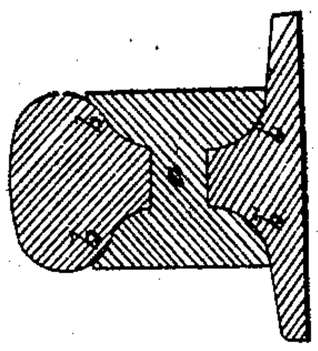


Fig 7.

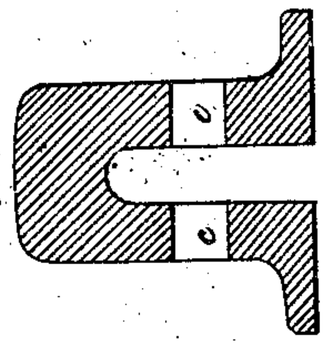
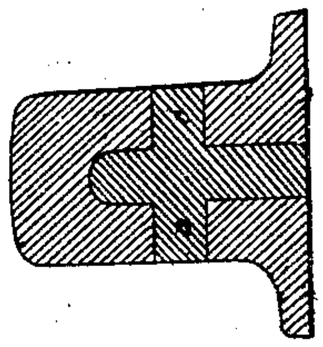


Fig 11.



Witnesses.
C S De Forest
M Caldwell

Inventor
C E Detmold

UNITED STATES PATENT OFFICE.

CHRISTIAN E. DETMOLD, OF ORANGE, NEW JERSEY.

MODE OF SECURING THE ENDS OF RAILWAY-BARS.

Specification of Letters Patent No. 22,168, dated November 30, 1858.

To all whom it may concern:

Be it known that I, CHRISTIAN E. DETMOLD, of Orange, in the county of Essex and State of New Jersey, have invented a new and useful Improvement in the Mode of Joining and Fastening the Ends of Rails for Railways, of which the following is a full and exact description, reference being had to the annexed drawings, in all the figures of which the same letters refer to the same parts throughout.

Figure 1, is an end view of an ordinary rail of the so called H pattern.

Fig. 2, is a side view of the same, the letter *a*, *a*, in both shows a slot or long notch cut out of the shank or stem of the rail, which is readily done by a circular saw of suitable thickness, when the rail is hot, or by any other means. The width of this slot or notch may be from one half to three quarters of an inch, more or less, in proportion to the size of the rail; its length may be from three to five inches, more or less, but the efficiency of the joint would be diminished by making it too short; on the other hand the difficulty and cost would be uselessly increased by making it much longer.

Fig. 3, shows an end view or section of the joint piece, of which Fig. 4, is a side view. This joint piece is made of wrought iron rolled to the desired pattern and cut into proper lengths by a circular saw, or other means. It is so shaped that its narrow part or neck (*a'*) fits precisely into the slot or notch in the ends of the rails, and the upper groove *b* clasps the under side of the head of the rail, and the lower groove *b'*, fits close to the under part of the shank or neck and the inner portion of the bottom web or base of the rail, as shown in Fig. 5, which is a section of the joint, and in Fig. 6, which is a side view of the same.

The ends of the rails into which the slots are cut are slipped upon this joint piece, and thus a perfect joint is formed, which will entirely prevent all lateral or vertical displacement of either rail, while at the same time affording the rails full liberty to expand and contract; the rails being simply spiked upon the cross ties with hook headed spikes. I apply the same principle of joints to the so called bridge rail by cutting a slot or notch through both shanks of the ends of the rails, of the same dimensions as above indicated, and as shown in Fig. 7 and Fig. 8, which represents an end and side view of such a rail, in which *c*, *c*, *c*, indicate the slots or notches. These notched rails are slipped upon a joint piece which has the shape of a cross in section, as shown in Fig. 9, and Fig. 10. This joint piece is also rolled of malleable iron, and of such a shape as to fit precisely into the inner groove of the rail and that the wings of the cross fit exactly into the slots or notches cut in the shanks of the rails; as shown in Fig. 11, and Fig. 12, which are a section and side view of the joint.

Thus a perfect joint is formed, permitting neither vertical nor lateral displacement of either rail, and allowing them full liberty of expansion and contraction; the rails being simply spiked upon the crossties with hook headed spikes, the same as the H rails above described.

The joint pieces may be made of cast iron, but wrought iron rolled will be found the cheapest and most efficient.

An additional and important advantage of this mode of making rail joints consists in the support which the joint piece affords to the head of the rail, which is more apt to be crushed at the joint than elsewhere.

Having thus described my invention so that any one skilled in the manufacture of rails and construction of railways may readily make and apply the same, I wish it understood that I claim as my invention—

The above described mode, or any other substantially the same, of joining rails at their ends to form continuity thereof, without the use of chairs or plates, of bolts or rivets or of any other fastenings, by inserting iron joint pieces of such shape as to fit into slots in the shanks of two contiguous rail ends and at the same time afford a support to the head of said rails—whereby the rails are permanently kept in the same vertical and horizontal planes and are allowed to expand and contract substantially as set forth herein.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

C. E. DETMOLD.

Witnesses:

C. B. DE FOREST,

I. W. CALDWELL.