

(No Model.)

C. L. WHEELER.  
RAIL JOINT.

No. 512,851.

Patented Jan. 16, 1894.

Fig 1

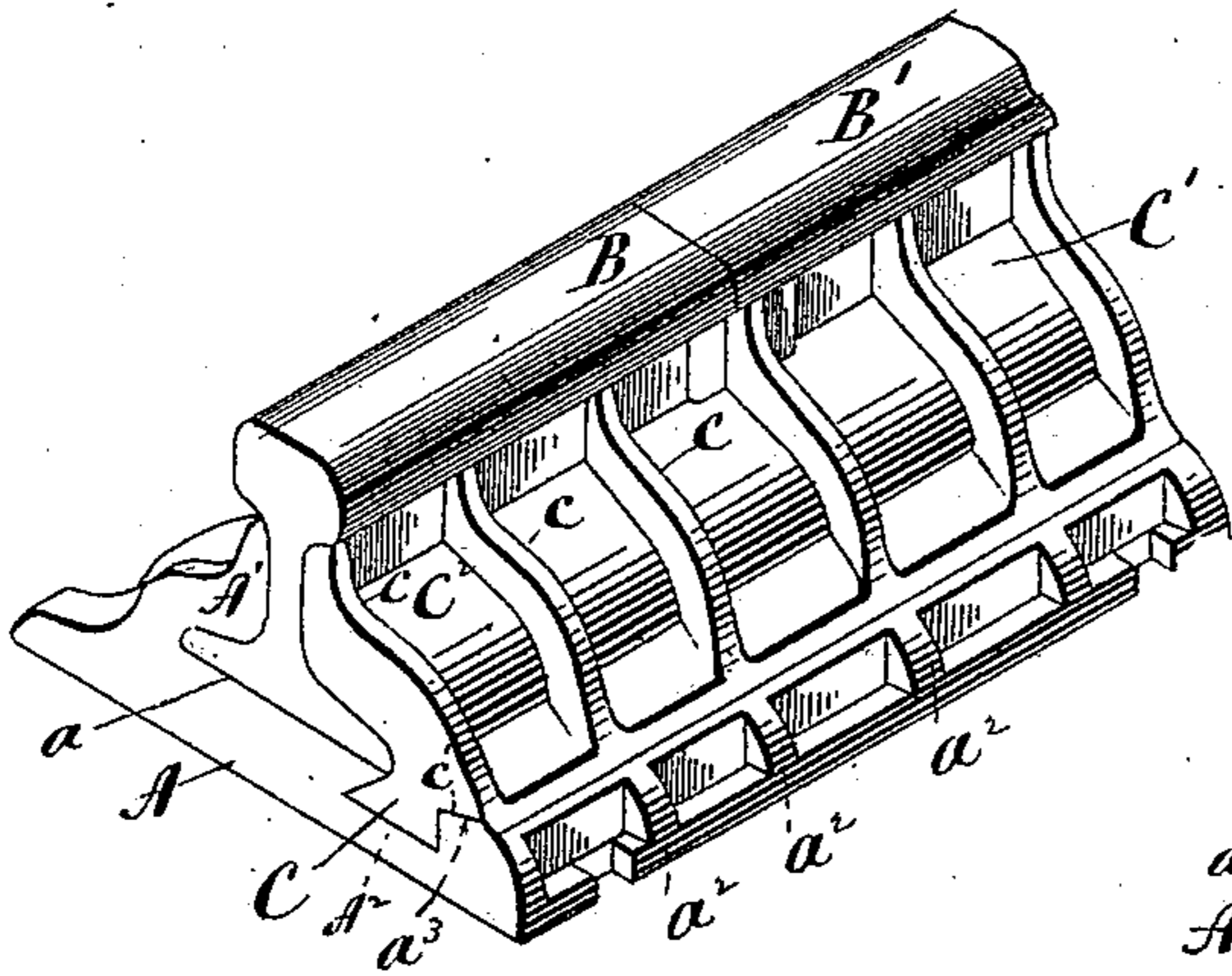


Fig 3

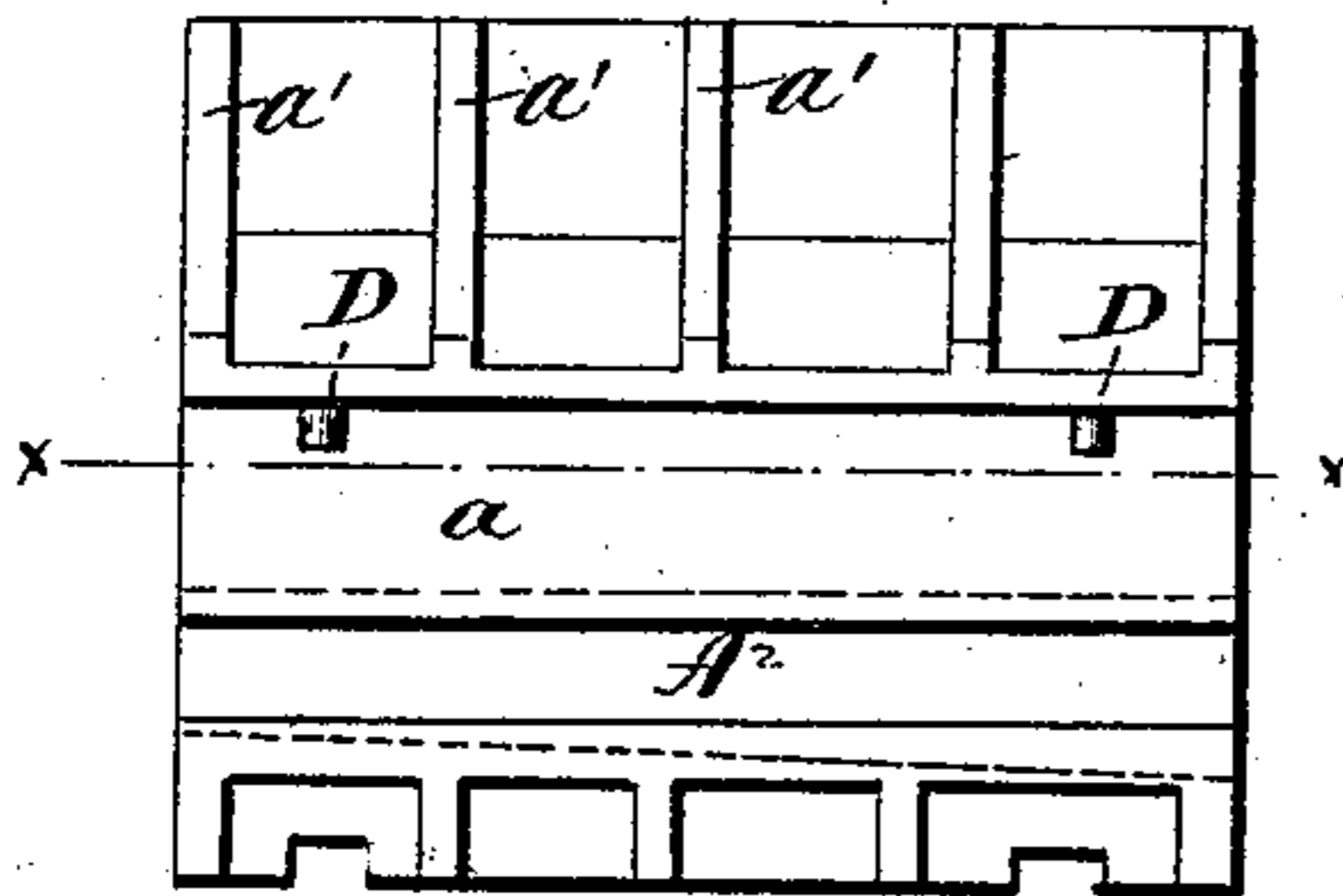


Fig 7

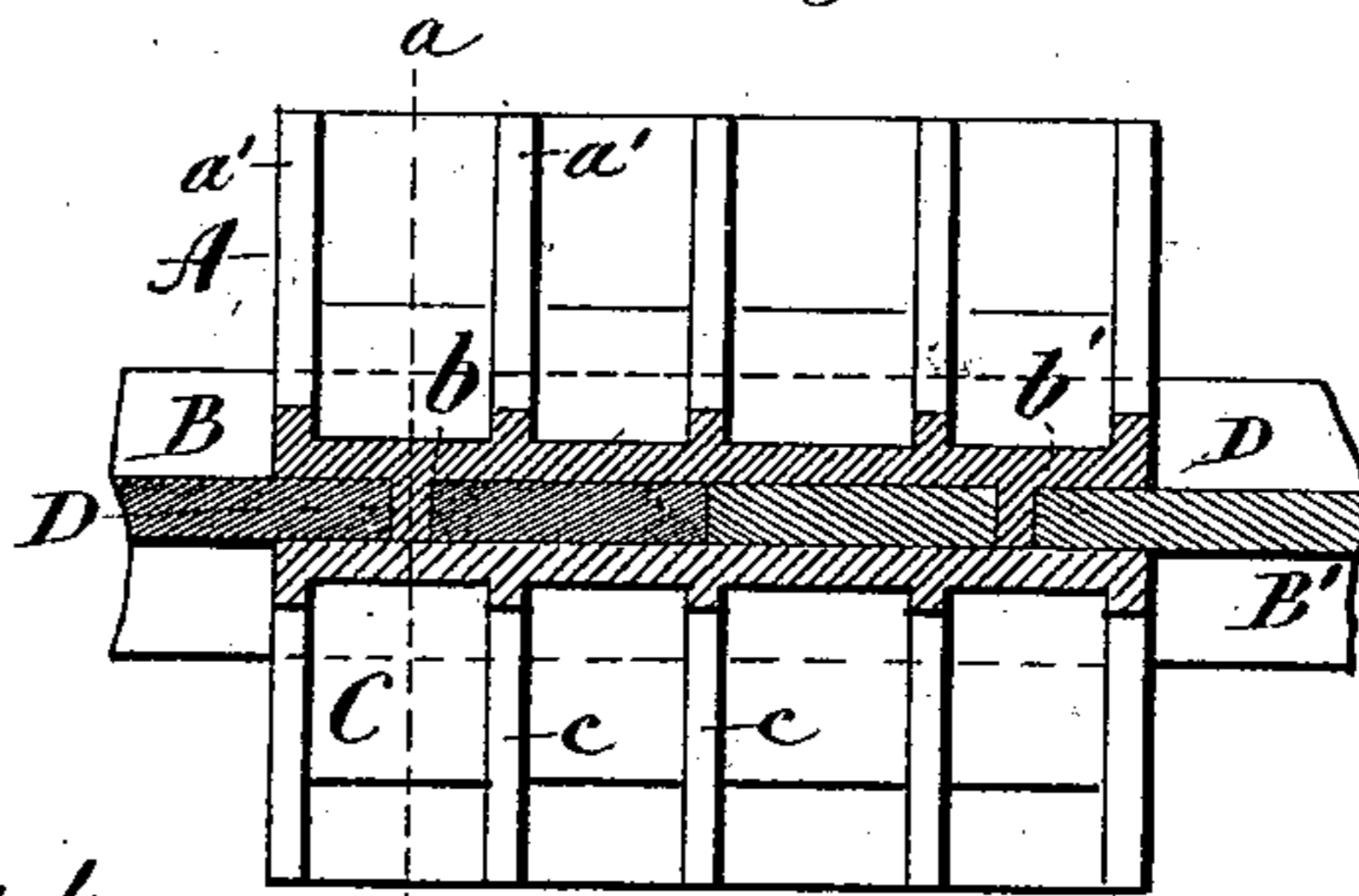


Fig 4

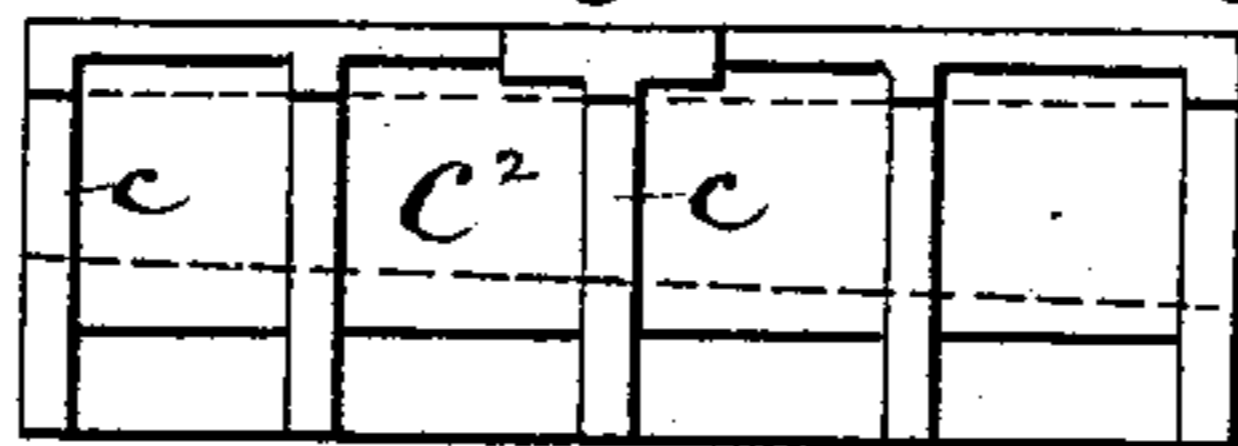


Fig 5

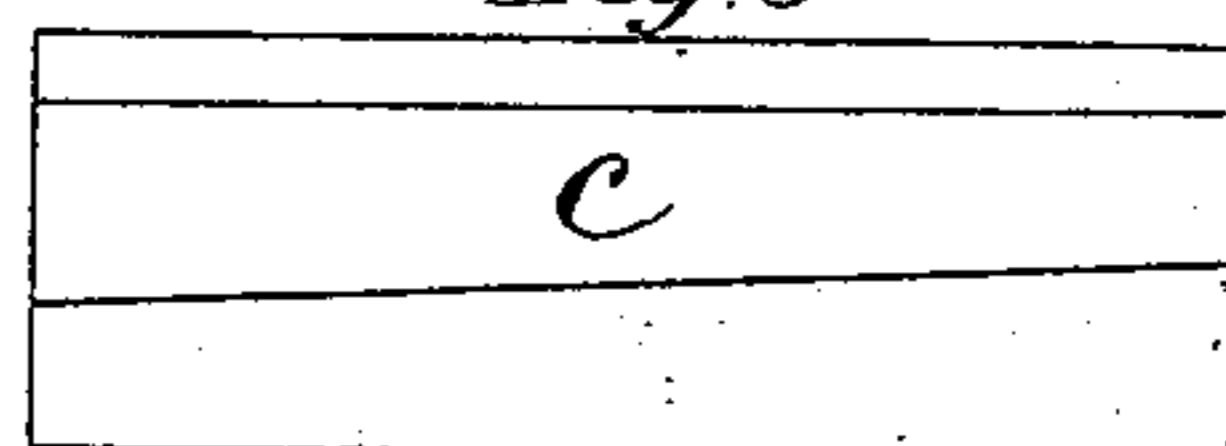


Fig 2

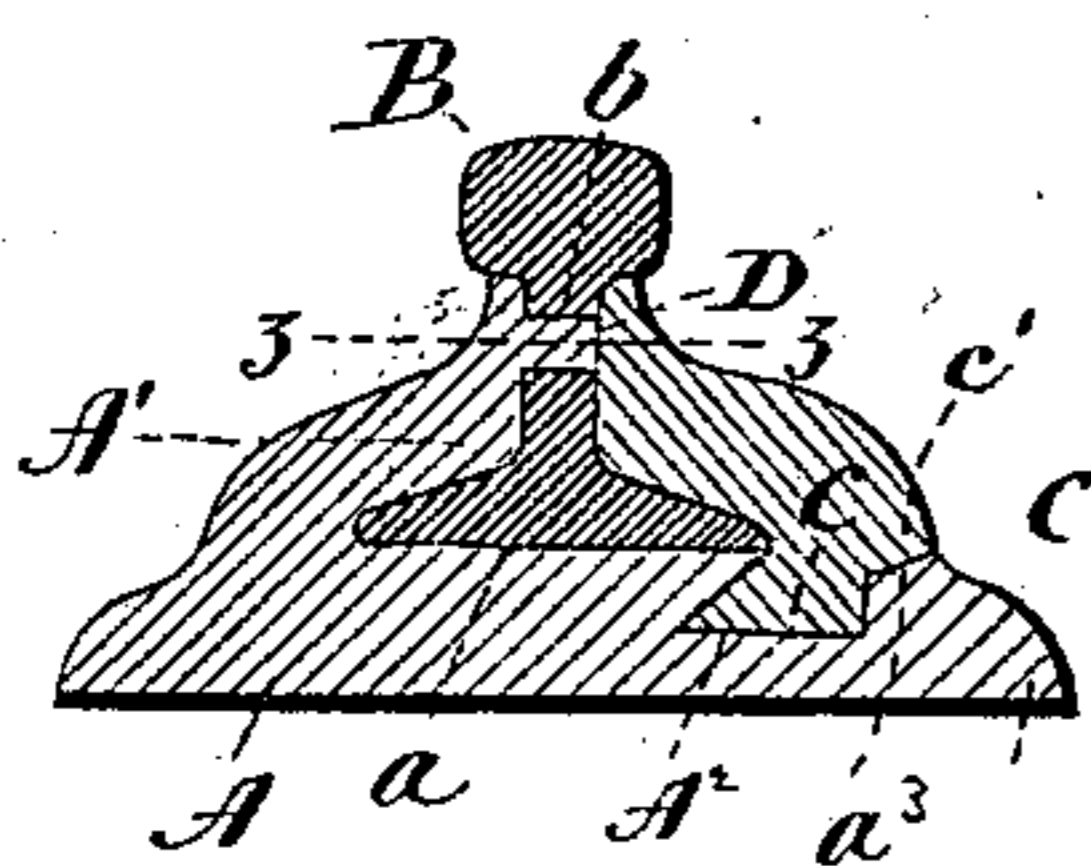


Fig 6

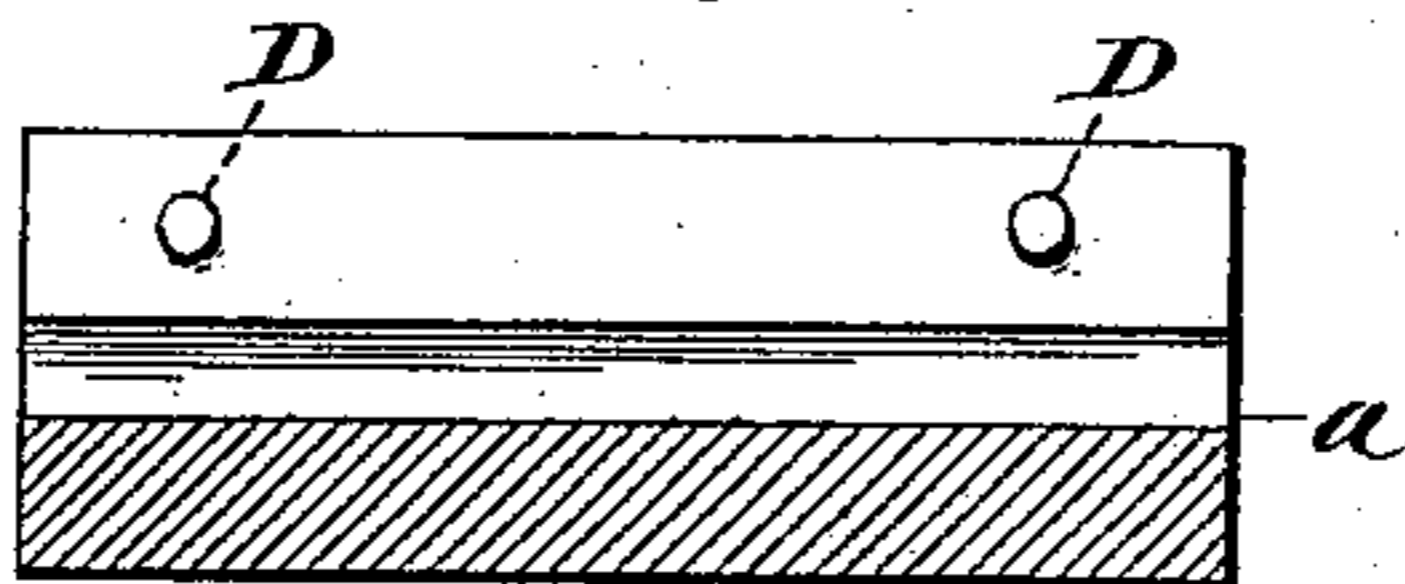
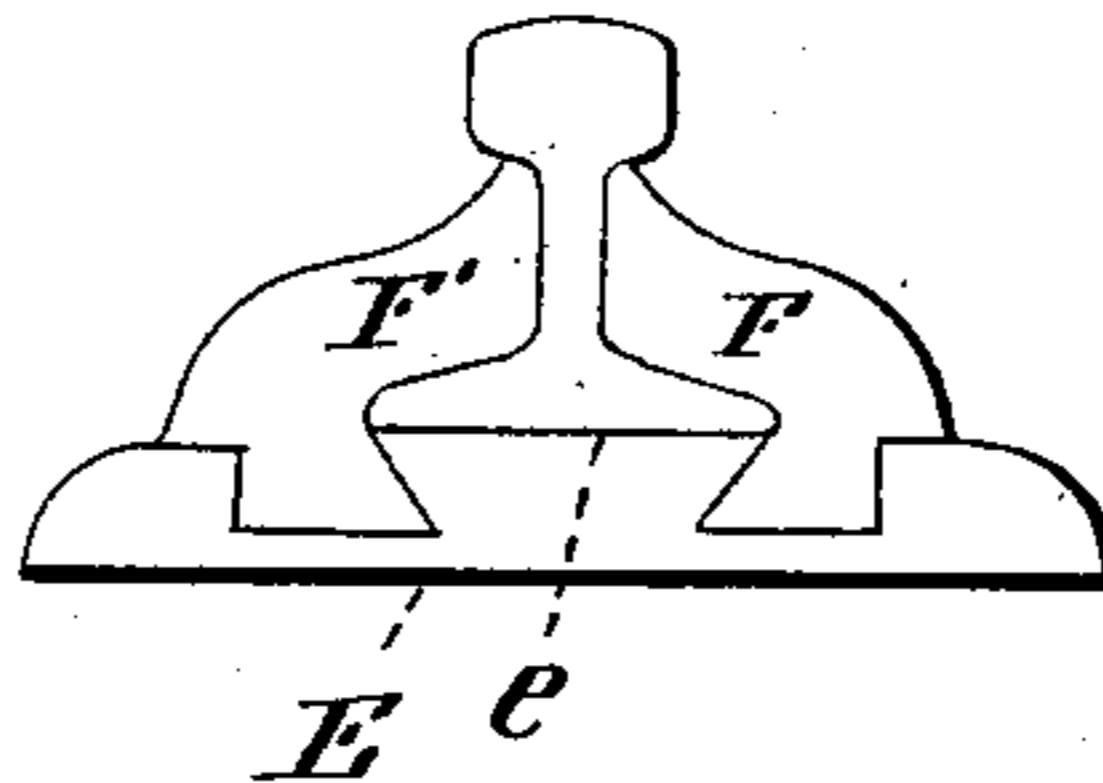


Fig 8



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# UNITED STATES PATENT OFFICE.

CLARENCE L. WHEELER, OF MARION, INDIANA.

## RAIL-JOINT.

SPECIFICATION forming part of Letters Patent No. 512,851, dated January 16, 1894.

Application filed May 1, 1893. Serial No. 472,484. (No model.)

*To all whom it may concern:*

Be it known that I, CLARENCE L. WHEELER, of Marion, in the county of Grant and State of Indiana, have invented a new Improvement in Rail-Joints, (Case A;) and I do hereby declare the following, when taken in connection with accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which  
10 said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view of one form which a rail-joint constructed in accordance with my invention may assume, this being a  
15 tie-joint; Fig. 2, a view thereof in transverse section on the line  $a-b$  of Fig. 1; Fig. 3, a plan view of the chair of the joint with the draw-clamp and rail-ends removed; Fig. 4, a detached plan view of the draw-clamp in position to be applied to the chair; Fig. 5, a  
20 similar reverse view of the clamp; Fig. 6, a view of the chair in central longitudinal section on the line  $x-x$  of Fig. 3; Fig. 7, a view in horizontal section of the device on the line  
25  $z-z$  of Fig. 2; Fig. 8, a view in end elevation of one of the modified forms which my improved device may assume.

My invention relates to an improvement in rail-joints, the object being to produce a simple, durable and effective device, composed  
30 of few parts, adapted to grip the rail-ends firmly, and to sustain its hold upon them for a long period without attention.

With these ends in view, my invention consists in the construction as will be hereinafter described and pointed out in the claims.

As shown in Figs. 1 to 8 inclusive of the drawings, my improved device has a flat bottomed chair A, having a solid or jointless seat  
40  $a$ , corresponding in width to the full width of the rail-ends B, B', which rest upon it extending throughout the center of its upper face. The said chair is further constructed with a longitudinal flange A', located on one  
45 side of the said seat  $a$ , and overhanging the same, and having transverse ribs  $a'$ , to increase its strength, the said flange A' being adapted to fit over the adjacent edges of the bases of the rail-ends, and against the adjacent  
50 faces of the webs thereof. A tapering longitudinal groove A<sup>2</sup>, formed in the upper

face of the chair on the opposite side of the seat  $a$ , aforesaid from the flange A', has its inner wall under-cut to extend under the said seat  $a$ , and hence under the base of the rail-ends when the same are in position on the chair, as clearly shown in Fig. 2 of the drawings. The tapering form of the groove is produced by inclining its outer wall inward, as shown by the broken lines in Fig. 3 of the drawings. The said groove is designed to receive a tapering rib C, formed upon the under face, and extending throughout the length of a draw-clamp C', which is constructed to fit over the adjacent edges of the bases of the  
65 rail-ends, and against the adjacent faces of the webs thereof, being thereto provided with an overhanging flange C<sup>2</sup>, reinforced by transverse ribs  $c$ . It will be seen by reference to Fig. 2 of the drawings, that above its rib C, the said draw-clamp corresponds in general form to the flange A' of the chair. The tapering form of the rib C of the clamp, is produced, as shown by Figs. 4 and 5 of the drawings, by inclining its outer edge inward. When  
75 the draw-clamp is applied to the chair the narrow end of its tapering rib is entered into the narrow end of the groove A<sup>2</sup> therein, and as it is driven into its place, it will be positively forced inward, whereby the rail-ends  
80 will be moved laterally toward the flange A<sup>2</sup> of the chair, and drawn down upon the seat of the same until all play is taken up and they are rigidly held within the rail-joint by inward pressure upon their webs, and by  
85 downward pressure upon their bases. The inward pressure upon the webs of the rail ends is derived directly from the inward movement of the draw-clamp, while the downward pressure upon the bases of the rail ends results from it, the inclined lower portions of the bearing faces of the two flanges crowding  
90 down upon the beveled faces of the bases of the rail-ends. It will be noted that a very large portion of the surfaces of the rail ends is subjected to the clamping action of my improved joint, larger, I believe, than in any joint heretofore constructed. This equalizes the strain upon the rail-ends, and obviously promotes the efficiency of the joint.  
100

I wish to call attention to the fact that the flanges of the chair and clamp not only have

a clamping action, as above described, but also a trussing or reinforcing action, for inasmuch as they extend throughout the length of the joint and are located above the bottom of the chair, they will act as compression trusses to resist downward pressure upon the joint tending to bend it longitudinally. This is a very important function of the flanges.

The transverse ribs  $a'$  formed upon the outer face of the flange  $A'$  of the chair, and the transverse ribs  $c$  formed upon the outer face of the flange  $C^2$  of the draw-clamp, greatly stiffen the same against those lateral thrusts which are communicated to the joint by lateral thrusts upon the rail-ends. This construction gives therefore great strength, and is lighter than a solid construction, and therefore more desirable and also requires less metal, making it less expensive.

It will be noticed by reference to Fig. 1, that the upper surface of the grooved edge of the chair is constructed with a series of short transverse ribs  $a^2$ , arranged so as to align with the ribs  $c$  of the flange of the draw-clamp. These ribs  $a^2$  have the same function of securing stiffness without increasing the joint too much in weight.

When the draw-clamp is in position on the chair, as shown by Fig. 2 of the drawings, the inner edge of its rib extends under the bases of the rail-ends, so that the same virtually forms a purchase for the clamp in preventing the same from being turned upon its undercut rib and rolled outward away from the rail ends. It will be noted, however, that the rib of the draw-clamp although extending under the bases of the rail-ends is not directly engaged therewith, so that in case the clamp should be turned upon the rib and rolled outward away from the rail-ends, the same would not be tilted or disturbed thereby. This action is further resisted by constructing the chair with an inwardly inclined seat  $a^3$ , and the edge of the clamp with a corresponding bearing face  $c'$ , respectively located outside of and parallel with the groove  $A^2$  of the chair, and the rib  $C$  of the clamp.

In order to prevent the rails from creeping, I provide the flange  $A'$  of the chair with two inwardly projecting pins  $D D$ , which are arranged so as to take into the holes  $b$  and  $b'$  formed in the respective rail-ends  $B B'$ , the said holes being the holes which are formed in all rails of the same size and at the same place to receive the bolts used in connection with the splice-bars ordinarily employed for coupling-rails. The taking of the said pins into the said holes is clearly indicated in Fig. 7 of the drawings. If desired, I may dispense with the flange  $A'$ , formed integral with the chair, and use in its place a draw-clamp corresponding to the clamp  $C$  already described, but constructed to be driven in the opposite direction. Such a construction is shown in Fig. 8 of the drawings, in which a chair  $E$ , having a solid or jointless seat  $e$  for the bases of the rail-ends is furnished

with two draw-clamps  $F$  and  $F'$ . It will be noticed that the bottoms of the ribs  $f$  and  $f'$  of these clamps are at different elevations, indicating that the clamps are constructed to be driven in opposite directions.

Although, as herein shown, I have represented my invention as applied to a "tie-joint" which is a joint designed to be placed upon a railway tie, the invention is equally applicable to the construction of suspension joints which are suspended, so to speak, between two ties. Nor is it necessary that the flanges which impinge against the webs of the rail-ends be continuous, for, if preferred, they may be broken into fingers, as indicated by Fig. 6, which shows a flange having what might be called a deeply indented edge, the elevated points of which are the terminations of the transverse ribs employed to stiffen it. Furthermore, so far as the clamping of the rail ends by their webs is concerned, it is not necessary that the chair should have a solid or jointless seat, though that construction I always prefer. I would, therefore, have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein as fairly fall within the spirit and scope of my invention.

I am aware that it is old to adapt rail-joints to impinge against the respective faces of the webs of the rail-ends.

I am also aware that a rail-joint having its chair constructed with a longitudinal groove and having a draw-clamp constructed with a rib adapted to enter the groove is old. I do not, therefore, claim either of those constructions broadly.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a rail-joint, a chair having a solid or jointless seat corresponding in width to the full width of the bases of the rail ends which rest upon it and constructed in its upper face with a longitudinal groove, the inner wall whereof is under-cut to extend under the said seat, in combination with a draw-clamp having upon its lower face a rib shaped to extend into the said under-cut portion of the groove, the said chair and clamp being constructed to impose inward pressure upon the webs of the rail-ends and downward pressure upon the bases thereof, substantially as set forth, and whereby the rail-ends are rigidly held in place.

2. In a rail-joint, a chair having a solid or jointless seat corresponding in width to the full width of the bases of the rail-ends which rest upon it, and constructed in its upper face with a longitudinal groove, the inner wall whereof is under-cut to extend under the said seat; in combination with a draw-clamp having upon its lower face a rib shaped to extend into the said under-cut portion of the groove, substantially as set forth, and where-

by the clamp takes a bearing under the said seat, and hence under the bases of the rail-ends, but not directly against the same.

3. In a rail-joint, a chair having a solid or  
5 jointless seat corresponding in width to the full width of the bases of the rail-ends which rest upon it, a longitudinal flange extending over the said seat from one side thereof, and constructed to impinge against the webs of  
10 the rail-ends, and a longitudinal groove located on the opposite side of the seat from the said flange, and under-cut to extend under the said seat; in combination with a draw-clamp having a flange adapted to impinge against  
15 the adjacent faces of the webs of the rail-ends, and a rib shaped to enter the said groove and to extend into the under-cut portion thereof, substantially as set forth, and whereby the clamp takes a bearing under the said seat,  
20 and hence under the bases of the rail ends, but not directly against the same.

4. In a rail-joint, the combination with a chair provided with a longitudinal flange adapted to take a bearing against the adjacent  
25 faces of the webs of the rail-ends, and furnished with two inwardly projecting pins to take into holes formed in the rail-ends for preventing the rails from "creeping," of a clamp applied to the upper face of the chair on the  
30 opposite side thereof from the said flange, for binding the rail-ends in place, and furnished with a flange to impinge against the adjacent faces of the webs of the same, substantially as described.

5. In a rail-joint, a chair having a solid or 35  
jointless seat corresponding in width to the full width of the bases of the rail ends which rest upon it, and a longitudinal flange over-  
hanging one side of the said seat, adapted to take a bearing against the adjacent faces of 40  
the webs of the rail ends, constructed upon its inner face to positively engage the same to prevent the rails from "creeping," and having its outer face reinforced by transverse ribs, and the said chair being also construct- 45  
ed with a longitudinal groove located on the opposite side of the seat from the said flange, and under-cut to extend under the said seat; in combination with a draw-clamp adapted to  
be applied to the upper face of the chair, upon 50  
the opposite side of the seat from the flange thereof, constructed with a flange adapted to impinge against the adjacent faces of the webs of the rail-ends, reinforced by transverse ribs, and provided with a rib shaped to enter 55  
and occupy the said groove, substantially as set forth, and whereby the clamp takes a bearing under the said seat, and hence under the bases of the rail-ends but not directly against  
the same. 60

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

CLARENCE L. WHEELER.

Witnesses:

ROBINSON H. WHEELER,  
E. STERNE WHEELER.