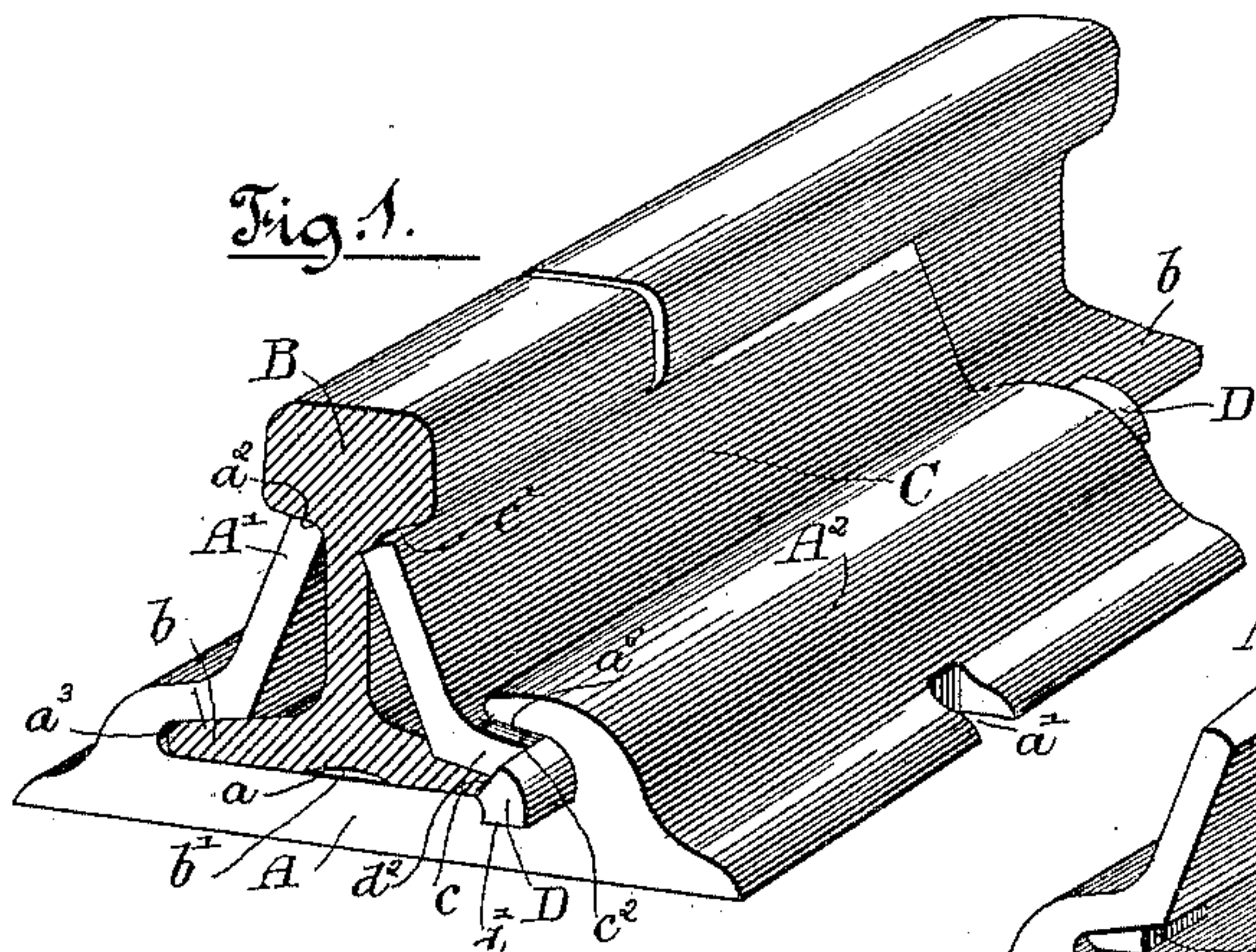


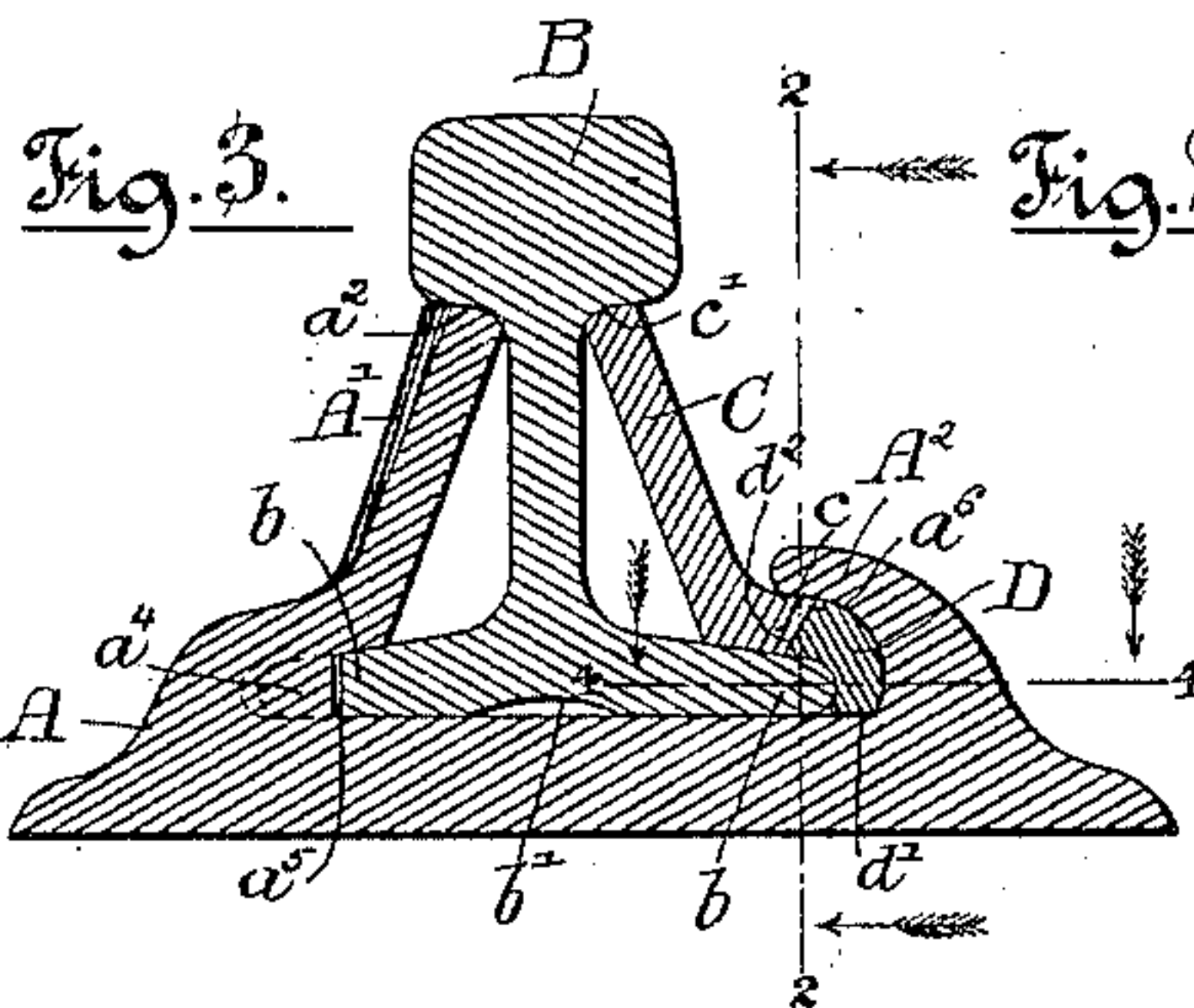
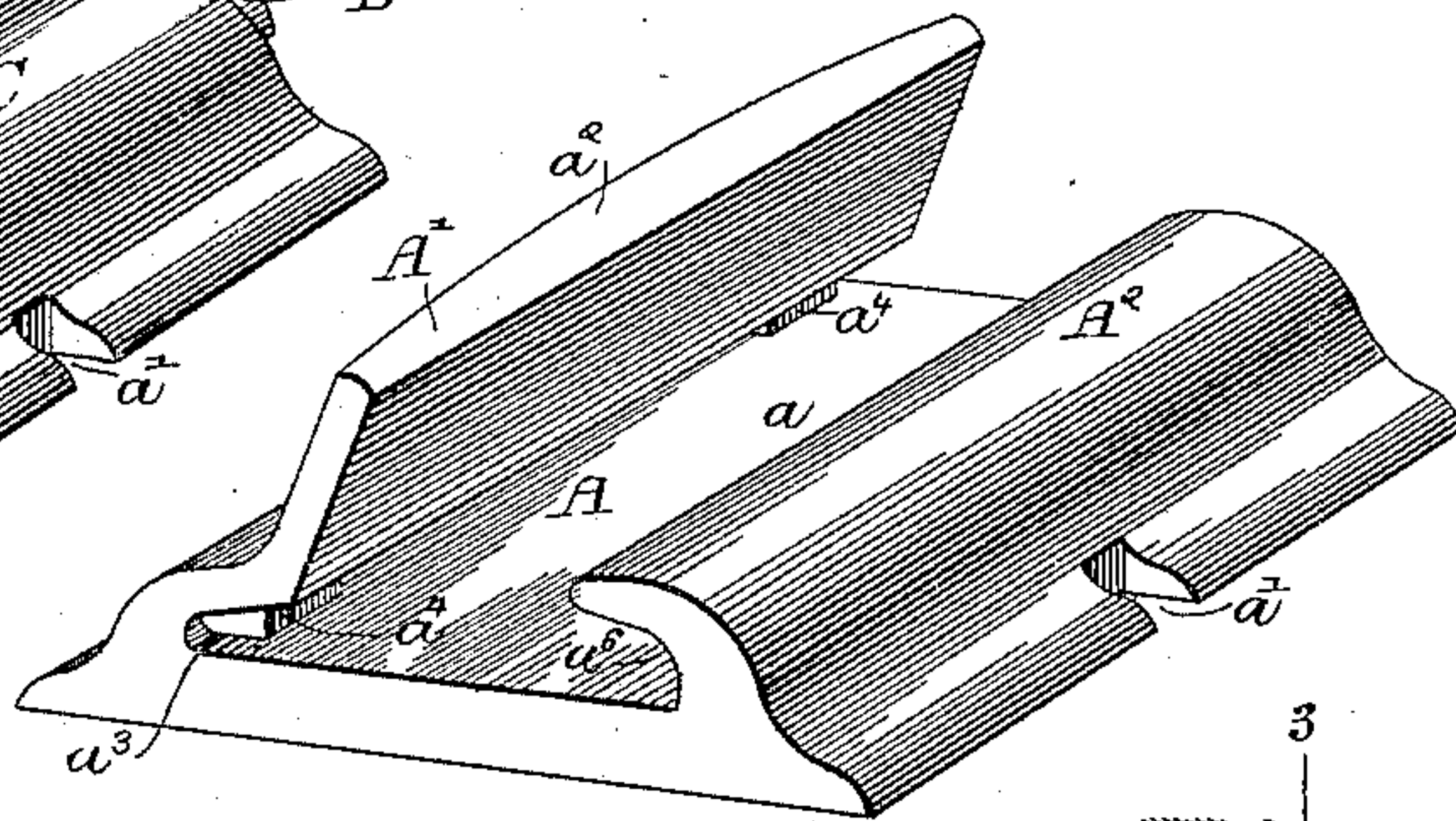
P. C. DOCKSTADER.  
LOCK RAIL JOINT.

No. 411,186.

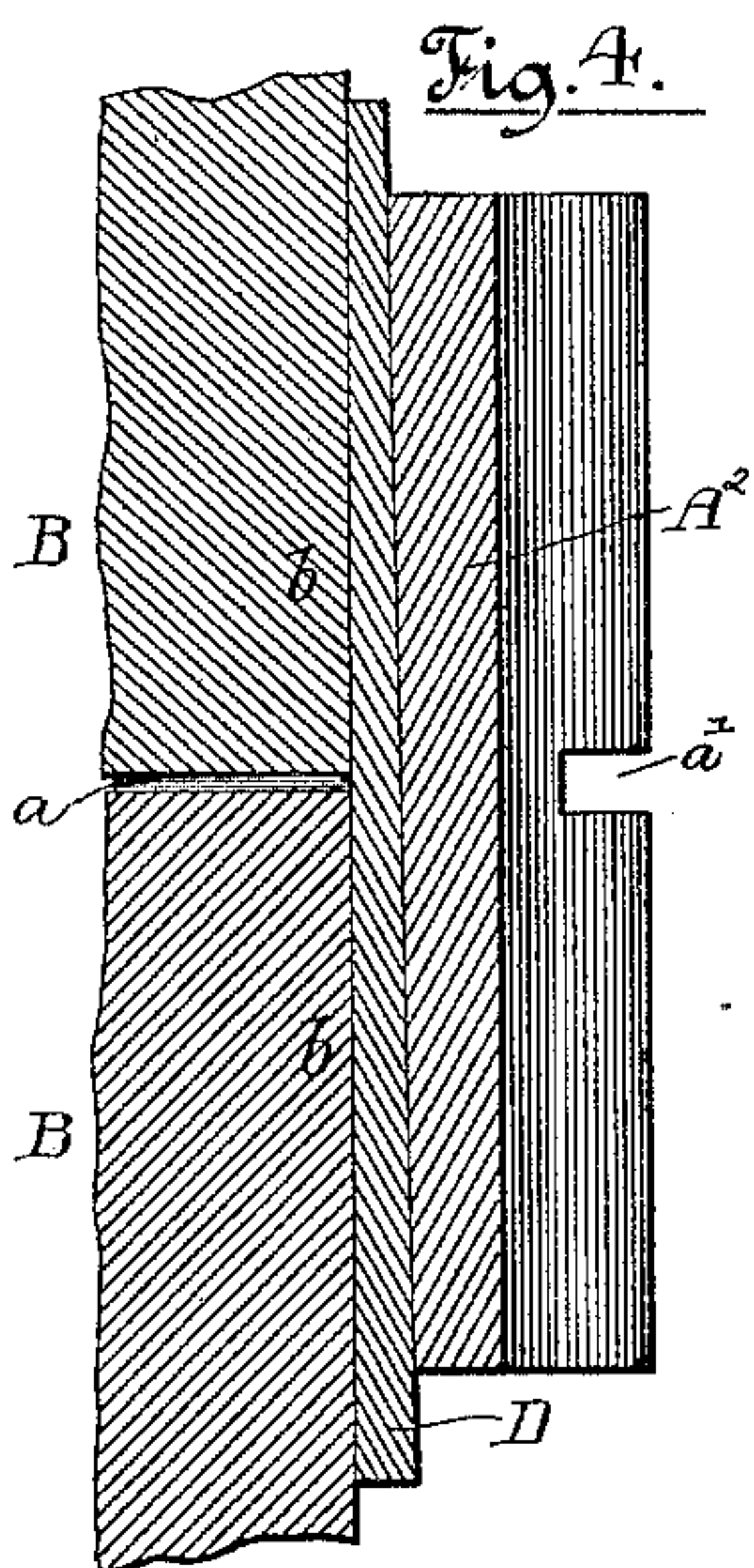
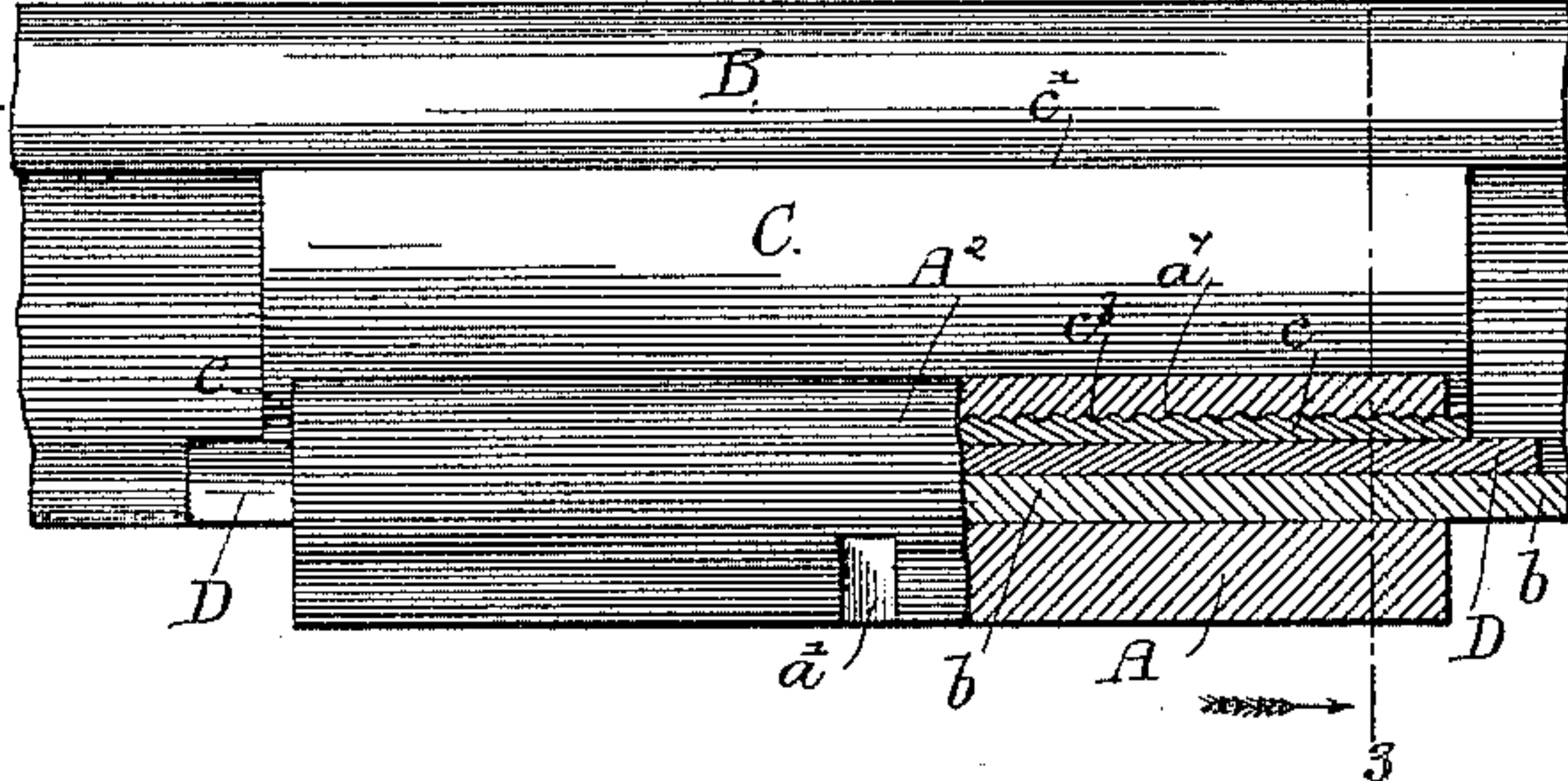
Patented Sept. 17, 1889.



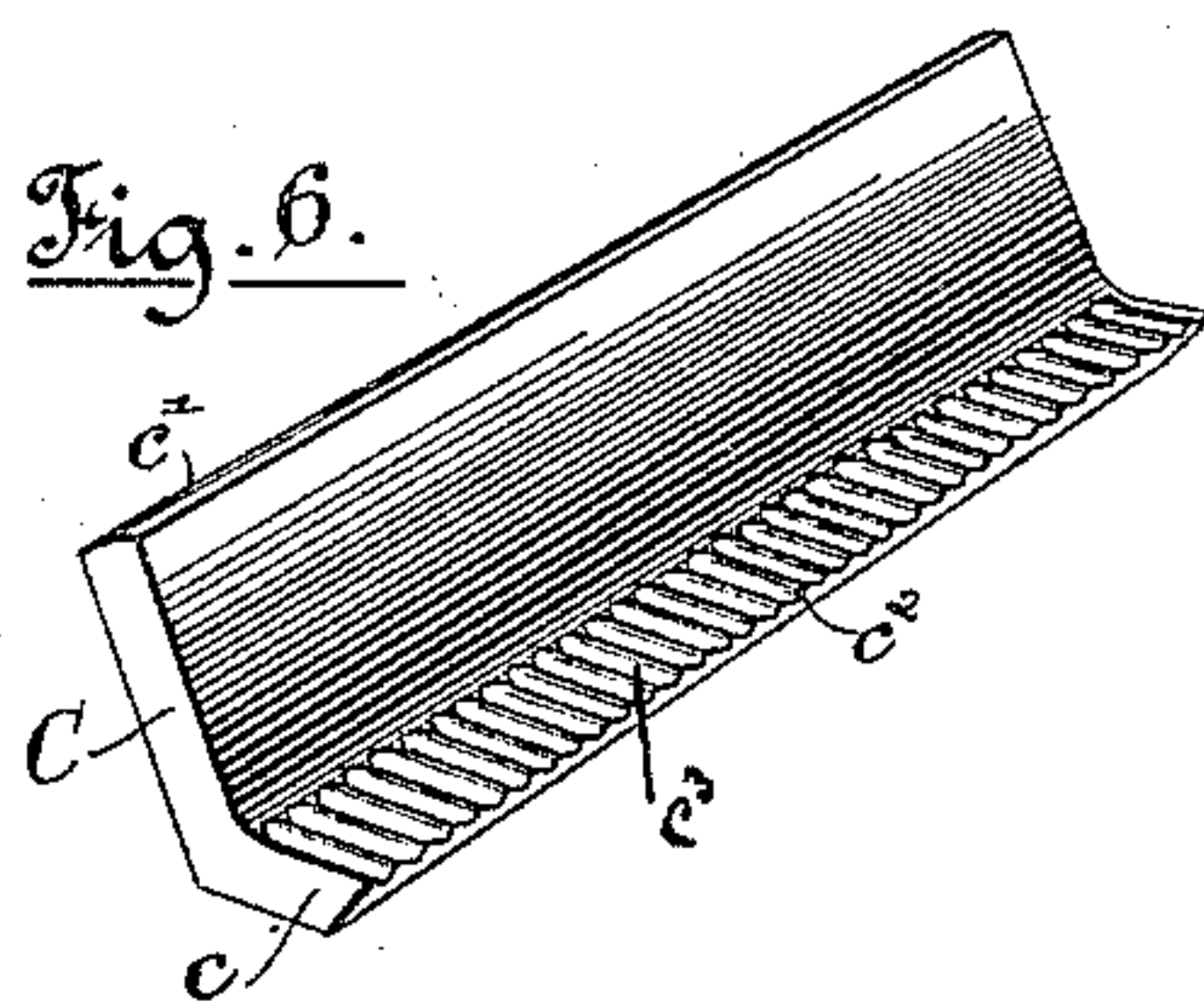
*Fig. 5.*



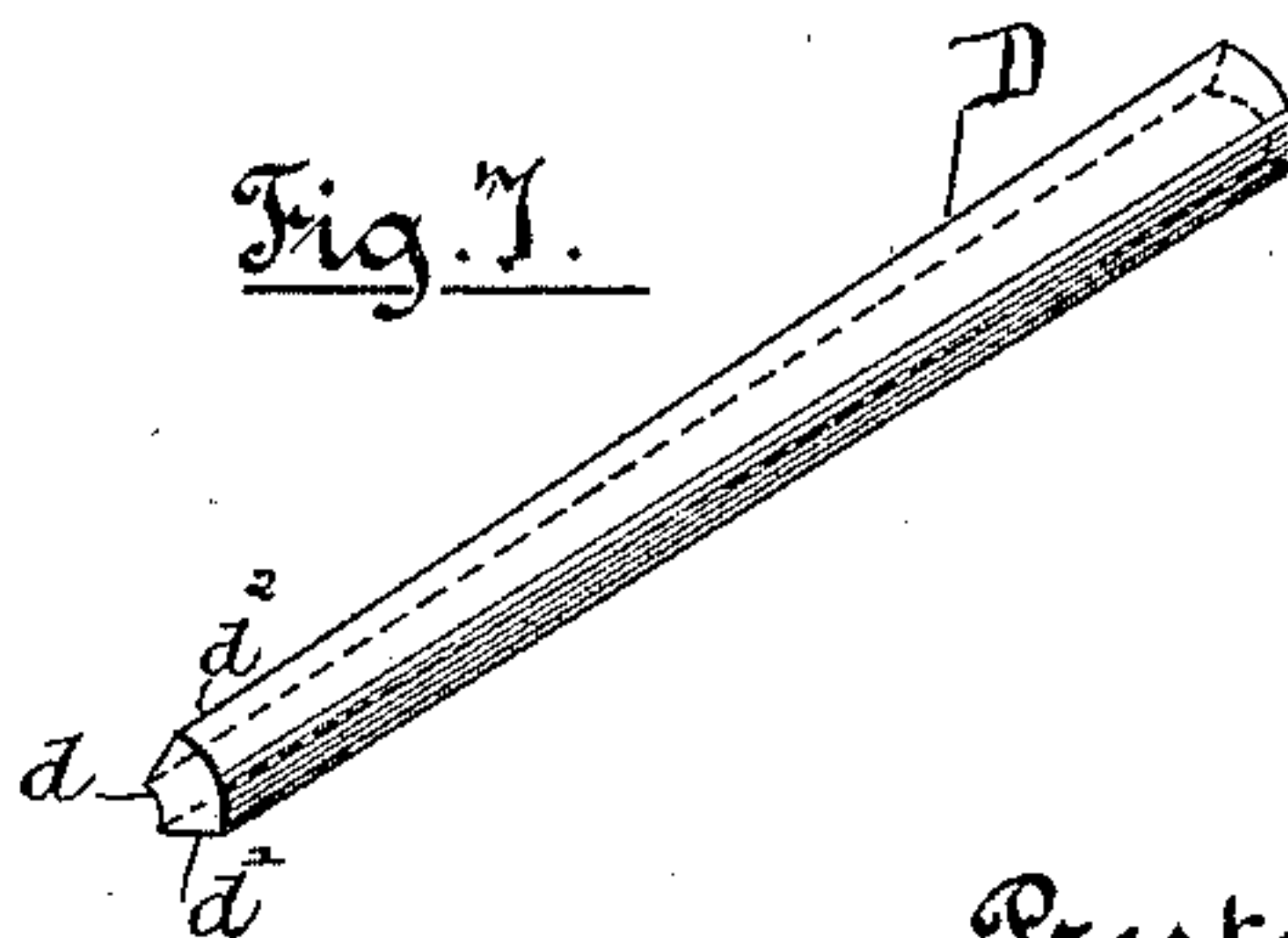
*Fig. 2.*



*Fig. 6.*



*Fig. 7.*



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(No Model.)

2 Sheets—Sheet 2.

P. C. DOCKSTADER.  
LOCK RAIL JOINT.

No. 411,186.

Patented Sept. 17, 1889.

Fig. 8.

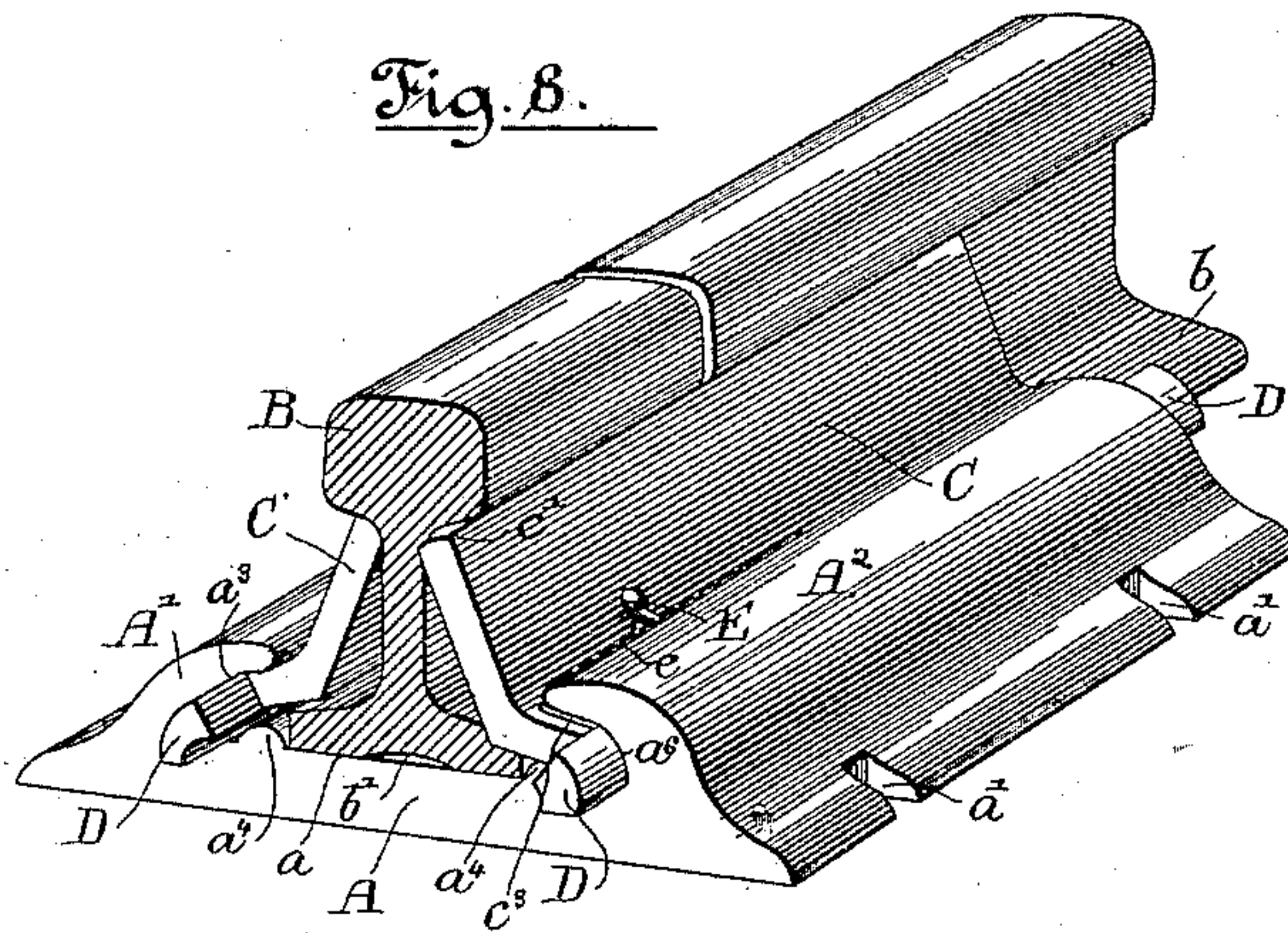


Fig. 9.

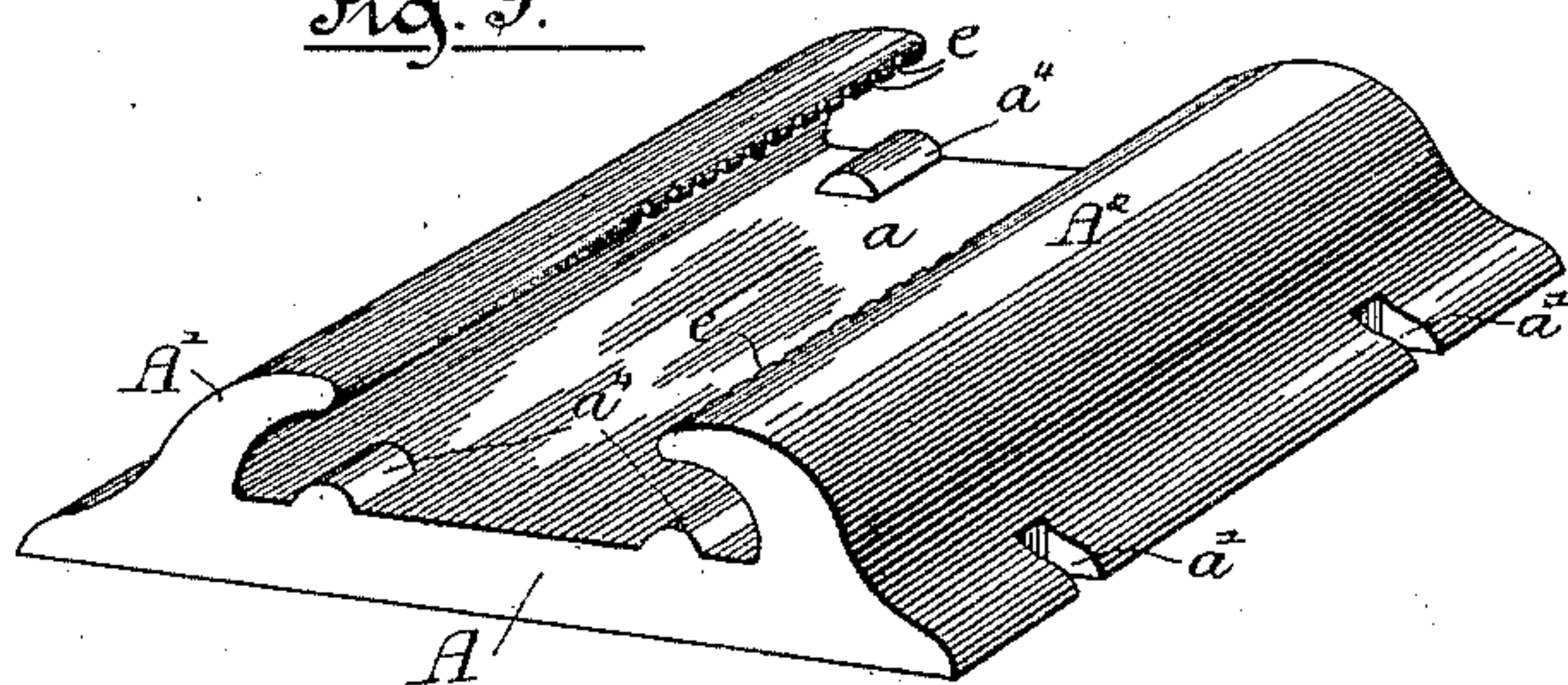


Fig. 10.

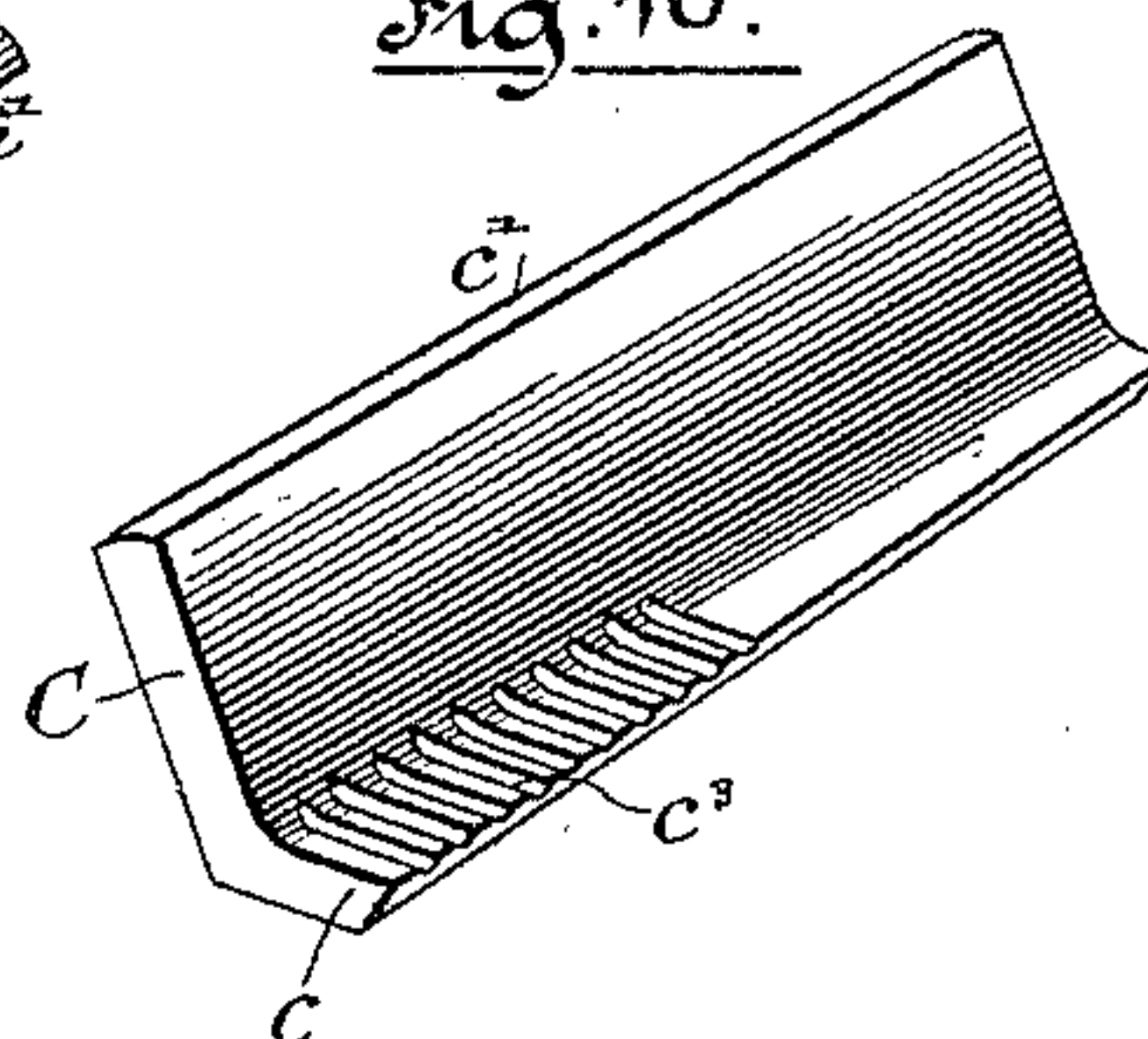



Fig. 11.  E



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# UNITED STATES PATENT OFFICE.

PRESTON C. DOCKSTADER, OF COLORADO SPRINGS, COLORADO.

## LOCK-RAIL JOINT.

SPECIFICATION forming part of Letters Patent No. 411,186, dated September 17, 1889.

Application filed December 4, 1888. Serial No. 292,601. (No model.)

*To all whom it may concern:*

Be it known that I, PRESTON C. DOCKSTADER, of Colorado Springs, in the county of Cook and State of Colorado, have invented certain new and useful Improvements in Lock-Rail Joints; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to an improved construction of devices for locking the ends of rails together, wherein a chair is used, upon which the adjacent ends of two rails are placed and to which said rails are secured.

The invention will be more fully understood by reference to the accompanying drawings and description, and will be more specifically pointed out in the appended claims.

In said drawings, Figure 1 illustrates my invention in a perspective view with the two rails locked in position in the chair. Fig. 2 is a side elevation of the same partially in section, the latter portion cut on line 2 2 of Fig. 3. Fig. 3 is a vertical transverse sectional view taken upon line 3 3 of Fig. 2. Fig. 4 is a partial horizontal sectional view taken upon line 4 4 of Fig. 3. Fig. 5 is a perspective view of the preferable form of my improved chair. Fig. 6 is a perspective of the splice-plate used. Fig. 7 is a perspective view of the rail-locking wedge. Fig. 8 is a perspective view of a slightly modified form of chair, showing the rails locked in position. Fig. 9 is a perspective view of said chair separately. Fig. 10 illustrates the form of splice-plate used with that form of chair illustrated in Figs. 8 and 9. Fig. 11 illustrates the locking-pin.

In said drawings, A indicates a chair having a flat surface  $a$ , upon which the flanges  $b$  of the rails B B rest. The chair A may be of wrought or cast iron, steel, or other suitable material, and is intended to be placed upon and secured to the ties. For this purpose the chair is provided at its sides with notches or slots  $a'$  to engage spikes driven into the ties. Upon one side said chair is provided with an upwardly-extending flange or arm  $A'$ , which extends upwardly and inwardly, inclining at such an angle that when

the rails B are placed upon the flat surface  $a$  of the chair the edge  $a^2$  of the arm  $A'$  will rest against the throat of the rail beneath the ball and support said rail, as clearly shown in Figs. 1 and 3. The arm  $A'$  in rising from the chair A curves inward in such manner as to make a longitudinal recess or groove  $a^3$  along its lower margin adjacent to the surface  $a$  for the reception of the edge of one of the flanges  $b$  of the rails B B. In said recess  $a^3$ , and preferably near each end, I provide a lug  $a^4$ , usually cast integral with the chair A. This lug  $a^4$  fits into a corresponding recess or slot  $a^5$  in the flanges  $b$  of the rails B B when said rails are placed in position upon the chair A, thus locking said rails in said position against a lengthwise movement of the latter within the chair. Upon the side of the chair opposite to the flange  $A'$  is a smaller though similar flange  $A^2$ . The flange  $A^2$  turns upwardly and inwardly, as does the flange  $A'$ , but to a greater extent, for the purpose of making the recess  $a^6$  therein relatively larger than the recess  $a^3$ .

C is an L-shaped plate corresponding in general configuration with the flange  $A'$ . This splice-plate is inserted on the opposite side of the rails to the flange  $A'$  and rests, at its lower arm or end  $c$ , upon the upper surface of the flanges  $b$  of one of the rails B, its upper edge  $c'$  supporting and engaging the throat of the rail.

D is a wedge pin or plate, which is inserted in the recess  $a^6$  to lock the chair, rails, and splice-plate together. The outer surface of the wedge D is rounded to correspond with the rounded interior surface of the recess  $a^6$ , the opposite portion  $d$  of the wedge D being convex in shape to engage the rounded edge of the flanges  $b$  of the rails. The side  $d'$  of the wedge D rests upon the surface  $a$  of the chair, while a part  $d^2$  of the wedge presses against the edge  $c^2$  of the splice-plate C. The short arm  $c$  of the splice-plate C is narrower at one end than at the other, so that the wedge-pin D, when placed in the recess  $a^6$ , may act as a wedge proper and thus tighten the parts and securely hold them together.

In practice the rails B B are first placed on the chair between the flanges  $A'$   $A^2$  and are then moved sidewise toward the flange  $A'$ , so that the flanges  $b$  adjacent to the arm A



will enter the recess  $a^2$ , the slots  $a^5$  registering with the lugs  $a^4$ . The wedge D is then inserted in the recess  $a^6$  and driven tightly in place, which action forces the rails B B still farther in position, and causes the slots  $a^5$  in the flanges  $b$  to firmly embrace said lugs and thus be securely locked to the chair to prevent creeping or lengthwise movement of the rails. The splice-plate C is then placed in position, the arm  $c$  being inserted between the flange  $b$  and the arm  $A^2$  of the chair, so that the corrugations  $c^2$  will register with similar corrugations  $a^7$ , formed upon the under side of the arm  $A^2$ , as more clearly illustrated in Fig. 2. These corrugations  $c^2$  and  $a^7$  fitting, as they do, closely within each other, prevent a lengthwise movement of the splice-plate C, which might otherwise be caused by the constant passing of railway-trains over the rails B B.

The bottom of the rail is centrally grooved or hollowed out at  $b'$ , as illustrated in Figs. 1 and 3, in order that the said rails may rest more evenly upon the flanges  $b$ . Any weight upon the rails B B is thus evenly distributed over the chair A, and is not concentrated on that portion of the latter directly beneath the web of the rail, as it would be if said groove  $b'$  were not present.

In the modified form illustrated in Figs. 8 and 9, I prefer to make both flanges  $A'$   $A^2$  of equal height, each rising from the chair A in the same manner as does the flange  $A^2$  of Fig. 1, thus leaving recesses  $a^3$  and  $a^6$  of equal size. In this form of chair the chair is made wider, and the lugs  $a^4$  are not located in the recess  $a^3$ , but on the face  $a$  of the chair, equidistant from the center thereof, with such space between them as to admit the flanges  $b$  of the rails B B to fit between the lugs  $a^4$ , where said rails B B are placed in position on the chair A, as clearly shown in Fig. 8. At diagonally-opposite ends the under portion of the arms  $A'$   $A^2$  are grooved for a portion of their ends, as shown at  $e$ .

The splice-plates C C, Fig. 10, have no corrugated surfaces  $c^2$ , as shown in Fig. 6, but a portion of the upper surface of the short arms  $c$  is grooved, as shown at  $c^3$ .

E is the locking-pin.

In practice the rails B B are placed on the chair A, end to end with the flanges  $b$  between the lugs  $a^4$ . The splice-plates C C are then placed in position, one on each side of the rails, as clearly shown in Fig. 8. The locking wedge-pins D are then inserted in the recesses  $a^3$  and  $a^6$  from opposite ends of the chair and driven securely in place. The wedges D, it will be noticed, press against the splice-plates C C and the arms  $A'$   $A^2$ , and not against the rails B B. When the parts are wedged tightly together in the position illustrated in Fig. 8, the pins E are inserted between the plates C C and the flanges  $A'$   $A^2$ , as shown, said pins entering one of the grooves, and thus locking the splice-plates from longitudinal movement.

It will be noticed that in the form illustrated in Fig. 1 the rails are wedged tightly to the chair by the arm  $A'$  and splice-plate C, and that in the form illustrated in Fig. 8 this wedging is accomplished by two splice-plates C. In both constructions the rail is very firmly held in the desired position.

What I claim is—

1. The combination, with the track-rails, of a chair having a horizontal base supporting and bearing against the bottoms of the rails and provided on each side with a longitudinal recess opposite the flanges of the rails, of two arms embracing the rails with their upper edges resting against the under surfaces of the head of the rail and having their lower edges resting upon the rail-flanges, and a wedge inserted in said recess bearing against the rail-flange and the lower edge of said arm, whereby said rails are locked in position in said chair.

2. The combination, with the track-rails, of a chair having a flat base to support the rails and provided on each side with longitudinal recesses  $a^3$   $a^6$ , opposite the flanges of the rails, of an arm integral with the chair having its upper edge resting against the under surface of the rail-head, of a second and shorter arm on the opposite side of the rails, an arm or plate adapted to engage at its upper edge the under side of the rail-head and at its lower edge to engage beneath said short arm, and a wedge adapted to fit in the recess  $a^6$  and bear against said short arm, the flanges of the rail, and the arm  $c$  of the plate C, substantially as described.

3. The combination of the L-shaped plate C, having its short member  $c$  wedge-shaped and provided upon its upper surface with corrugations  $c^2$ .

4. The combination, with the chair A, having recesses  $a^3$  and  $a^6$  and arms  $A'$   $A^2$ , of the plate C, provided with grooves  $c^3$  on the upper surface of its short wedge-shaped member  $c$ , grooves  $e$  in the upper surface of the said recesses, and a pin E, to engage said grooves  $c^3$  and  $e$ , substantially as described.

5. The combination, with the track-rails, of a chair A, having supporting-base  $a$ , and provided on each side with longitudinal flanges  $A'$   $A^2$ , embracing the rails and with their upper edges resting against the under surface of the rail-head, said arm  $A'$  being integral with the chair A, said arm resting at its lower end in the recess  $a^6$ , and being provided with corrugations  $c^2$ , which engage similar corrugations in the arm  $A^2$ , and a wedge D, located in said recess  $a^6$  and bearing against the flanges  $b$  of the rails B and against the edge of the arm  $c$ , substantially as described.

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

PRESTON C. DOCKSTADER.

Witnesses:

JNO. W. MUIR,

J. H. BURROUGHS.