

No. 795,387.

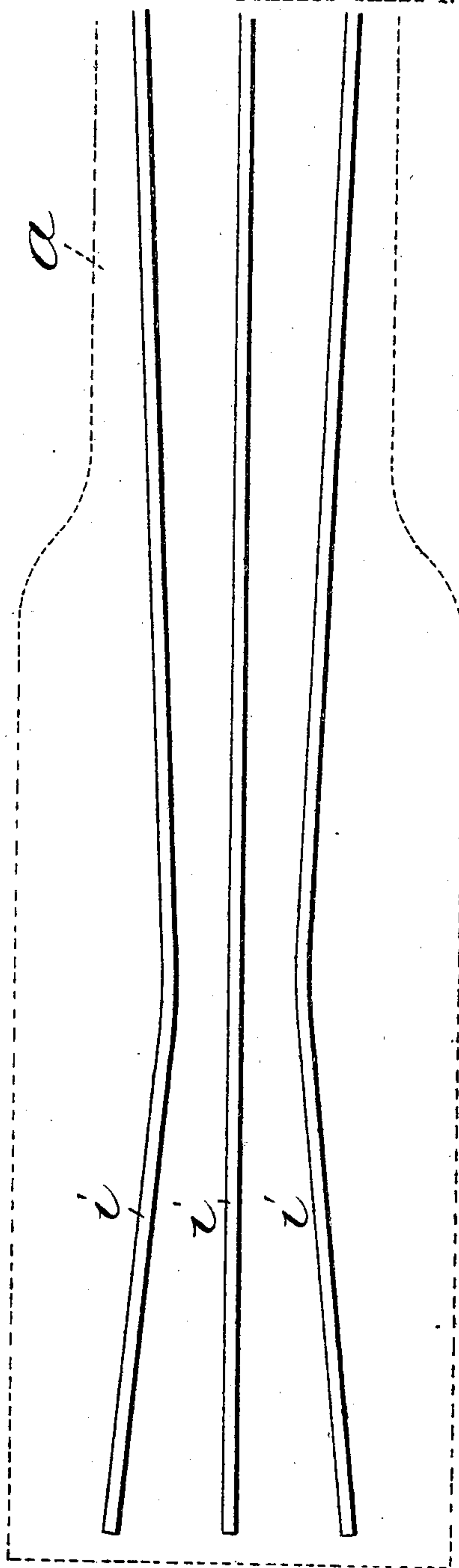
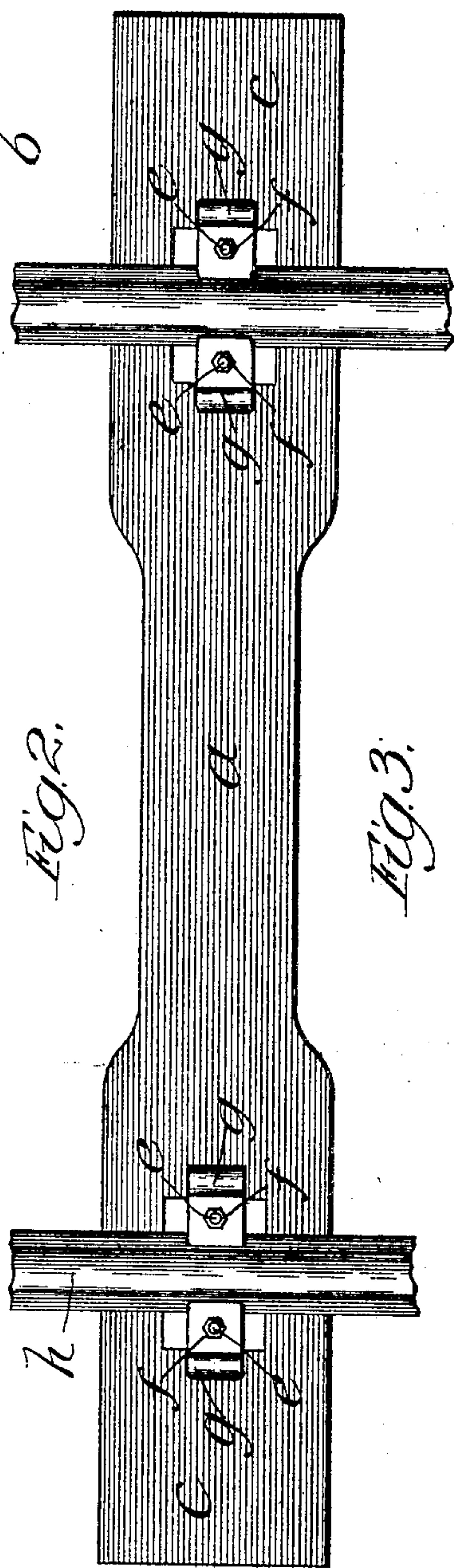
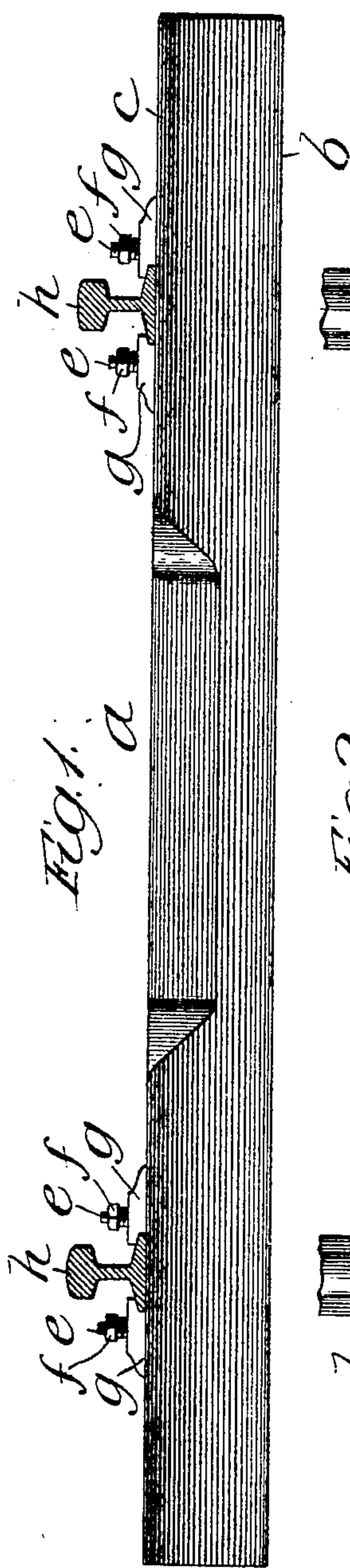
PATENTED JULY 25, 1905.

F. A. DELANO & C. H. CARTLIDGE.

RAILWAY TIE.

APPLICATION FILED FEB. 8, 1904.

2 SHEETS-SHEET 1.



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2 SHEETS—SHEET 2.

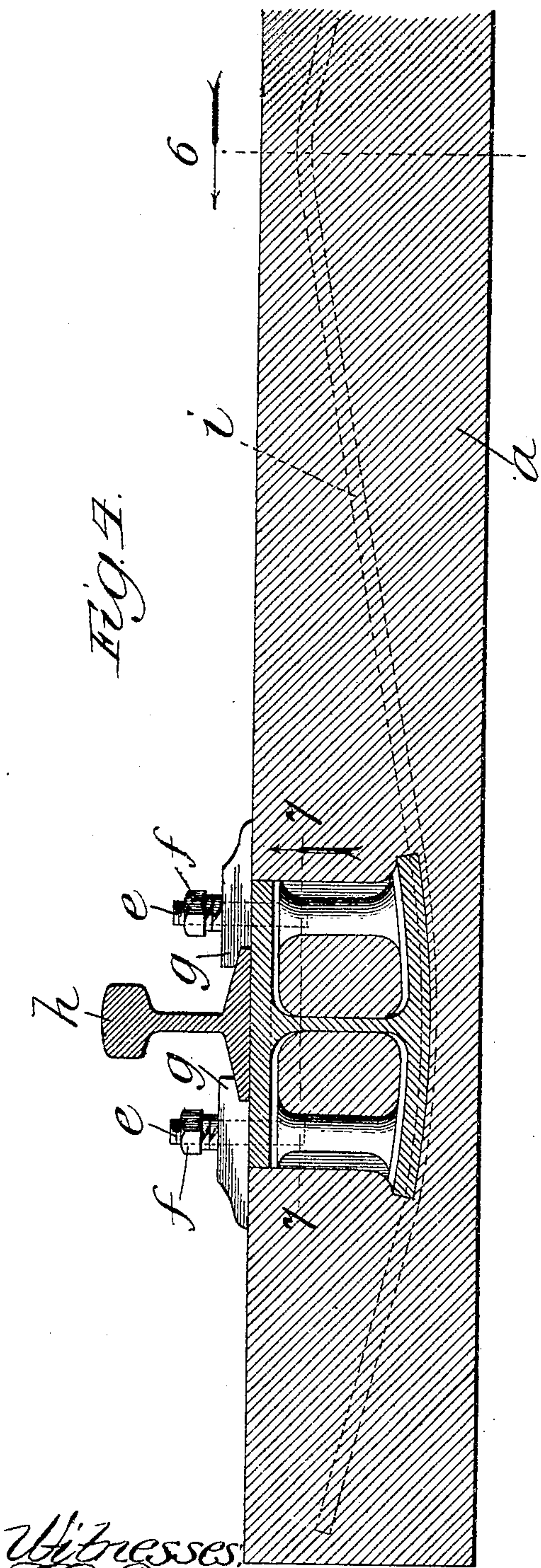


Fig. 7.

Fig. 7.

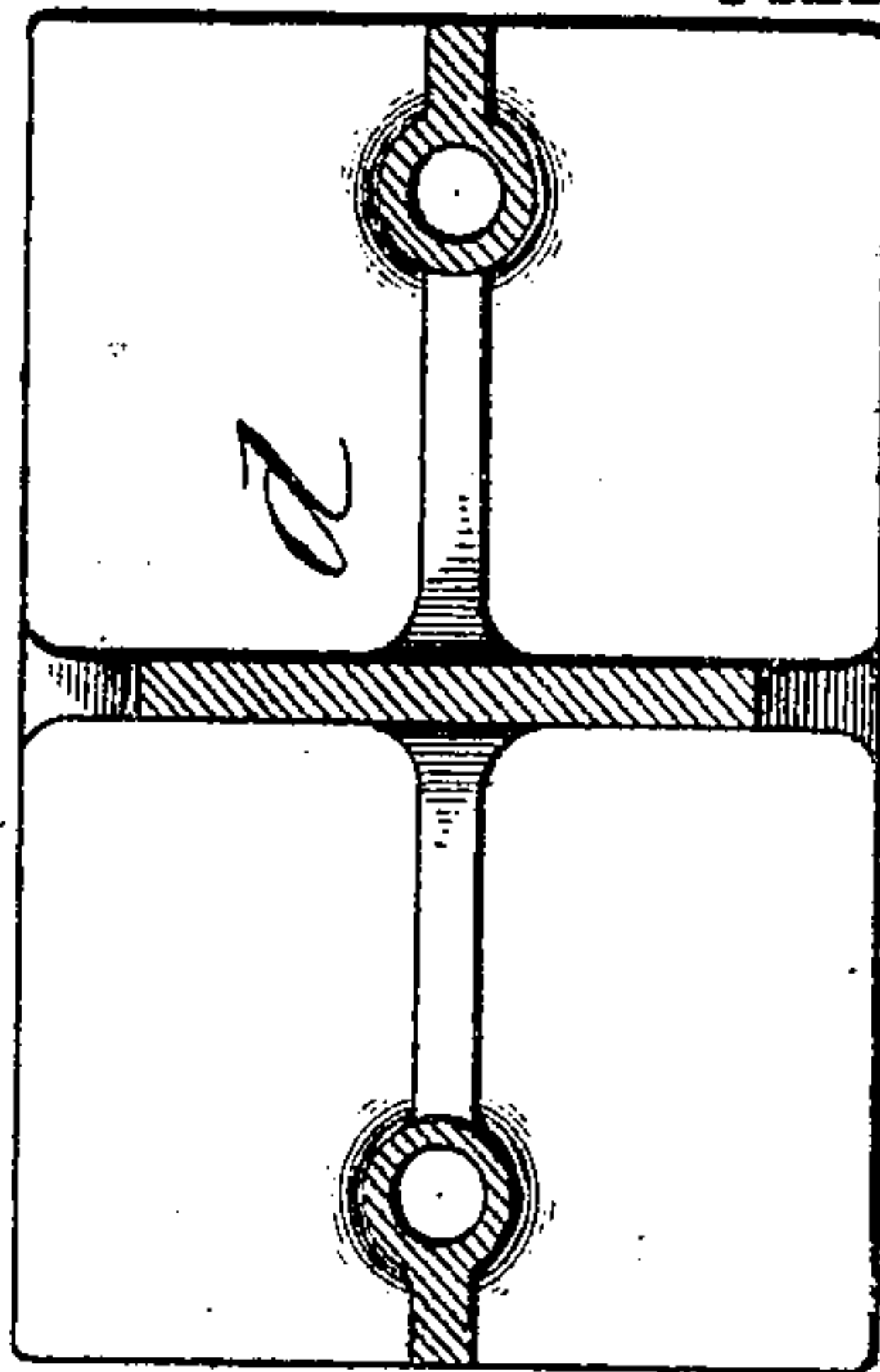


Fig. 8.

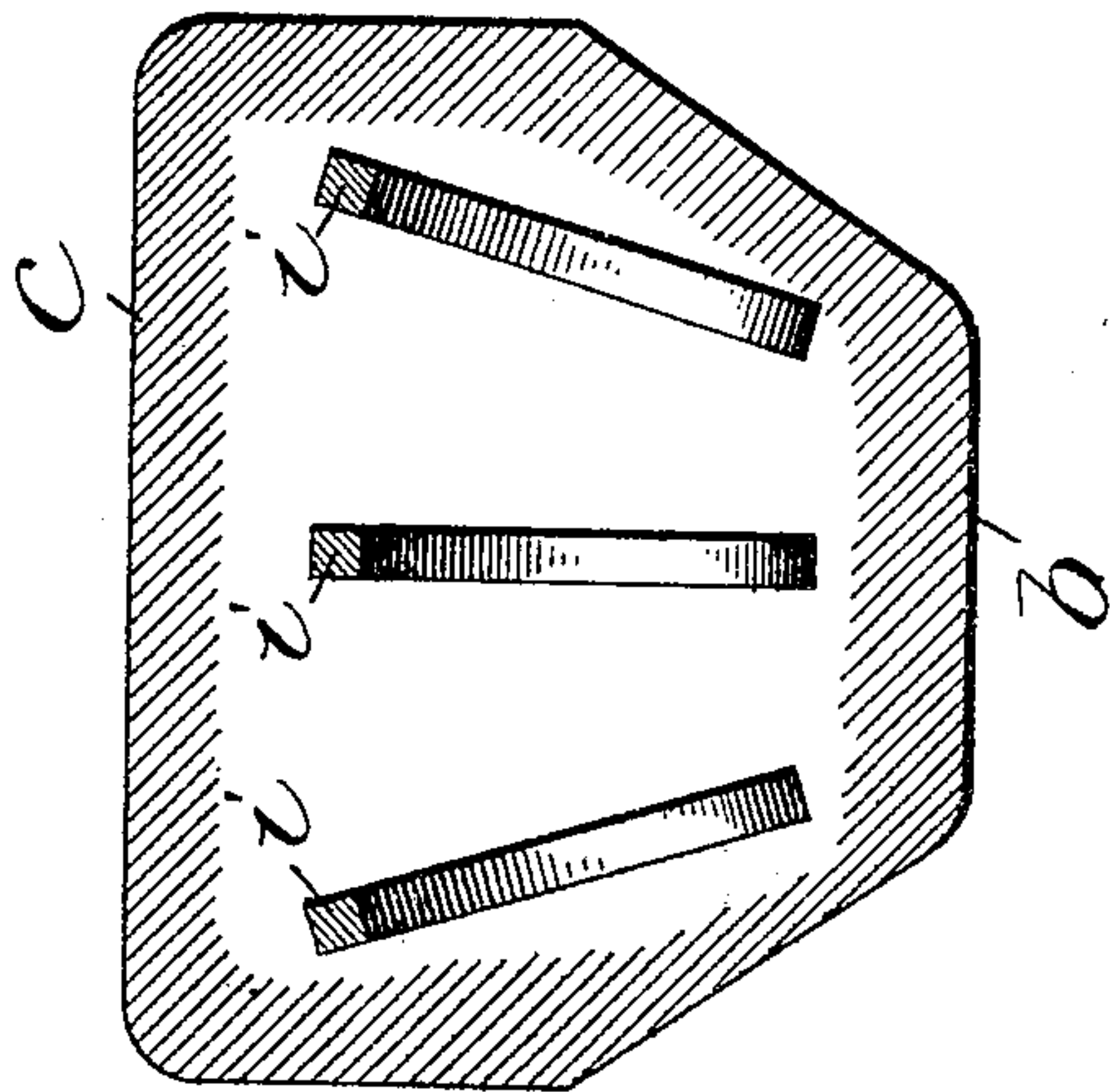
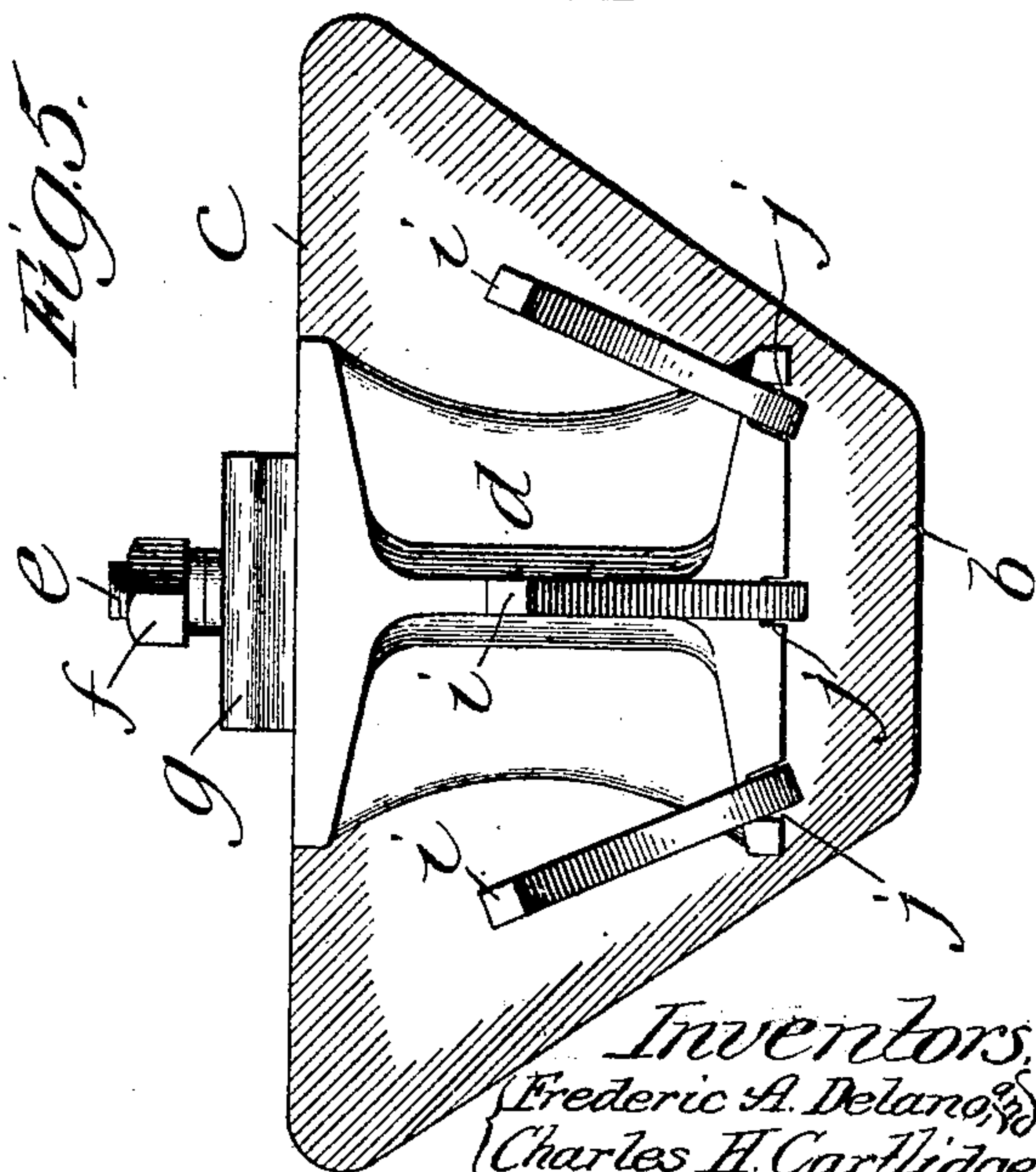


Fig. 9.



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# UNITED STATES PATENT OFFICE.

FREDERIC A. DELANO, OF CHICAGO, AND CHARLES H. CARTLIDGE, OF  
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## RAILWAY-TIE.

No. 795,387.

Specification of Letters Patent.

Patented July 25, 1905.

Application filed February 8, 1904. Serial No. 192,640.

*To all whom it may concern:*

Be it known that we, FREDERIC A. DELANO, residing at Chicago, and CHARLES H. CARTLIDGE, residing at Lagrange, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

The principal object of the invention is to provide a simple, economical, and efficient concrete tie with metal reinforcing and holding members, all of which will more fully hereinafter appear.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claim.

The invention consists principally in a railway-tie composed of a solid body portion formed of concrete or similar material, a metal truss member extending longitudinally therethrough and a metal rail-seat embedded therein to assist in holding the metal truss member in position.

The invention consists, further and finally, in the features, combinations, and details of construction hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a side elevation of one type of railway-tie as it appears when constructed in accordance with these improvements; Fig. 2, a plan view thereof looking at it from above; Fig. 3, a diagrammatic plan view showing the position of the metal truss member in full lines and the contour of a railway-tie in dotted outline; Fig. 4, a longitudinal sectional elevation of one end of a railway-tie as it appears when constructed in accordance with these improvements; Fig. 5, an end view of a railway-tie, showing the rail-seat and metal truss members in solid lines for clearness of illustration; Fig. 6, an enlarged cross-sectional view taken on line 6 of Fig. 4 looking in the direction of the arrow; and Fig. 7, an enlarged plan sectional detail of the rail-seat, taken on line 7 of Fig. 4 looking in the direction of the arrow.

In the art to which this invention relates it is well known that, owing to the scarcity of timber from which suitable railway ties or sleepers can be made, railway ties or sleepers formed of wood are becoming very expensive, and as a consequence that it is not only desirable, but in some cases necessary, to design satisfactory ties or sleepers that may be formed

of other material than wood and at such a price as to warrant the commercial use thereof. To accomplish this result, we provide a tie of concrete or similar material so reinforced by ductile metal members as to take the tension thereof and minimize the danger of cracking or breaking, all of which will be more fully hereinafter set forth.

In constructing a railway-tie in accordance with these improvements a body portion *a*, formed of concrete or similar material, is provided, preferably having a narrow bottom portion *b* and a relatively wider upper portion *c*, though it may be formed of any desired size and shape to give the necessary strength to meet different circumstances and conditions. Rail-seats *d* are provided, two for each railway-tie, substantially I-shaped in cross-section. These rail-seats are made in skeleton form—that is, have openings extending therethrough—through which the mass of cement may pass, so that as the seats are embedded therein during the process of forming the tie those of the body portion become bonded together. By making this rail-seat in the form of an I-beam the bearing area of the seat itself upon the concrete or material upon which it is formed is greatly increased, and by making it in skeleton form the bond of the concrete or similar material of which the tie is made is perfected.

Fastening-bolts *e* are provided and secured in the skeleton rail-seats in any well-known or usual manner, either by being placed therein during the molding process or screw-threaded therein after said rail-seats have been cast. These fastening-bolts are provided with lock-nuts *f*, which act to hold clamps *g* down against the base-flanges of the usual railway-rails *h*, thereby holding such rails securely in position, all of which will be understood and appreciated by those skilled in the art.

To strengthen the mass or body portion of the railway-tie, metal truss-rods are provided formed of a plurality of heavy bars *i*, extending longitudinally through such body portion from a point near the bottom portion immediately under the rail-seats upwardly toward and near the upper part at the center and end portions. The rail-seats are notched, as shown at *j* in Fig. 5, and in these notches the truss members are placed, thence extend upwardly toward the center and end portions and, referring to the outer members, outwardly in the same manner, thus acting to reinforce the

mass of concrete substantially throughout its length and width. From the foregoing description of construction and operation it will be seen that the rail-seats also act to support the metal rods that form the truss-rods and hold them in position.

We claim—

As a new article of manufacture, a railway-tie composed of a solid body portion formed of concrete or similar material, substantially I-shaped skeleton railway-seats embedded and bonded therein and provided with notches or grooves in their lower portions, holding-down

bolts secured in such rail-seats, and a metal truss member composed of a plurality of metal bars longitudinally disposed through the mass of concrete and passed through the notches in said railway-seats and extending upwardly to points near the upper portion of the body portion at the center and ends thereof, substantially as described.

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