

(No Model.)

H. DAILY.
RAILROAD TIE.

No. 473,999.

Patented May 3, 1892.

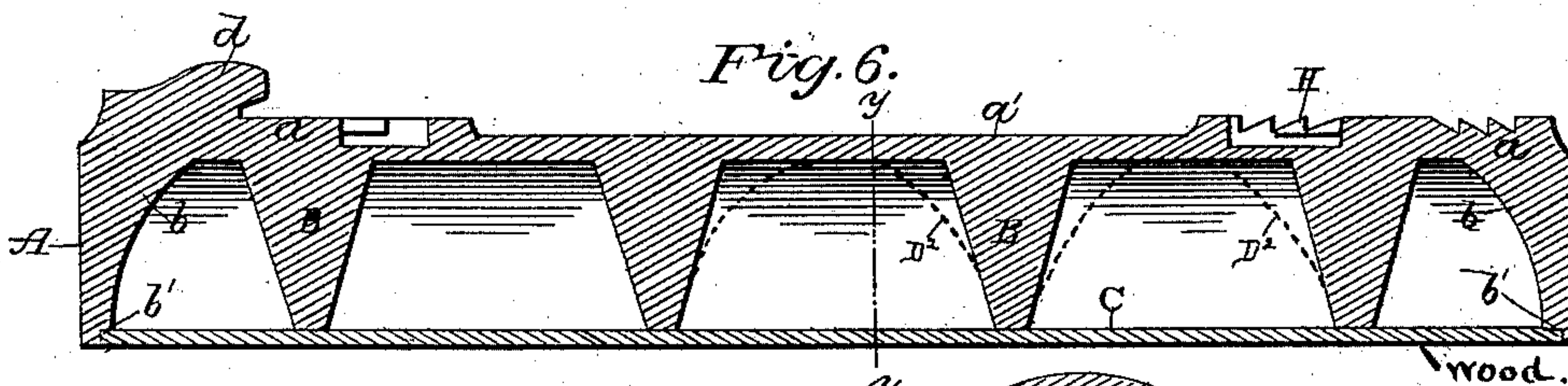
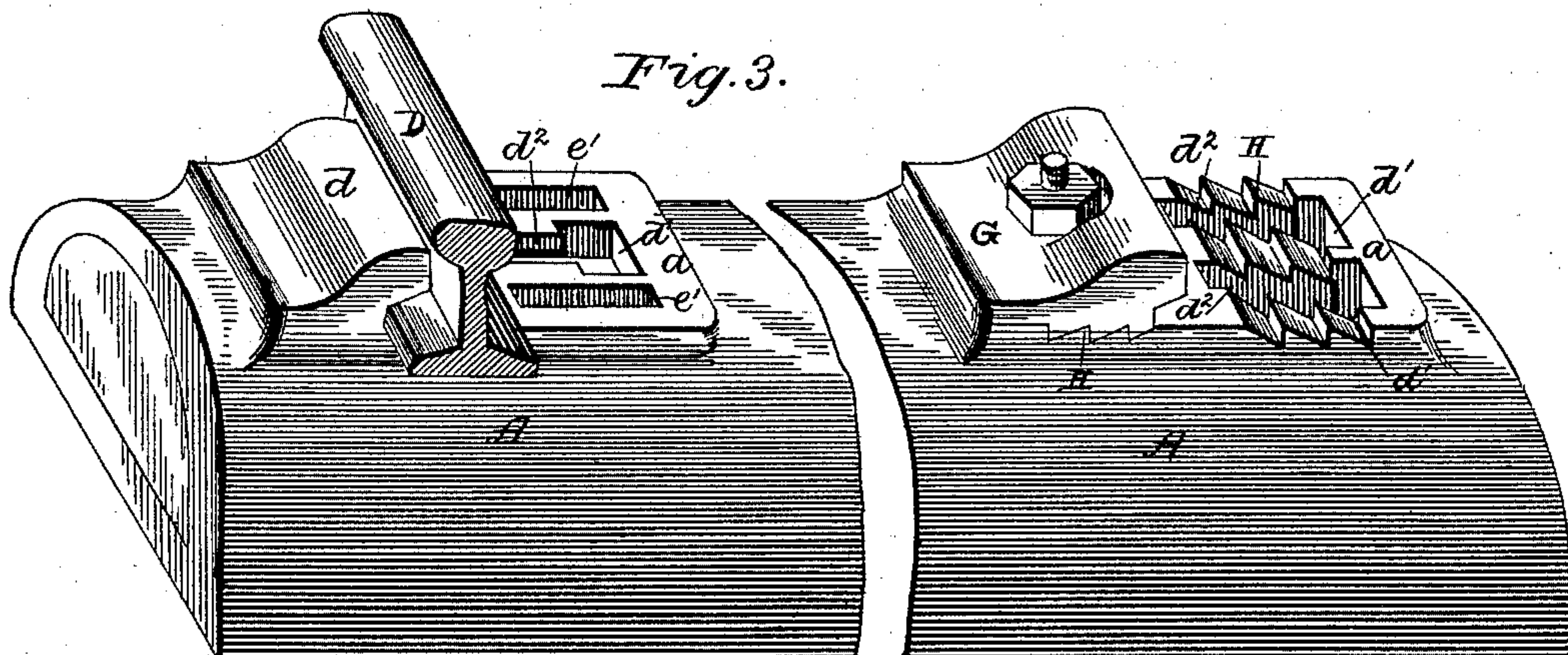
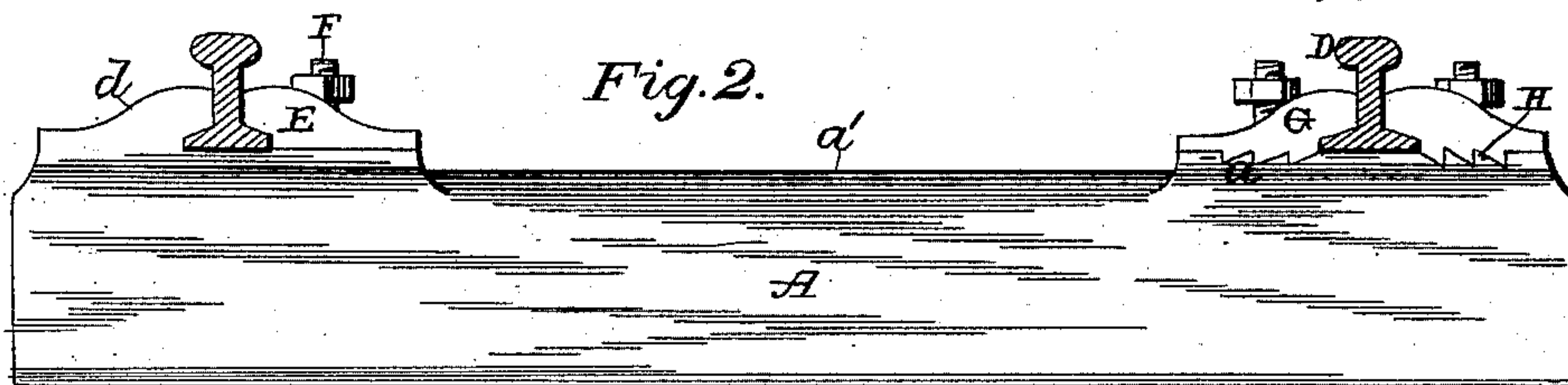
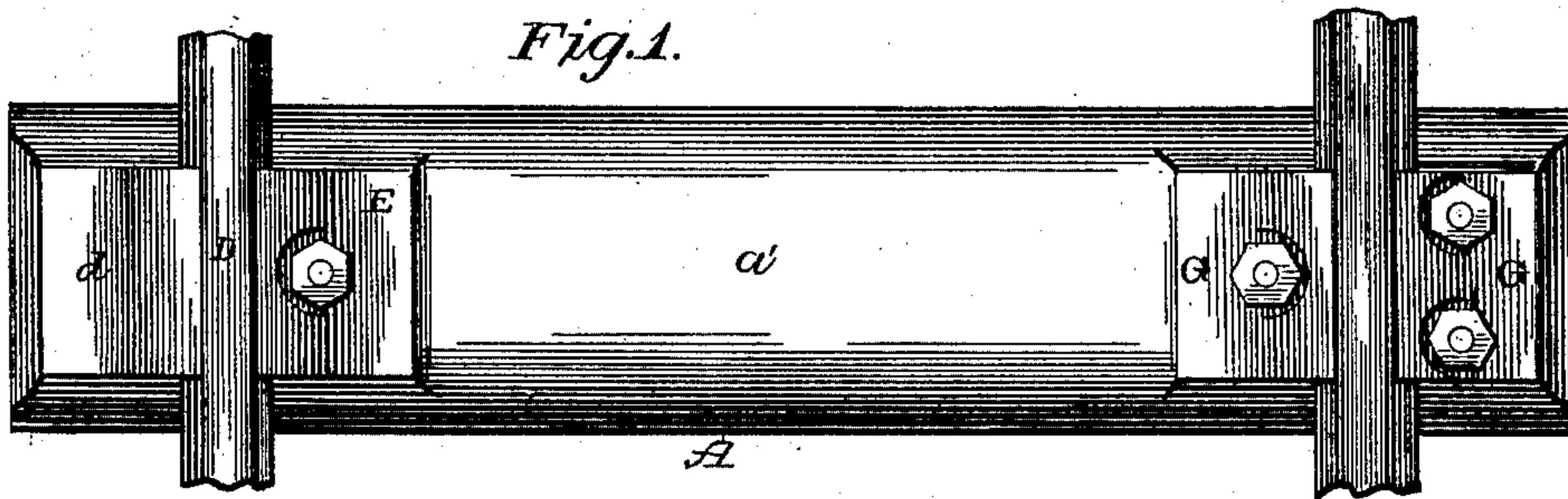
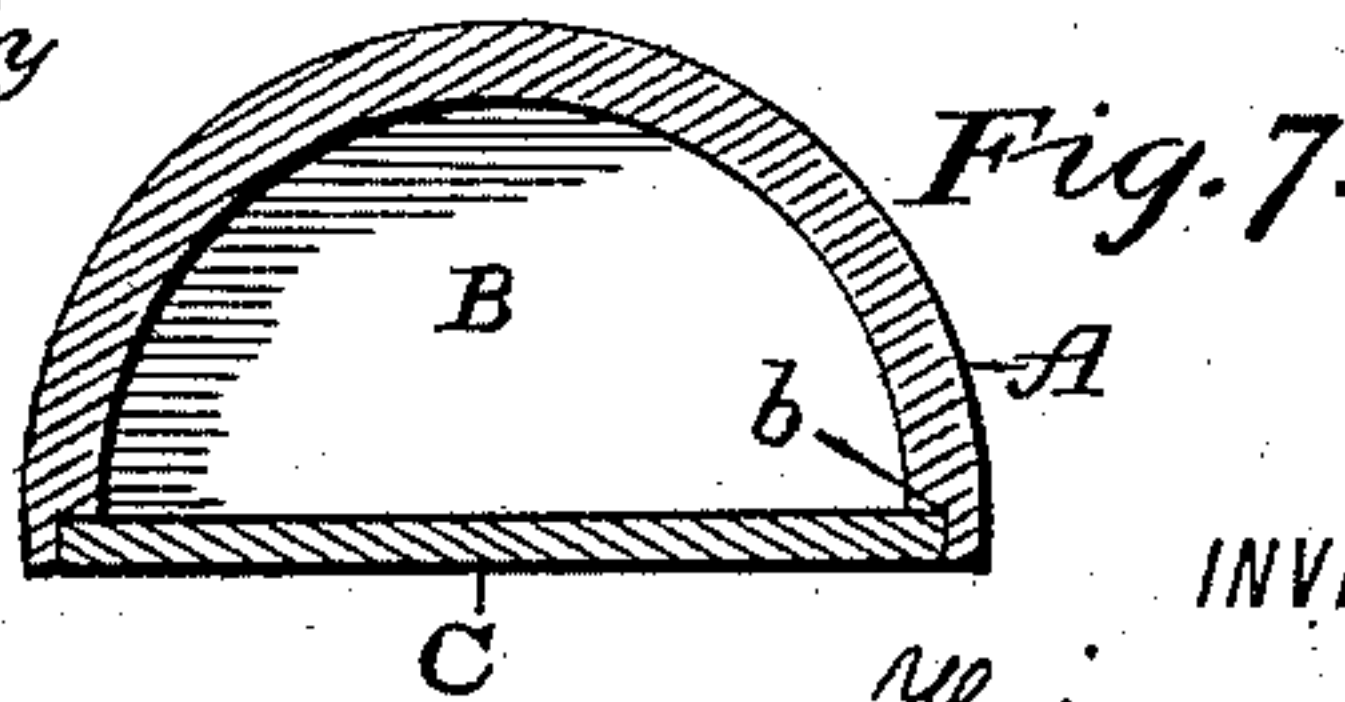
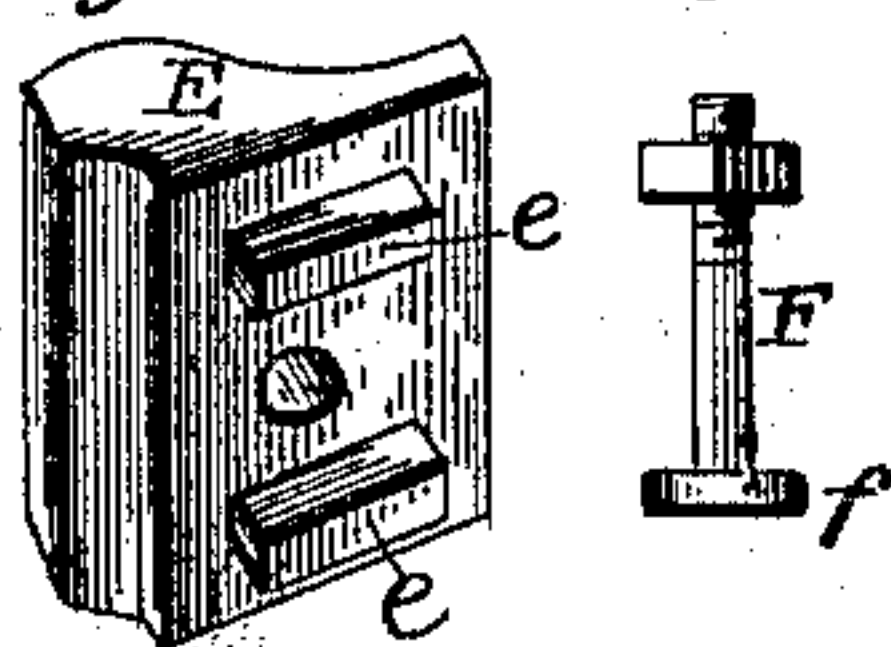


Fig. 4. *Fig. 5.*



WITNESSES:

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HIRAM DAILY, OF LANCASTER, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO DAVID F. KLINE, OF SAME PLACE.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 473,999, dated May 3, 1892.

Application filed April 28, 1891. Serial No. 390,796. (No model.)

To all whom it may concern:

Be it known that I, HIRAM DAILY, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Railroad-Ties, of which the following is a specification.

This invention relates to improvements in metallic railroad-ties; and the objects of the improvements are, first, to provide a light metallic tie having a large bearing-surface; second, to exclude moisture from the interior of the tie, and, third, to removably secure the rails to the tie cheaply, easily, and firmly.

The invention consists in the construction and combination of parts, as hereinafter fully described, and specifically pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a top or plan view of one of the ties, the rails being secured in place; and Fig. 2, a side elevation of the same. Fig. 3 is a perspective top view of the ends of the ties, showing two of the adjustable clamps detached. Fig. 4 is a perspective bottom view of one of the adjustable clamps. Fig. 5 is a view of one of the bolts and nuts used in securing the clamps to the ties. Fig. 6 is a longitudinal vertical central section of the tie, the adjustable clamps being removed. Fig. 7 is a transverse section on the line *y y*, Fig. 6.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the body of the tie, which is of approximately semi-cylindrical shape in cross-section, as illustrated in Figs. 3 and 7, the chord of the circular portion forming the base. The body is metallic and hollow and is closed at the ends and open at the bottom. A plate G, of wood, closes the bottom of the metallic body, and its edges fit in a recess *b'*, extending around the lower inner edge of the walls of said body. This recess is of such depth that when the plate C is in place its outer face is flush with the edges of the walls of the body of the tie, as shown in Figs. 6 and 7. Extending transversely across the interior of the tie there are a number of partitions B, reaching from the top of the tie to the upper

edge of recess *b'* and extending entirely across and formed integral with the body of the tie. These partitions have their greatest thickness at the top, and thence taper to the bottom. If preferable, the sides of the partitions B may be curved, as shown by broken lines B' in Fig. 6, so that the adjoining sides of the partitions will form arches for the support of the top of the body A. At the ends of the tie there are formed solid diagonal braces *b*, also cast or formed with the body of the tie. Constructing the tie in this way and bracing the walls with the partitions B and braces *b* permits the tie to be made much lighter than could otherwise be done and at the same time gives it unusual strength and extent of base or bearing-surface in proportion to the amount of metal used. The plate C makes a continuous bearing or support for the walls of the body A and the partitions and braces, and is removable to afford greater facilities in handling and transporting the tie. The most valuable feature about this plate, however, is that, being made of wood, it is swollen by the absorption of moisture after the tie is laid and tightly packs the recess *b'*, so as to entirely prevent the entrance of water into the metallic body. Any material which is affected in the same way may be substituted for wood.

On each end of the tie there is formed a flat platform *a*, slightly raised above the top *a'*. The center of each of these platforms has a smooth flat surface extending from side to side of the tie, forming a bed for the base of the rail D. On the outside of the platform, on the left of the tie, as seen in the figures of the drawings, there is a stationary clamp or bracket *d*, preferably formed with the tie. Its inner end has a recess in its lower part to receive one side of the base of the rail, while the upper part curves upward and is adapted to bear against the web of the rail, as seen in Figs. 2, 3, and 6. On the opposite side of the rail-bed at this end of the tie there are three recesses. One in the center is entirely open at its outer end, as seen at *d'*, and from this open part toward the rail-bed it has flanges projecting inward from its upper edge, so as to form a channel. On each side of the central recess there is a plain parallel recess *e'*. A clamp E (see

Fig. 4) fits over these recesses to hold the rail in place against the clamp d , and has its inner end of like shape with that of clamp d . On the bottom of clamp E there are two tenons e , adapted to engage the recesses e' , and through its center there is an ordinary bolt-hole, through which a bolt F is passed from the bottom upward. In securing the clamp E in place the bolt is first inserted in the hole with the head f below. The clamp is then placed over its bed, the head of the bolt being pushed down into the part d' of the recess. Then the clamp is pushed toward the rail, the bolt passing into the channel d^2 , with the head engaged beneath the flanges forming the channel, and at the same time the tenons e sink into and engage the recesses e' . After the clamp is shoved up against the rail the nut (shown in Fig. 5) is screwed down, fastening the clamp in place. The tenons and the recesses they engage are so located that when the one is fully engaged with the other the front of the clamp sets well up to the rail, so that should the nut become loosened the tenons will still prevent any undue shifting of the clamp. In addition to this the tenons relieve the bolt from any undue side pressure on the clamp. On the other end of the tie is shown a construction by which the rail can be adjusted to the gage. Here both of the clamps G are adjustable. On each side of the rail-bed the top of the platform is serrated or grooved transversely of the tie for a short distance from the rail-bed, as shown in Figs. 2, 3, and 6. In the center of the inner serrated portion there is a bolt-receiving recess similar to that described as formed in the other end of the tie, and in the outer serrated portion there are two of such recesses—one on each side of the center of the tie. The bottoms of the clamps G are constructed to conform with the surfaces upon which they rest. As the rail is moved to or from the end of the tie the clamps are adjusted to bear against the same. The bolts are relieved from lateral pressure of the rail by the engagement of the serrations on the bottom of the clamps with those in the top of the platform. There are two bolts used with the outer clamp to more firmly secure the same should the ends of the rails meet on the tie; but this is not necessary with the inside clamp, as the lateral pressure is toward the outside of the rail. If desirable, the clamps may be arranged at both ends of the tie in the manner last described; but I prefer to use the construction throughout, as specified. By the use of the serrated surfaces the clamps can be adjusted at will, and at the same time undue strain will be taken from the bolts.

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

1. A hollow tie having metallic sides, top, and ends, in combination with a plate of wood or other similar material secured in the opening in the bottom of said metallic portion, substantially as and for the purpose specified.

2. A hollow tie having metallic sides, top, and ends, in combination with a removable bottom plate formed of wood or other similar material adapted to be fitted in the opening in the bottom of said metallic portion, substantially as and for the purpose specified.

3. A hollow tie having an open bottom, in combination with a removable plate adapted to close the bottom and partitions located in the tie and extending downward from the top thereof to said plate, substantially as and for the purpose specified.

4. A hollow tie having metallic sides, ends, and top, in combination with a plate of wood or other similar material secured in the bottom of said metallic portion and partitions located in the tie and extending from the top thereof to the bottom plate, substantially as and for the purpose specified.

5. A hollow tie having metallic sides, ends, and top and having a recess formed around the inside of the edges of its walls, in combination with partitions B, extending downward from the top of the tie to the recess, and a plate of wood or other similar material adapted to fit in said recess, substantially as and for the purpose specified.

6. A semi-cylindrical hollow tie having metallic sides, ends, and top and having a recess formed around the inside of the edges of its walls, in combination with transverse partitions B and end braces b , extending downward from the top of the tie to the recess, and a plate of wood or other similar material adapted to fit in said recess, substantially as and for the purpose specified.

7. A semi-cylindrical hollow tie having metallic sides, ends, and top and having a recess formed around the inside of the edges of its walls, in combination with partitions B, extending downward from the top of the tie to the recess, a plate of wood or other similar material adapted to fit in said recess, rail-bearings formed on the tie, a fixed clamp located on one side of one of the rail-bearings, depressions formed on the other side of said bearing and on both sides of the bearing on the opposite side of the tie, removable clamps having projections on the bottom adapted to engage said depressions, and means for securing the removable clamps to the tie, substantially as and for the purpose specified.

HIRAM DAILY.

Witnesses:

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WM. R. GERHART.