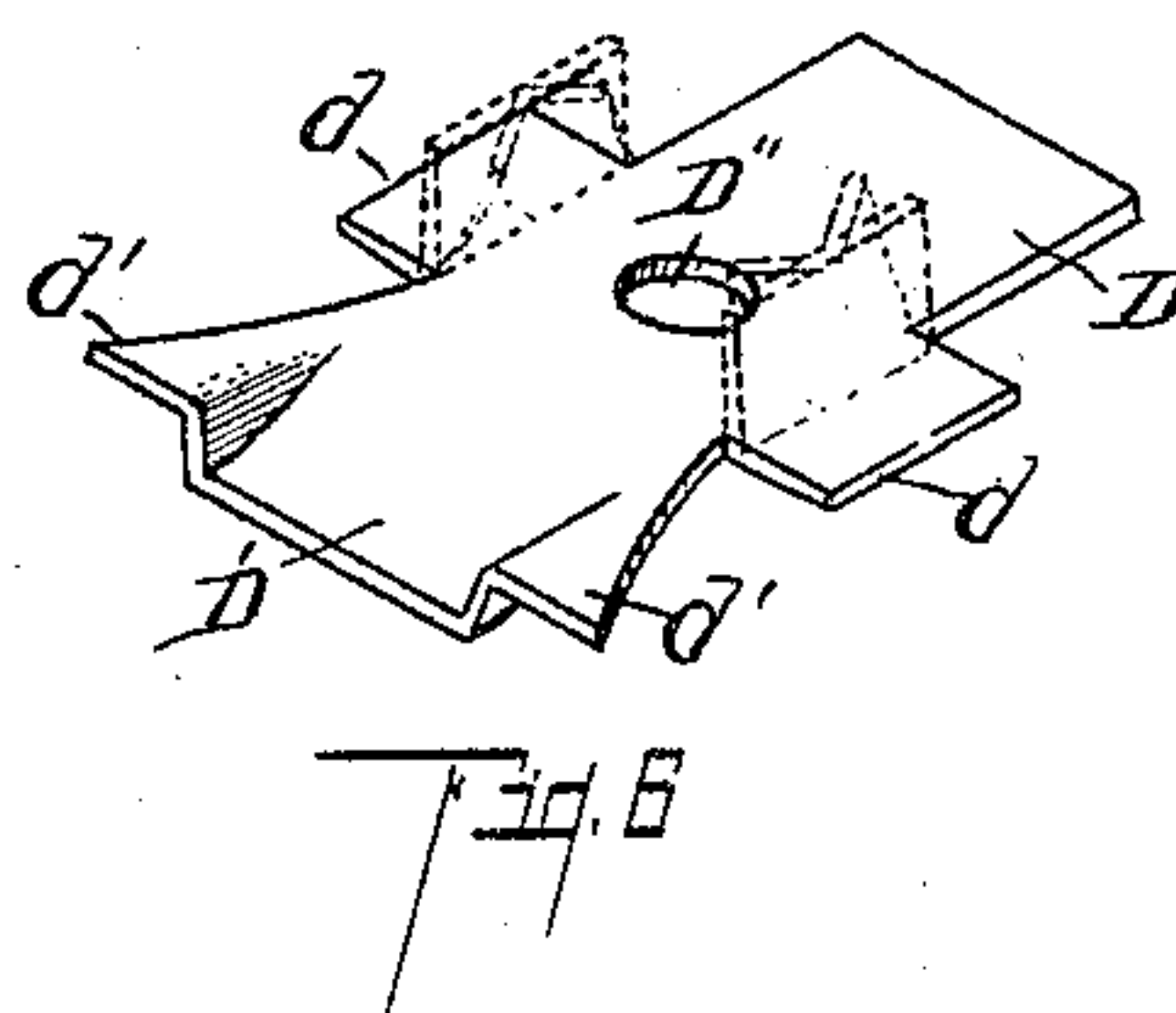
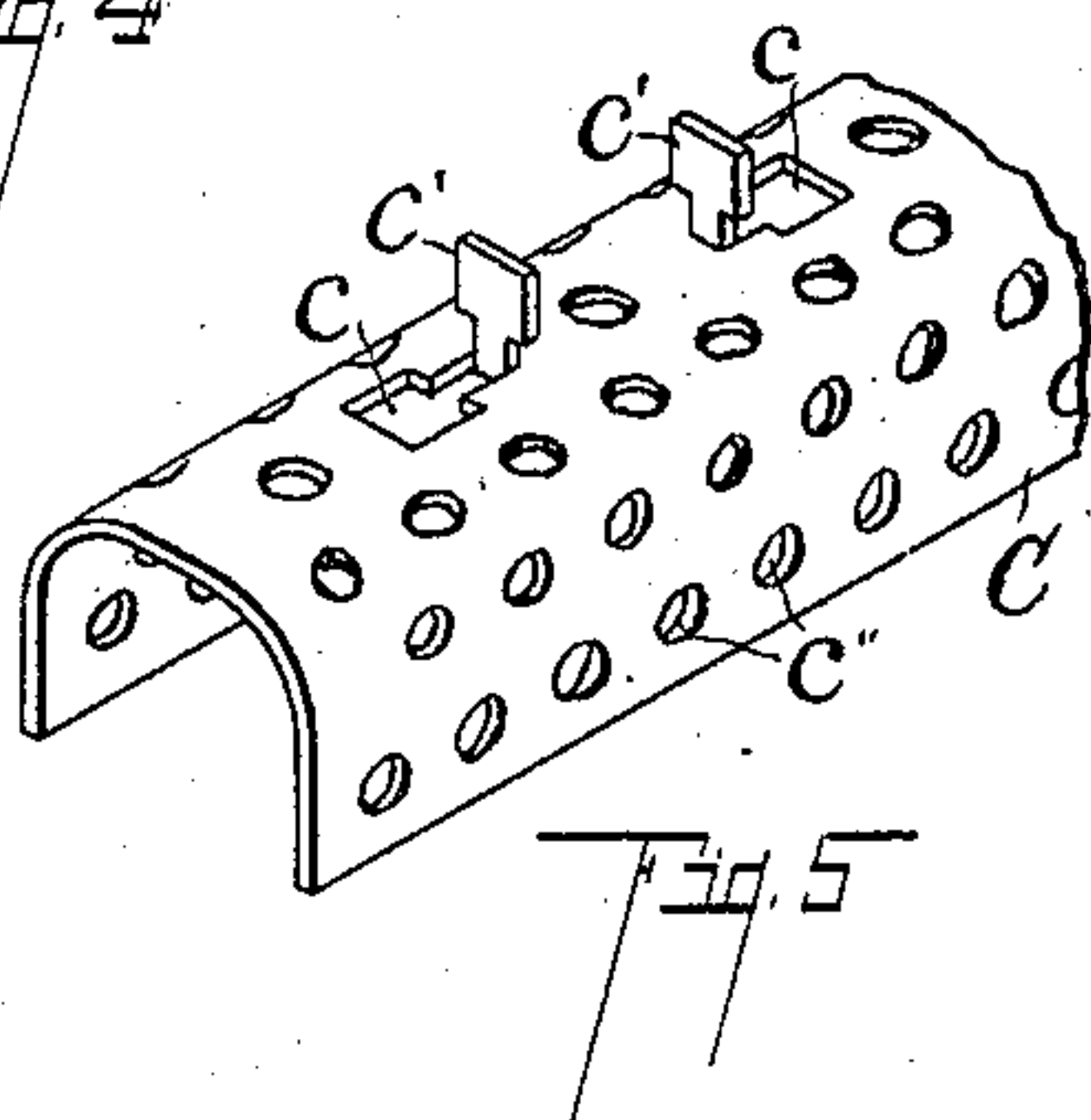
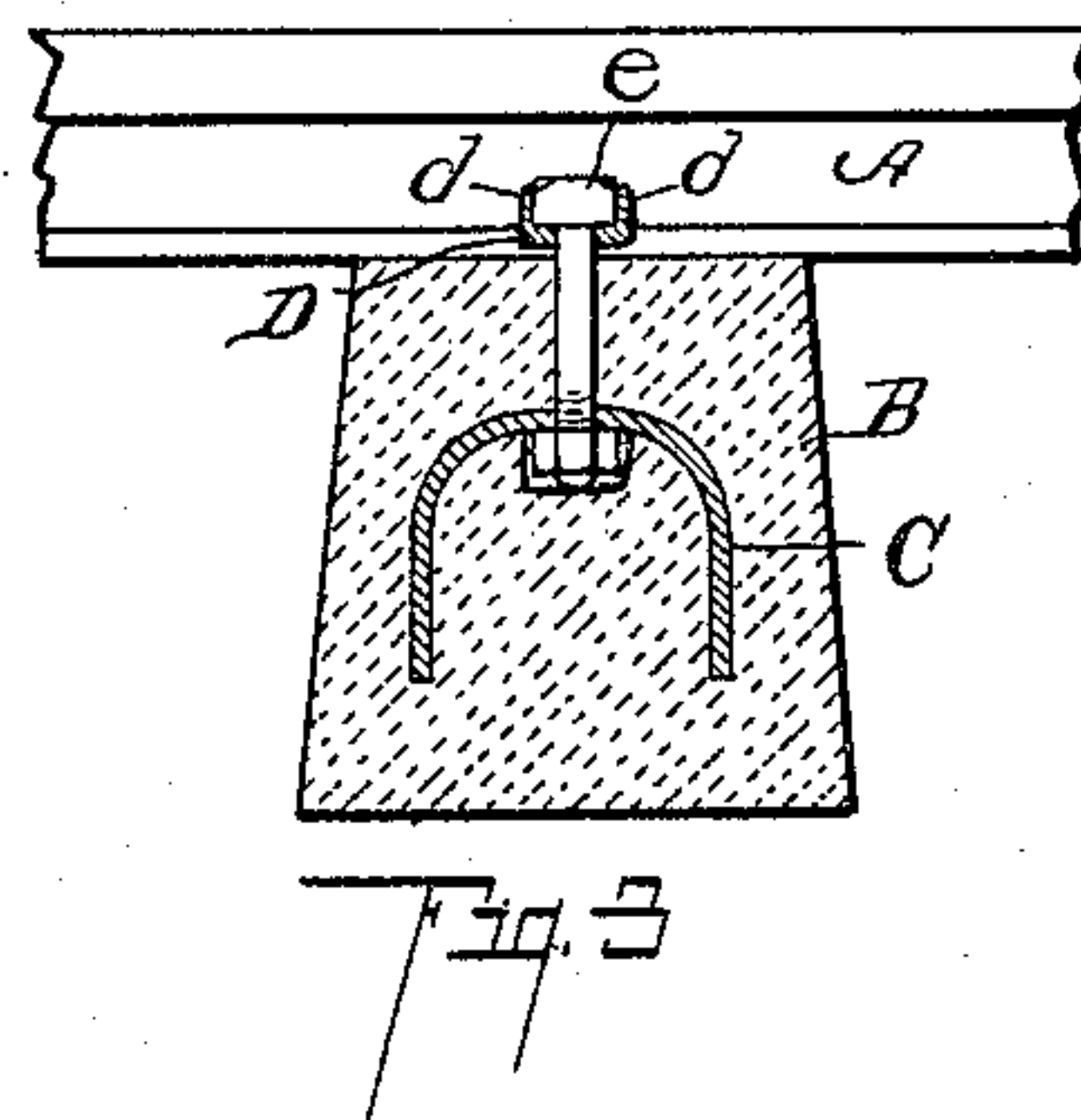
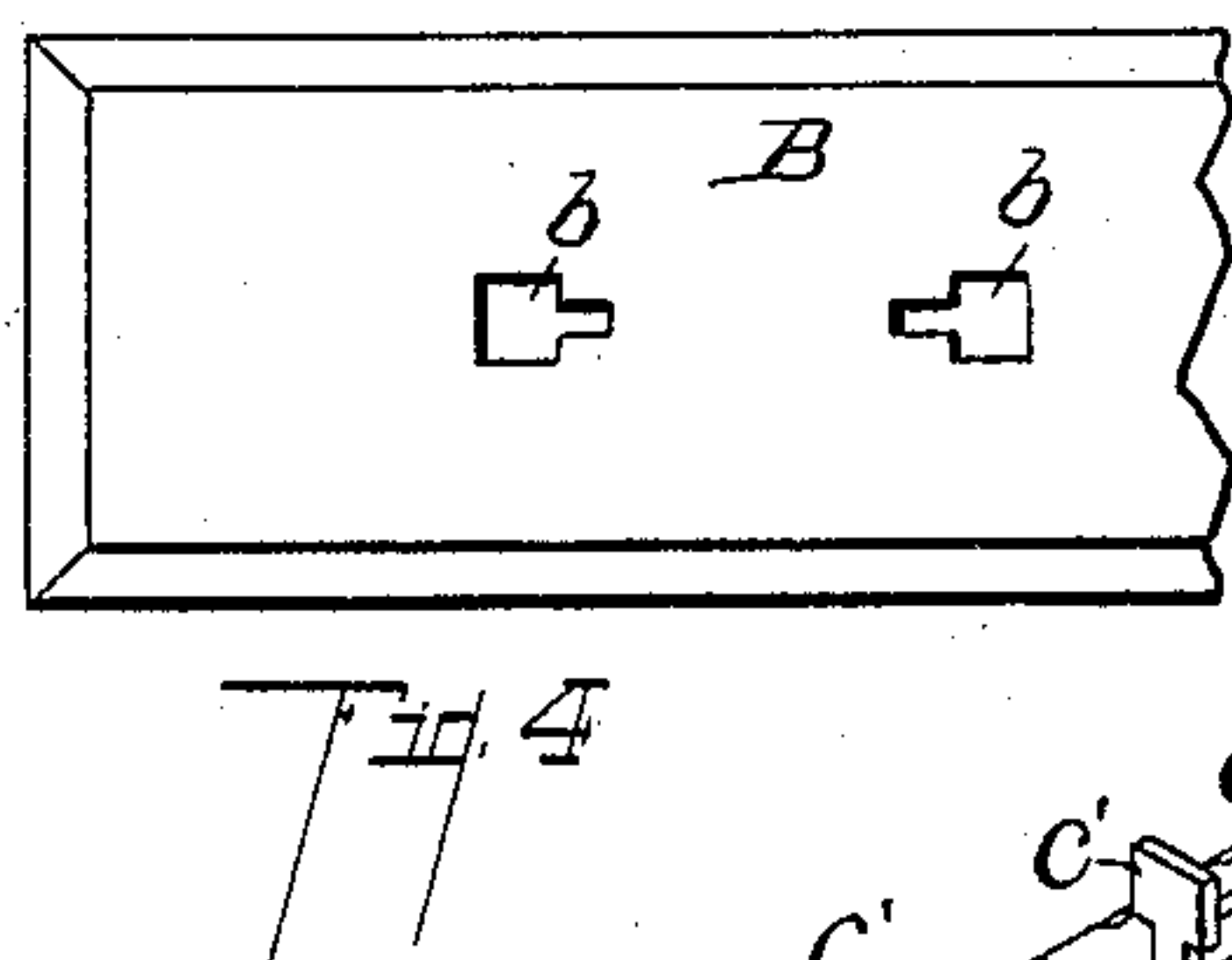
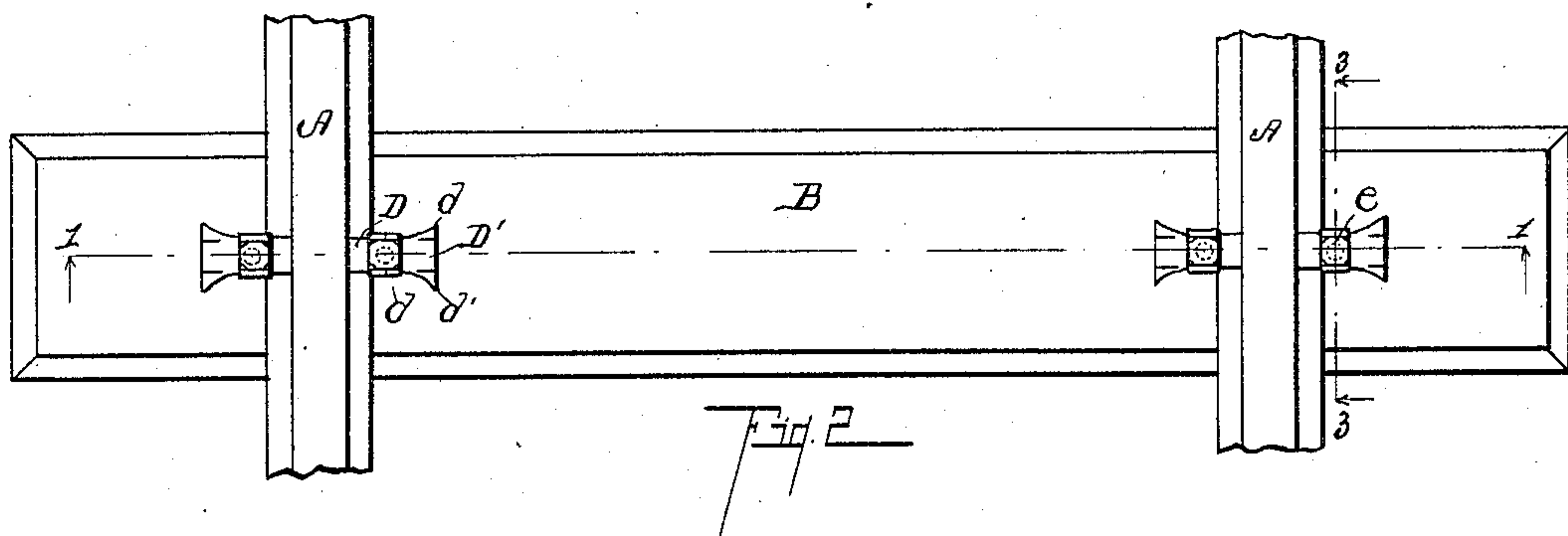
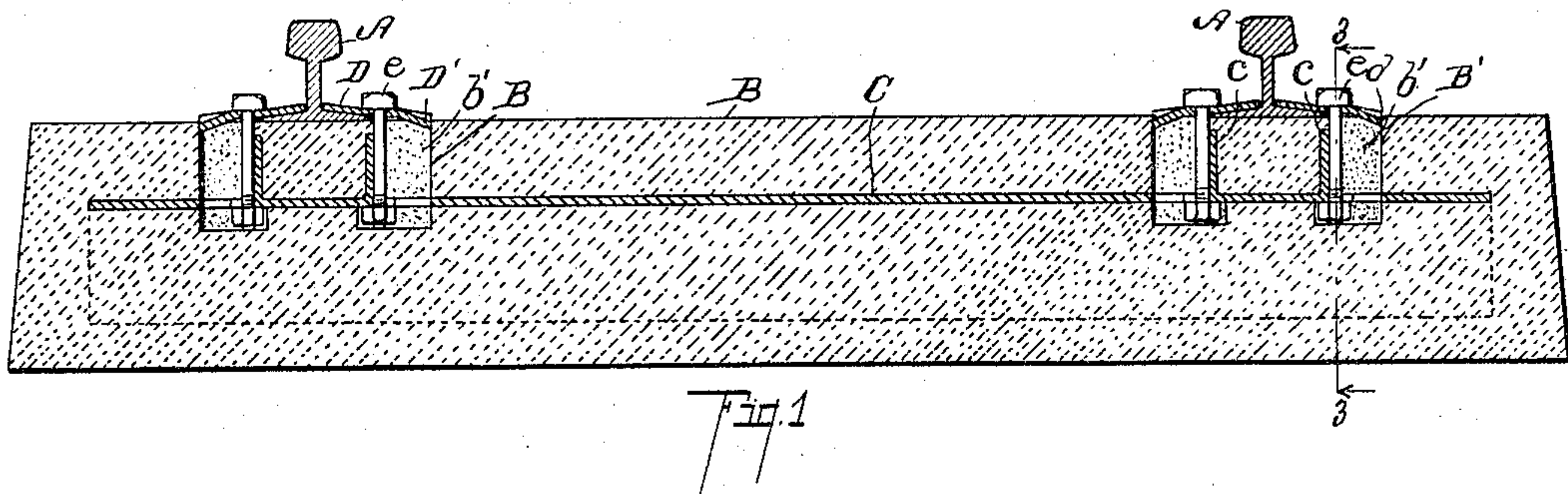


No. 790,889.

PATENTED MAY 30, 1905.

P. J. GARRISON.
RAILWAY TIE.

APPLICATION FILED NOV. 18, 1904.



Witnesses:

Ethel A. Sells
W. B. Morgan

Inventor,

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By *Chappell Hall*
Att'y's

UNITED STATES PATENT OFFICE.

PERRY J. GARRISON, OF THREE RIVERS, MICHIGAN.

RAILWAY-TIE.

SPECIFICATION forming part of Letters Patent No. 790,889, dated May 30, 1905.

Application filed November 18, 1904. Serial No. 233,298.

To all whom it may concern:

Be it known that I, PERRY J. GARRISON, a citizen of the United States, residing in the city of Three Rivers, county of St. Joseph, State of Michigan, have invented certain new and useful Improvements in Railway-Ties, of which the following is a specification.

This invention relates to improvements in railway-ties.

The objects of this invention are, first, to provide in a composite railway-tie improved means for securing the rails thereto; second, to provide an improved composite railway-tie to which the rails may be readily secured after the tie is placed in position in the road-bed; third, to provide an improved composite railway-tie which may be constructed so that it is strong and durable and at the same time comparatively light in weight.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a longitudinal central sectional view of my improved railway-tie, taken on a line corresponding to line 1 1 of Fig. 2, rails A being illustrated in cross-section therewith. Fig. 2 is a detail plan view of the structure shown in Fig. 1. Fig. 3 is a detail cross-sectional view taken on a line corresponding to lines 3 3 of Figs. 1 and 2. Fig. 4 is a detail plan view of the structure appearing in Fig. 1 with the rails A and clip-plates removed. Fig. 5 is a detail perspective view of the core-plate C. Fig. 6 is a perspective view of one of the rail clip-plates D, the engaging position of the lugs D being indicated by dotted lines.

In the drawings similar letters of reference refer to similar parts throughout the several views, and the sectional views are taken look-

ing in the direction of the little arrows at the ends of the section-lines.

Referring to the lettered parts of the drawings, A A represent the rails.

The body B of the tie is made up of a suitable concrete or artificial-stone composition. Embedded in the body B is a longitudinally-arranged core-plate C. This plate C is shaped like an inverted U in cross-section and is provided with a plurality of perforations *c*'. The plastic material passing through these perforations unites the tie in one solid mass, so that the plate does not form a cleavage-point in the tie. This core-plate is provided with oppositely-arranged keyhole-slots *c* to receive the retaining-bolts *e* for the rail-clips D. Cavities B' are formed in the body B, which register with these keyhole-slots. The nut ends of the bolts, with the nuts thereon, are inserted through these keyhole-slots and adjusted therein until they are engaged by the narrow portions of the slots. The keyhole-slots *c* are preferably formed by punching up the portions *c'*, which project upwardly beneath the rail. After the bolts *e* are inserted the cavities are preferably filled with a suitable concrete or cement composition to exclude water. The bolts *e* are arranged through the holes D'' in the rail-clips D and clamp them in position. These rail-clips are provided with offset portions D' at their outer ends adapted to engage the cavities in the tie, and their inner ends are adapted to engage the sides of the rail-web, as is indicated in Fig. 1. This secures the rails against lateral movement without putting any strain upon the bolts *e*. Outwardly-projecting lugs *d'* are arranged at each side of the offset portions D' of the rail-clips, and these lugs rest on the top of the tie. After the plates are drawn into position by the bolts *e* the engaging lugs *d* at the sides of the clip-plates are bent up to engage the heads of the bolts, thus effectively locking the same. The clip-plates are preferably drop-forgings, so that this may be readily done, and if it is desired to remove the rail the lugs may be driven away from the bolt, so that the bolt may be removed.

I have illustrated and described my im-

proved railway-tie in detail in what I consider to be its preferred form on account of its structural simplicity. I am, however, aware that it is capable of considerable variation in structural details without departing from my invention.

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

1. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof and a plurality of perforations there-through; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips, through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, and having a pair of lugs on their sides adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

2. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof and a plurality of perforations there-through; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, for the purpose specified.

3. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof and a plurality of perforations there-through; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, adapted to engage said openings in said body, and having a pair of lugs on their sides adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

4. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof and a plurality of perforations there-through; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, adapted to engage said

openings in said body, for the purpose specified.

5. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, and having a pair of lugs on their sides adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

6. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, for the purpose specified.

7. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plates; and rail-clips through which said bolts are arranged, adapted to engage said openings in said body, and having a pair of lugs on their sides adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

8. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, adapted to engage the openings in said body, for the purpose specified.

9. In a composition railway-tie, the combination of a body portion; a plate having keyhole-slots therein embedded in said body; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips, through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, and having a pair of lugs on their sides

adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

10. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof and a plurality of perforations there-through; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, for the purpose specified.

11. In a composition railway-tie, the combination of a body portion; a core-plate shaped in cross-section like an inverted U, embedded in said body, said core-plate having oppositely-arranged keyhole-slots in the top thereof; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, for the purpose specified.

12. In a composite railway-tie, the combination of a body portion; a plate having keyhole-slots therein embedded in said body; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips, through which said bolts are arranged, having offset portions at their outer ends adapted to engage said openings in said body, for the purpose specified.

13. In a composition railway-tie, the combination of a body portion; a plate having key-

hole-slots therein embedded in said body; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, adapted to engage the said openings in said body, and having a pair of lugs on their sides adapted to clamp the heads or nuts of the bolts to lock the same, for the purpose specified.

14. In a composition railway-tie, the combination of a body portion; a plate having keyhole-slots therein embedded in said body; openings in said body which register with said keyhole-slots in said core-plate; bolts arranged in said openings to engage said core-plate; and rail-clips through which said bolts are arranged, adapted to engage said openings in said body, for the purpose specified.

15. The combination of a railway-tie; slots or openings in the upper face of said tie; bolts; rail-clips having holes therethrough to receive said bolts, and having offset portions at their outer ends adapted to engage said holes or openings in said tie; and lugs on the sides of said rail-clips, adapted to clamp the nuts or heads of said bolts to lock the same, for the purpose specified.

In witness whereof I have hereunto set my hand and seal in the presence of two witnesses.

PERRY J. GARRISON. [L. s.]

Witnesses:

ETHEL A. TELLER,

OTIS A. EARL.