

No. 708,521.

Patented Sept. 9, 1902.

E. M. BUNCE.
RAILROAD TIE.

(Application filed Dec. 2, 1901.)

(No Model.)

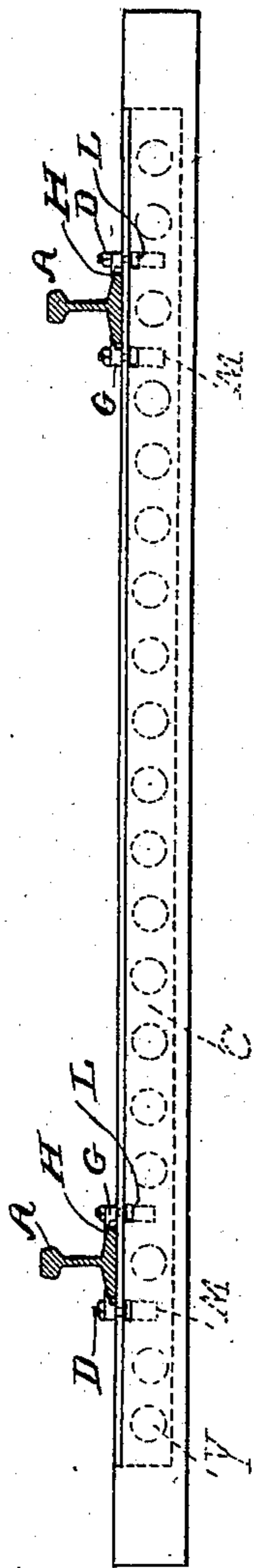


Fig. 1.

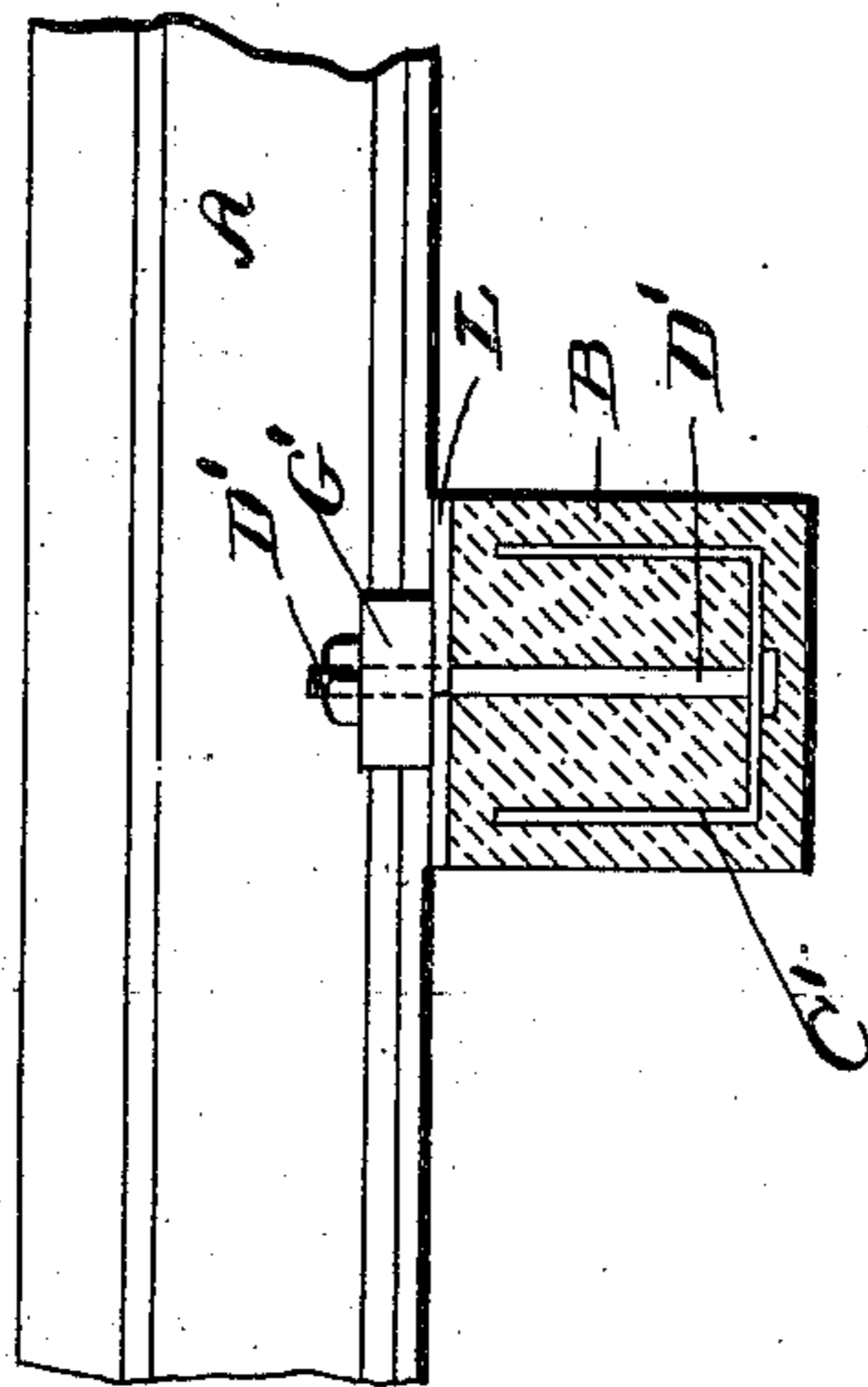


Fig. 2.

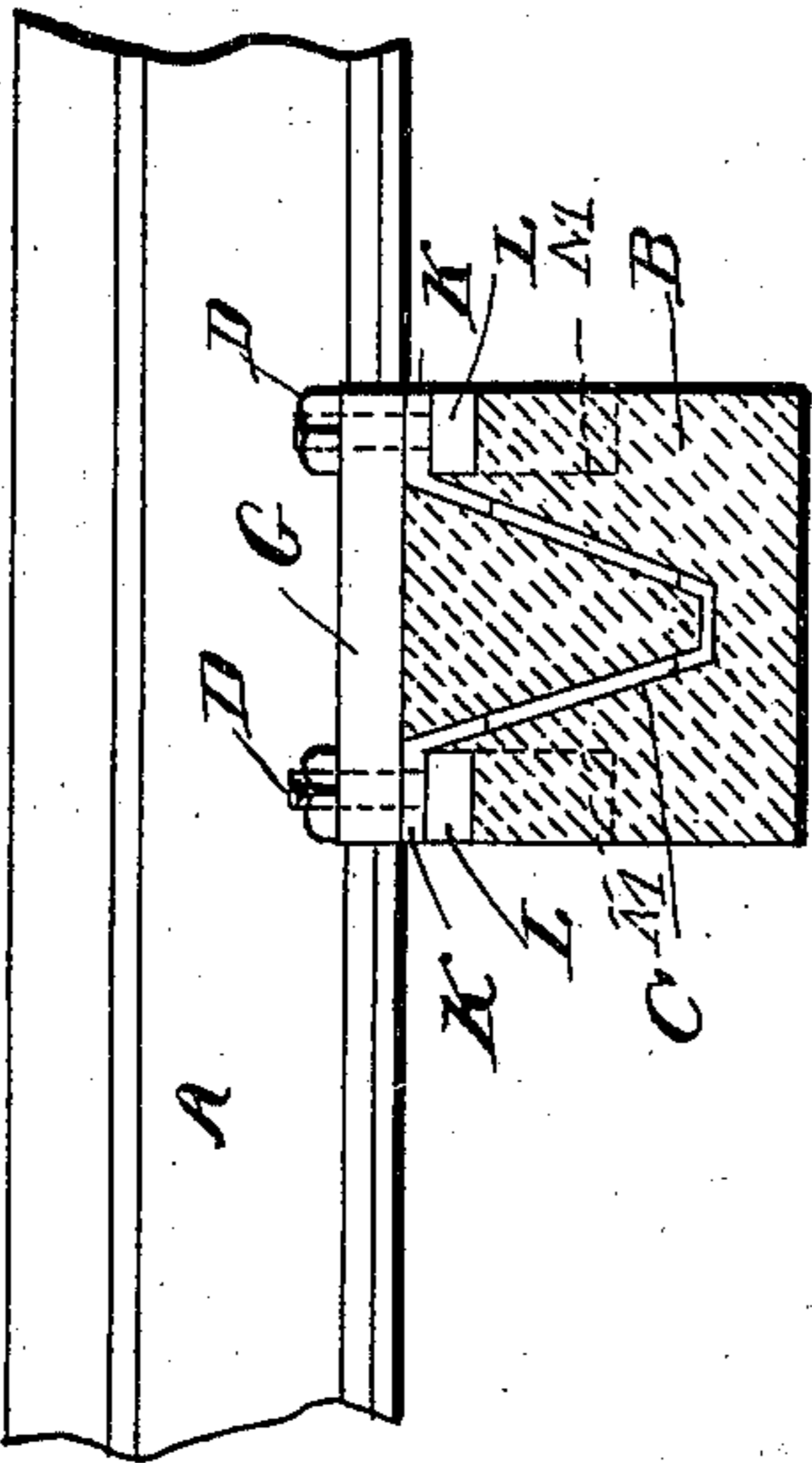


Fig. 3.

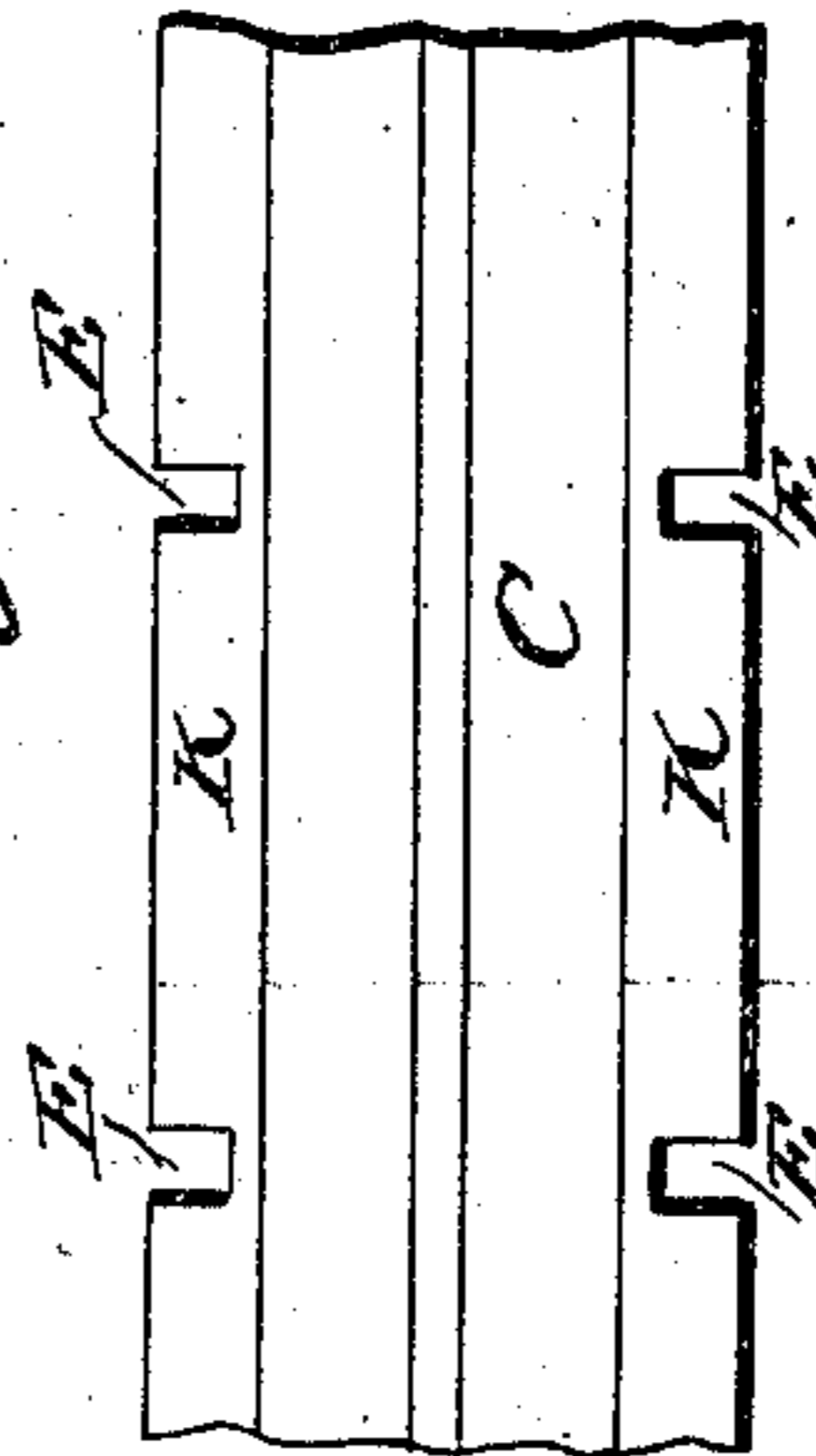
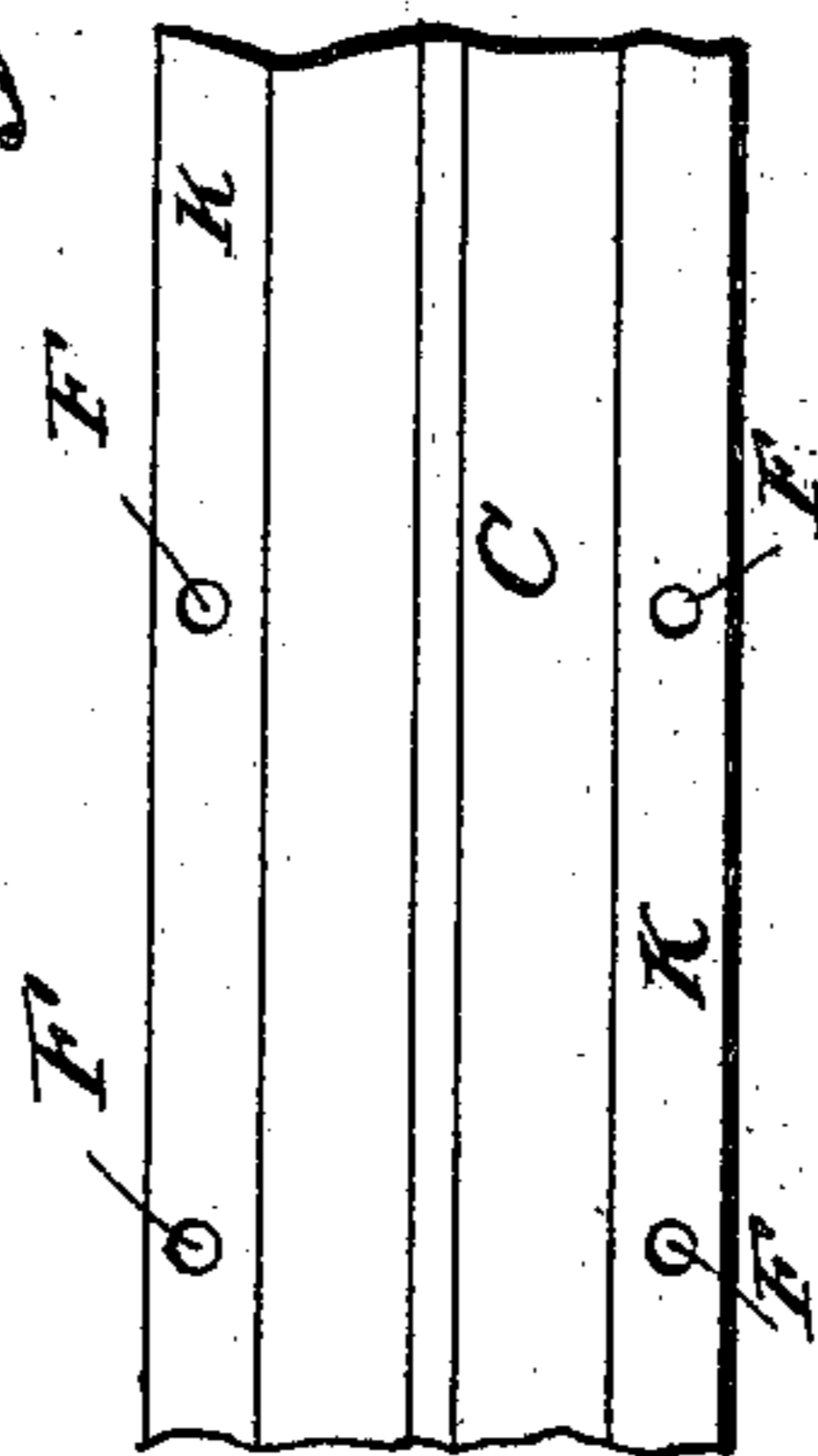


Fig. 4.



WITNESSES:

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RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 708,521, dated September 9, 1902.

Application filed December 2, 1901. Serial No. 84,351. (No model.)

To all whom it may concern:

Be it known that I, EARL M. BUNCE, a citizen of the United States, residing at Collinwood, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Railroad-Ties; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to railroad-ties, and particularly to what are termed "composition ties," and includes means to attach ties to the rails of a railway.

The object of the invention is to construct an improved tie of metal and cement, together with improved means for attaching a rail thereto.

A further object is to construct a stronger and more durable tie of the class described than has heretofore been constructed and to produce a tie which will take the place of the ordinary wooden tie.

With these and other objects in view the invention is hereinafter described, and is illustrated in the accompanying drawings, in which—

Figure 1 is a side view of the tie. Fig. 2 is a cross-section thereof, showing the rail in elevation. Fig. 3 is a top plan view of a portion of the metal frame of the tie. Fig. 4 is a similar view of a modification, and Fig. 5 is a cross-section of a modified form of the tie.

Referring more particularly to the drawings, the frame or skeleton of the tie is indicated at C and is formed of metal, preferably iron, which may be rolled or cast in various shapes without departing from the spirit of my invention. I have illustrated a V-shaped frame and also in Fig. 5 a rectangular modification. The body of the tie is indicated at B and is formed of cement or similar material molded around the frame. The side pieces of the frame are preferably provided with openings Y, through which the cement extends, which assists in retaining the parts of the tie together. The rails are indicated at A and are attached to the tie by means of bolts D and clips G. In the form of construction

illustrated in Fig. 3 the bolts D pass through slots E, formed in the flanges K of the frame. In the construction shown in Fig. 4 said bolts pass through holes F, formed in said flanges. When the cement is molded to the frame, recesses L are left beneath the flanges to receive the heads of the bolts. When the slotted construction shown in Fig. 3 is used, these recesses need only be large enough to receive the heads of the bolts; but when the construction shown in Fig. 4 is used the recesses must be longer, as indicated in dotted lines at M, Fig. 2, so as to afford room to insert the bolt up through the holes F.

The clip G comprises a body having holes through which the bolts pass and an outstanding flange H, which is shaped to lie over the base of the rail and to firmly bind the same to the tie when the bolts are tightened. In the preferred construction there are two bolts on each side of the rail engaging each flange of the frame of the tie, and the clip G is formed of a single piece having holes at each end, through which the bolts pass. This serves to bind the bolts together and to prevent them slipping out of the slots E.

In the construction shown in Fig. 5 a rectangular trough-shaped frame C' is shown, which is completely embedded in the cement and has a single long bolt D', also embedded therein and engaging the bottom part of the frame. In this construction in order that the rail may not rest directly on the cement a plate L is interposed, on which the rail rests, in which case the clip G' need only be long enough to receive the single bolt.

By the use of the tie above described it will be seen that it is unnecessary to drive spikes into the tie to fasten the rails thereto, which would have the effect of fracturing the cement portion of the tie; also, the disintegration of the cement due to the jarring of the train is prevented by the shape and function of the metallic frame.

It is to be understood that the invention is not limited to the particular shape or form illustrated; but the beam may be made in various shapes, the body may be formed of cement or any suitable composition, and equivalent means of attaching the rail to the beam may be used without departing from the spirit and scope of the invention.

Having thus described the invention, what is claimed as new, and desired to be secured by Letters Patent, is—

- 5 1. In combination, a railroad-tie comprising a metal beam embedded in a body of molded material, said beam having lateral flanges forming seats for the rail, and rail-retaining bolts engaging said flanges.
- 10 2. A railroad-tie comprising a metal beam embedded in a solid block of molded material, said beam having lateral flanges forming seats for the rail.
- 15 3. In combination, a railroad-tie comprising a flanged metallic beam embedded in a solid block of molded material, and rail-retaining bolts engaging the flanges.
4. In combination, a railroad-tie compris-

ing a flanged metallic beam embedded in a block of molded material, the clips G, and the bolts D engaging the clips and the flanges. 20

5. In combination, a railroad-tie comprising a trough-shaped metallic beam embedded in a block of molded material, and rail-retaining means engaging the beam.

6. In combination, a railroad-tie comprising a trough-shaped metallic beam embedded in a block of molded material, and rail-retaining bolts engaging the beam. 25

In testimony whereof I affix my signature in presence of two witnesses.

EARL M. BUNCE.

Witnesses:

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