

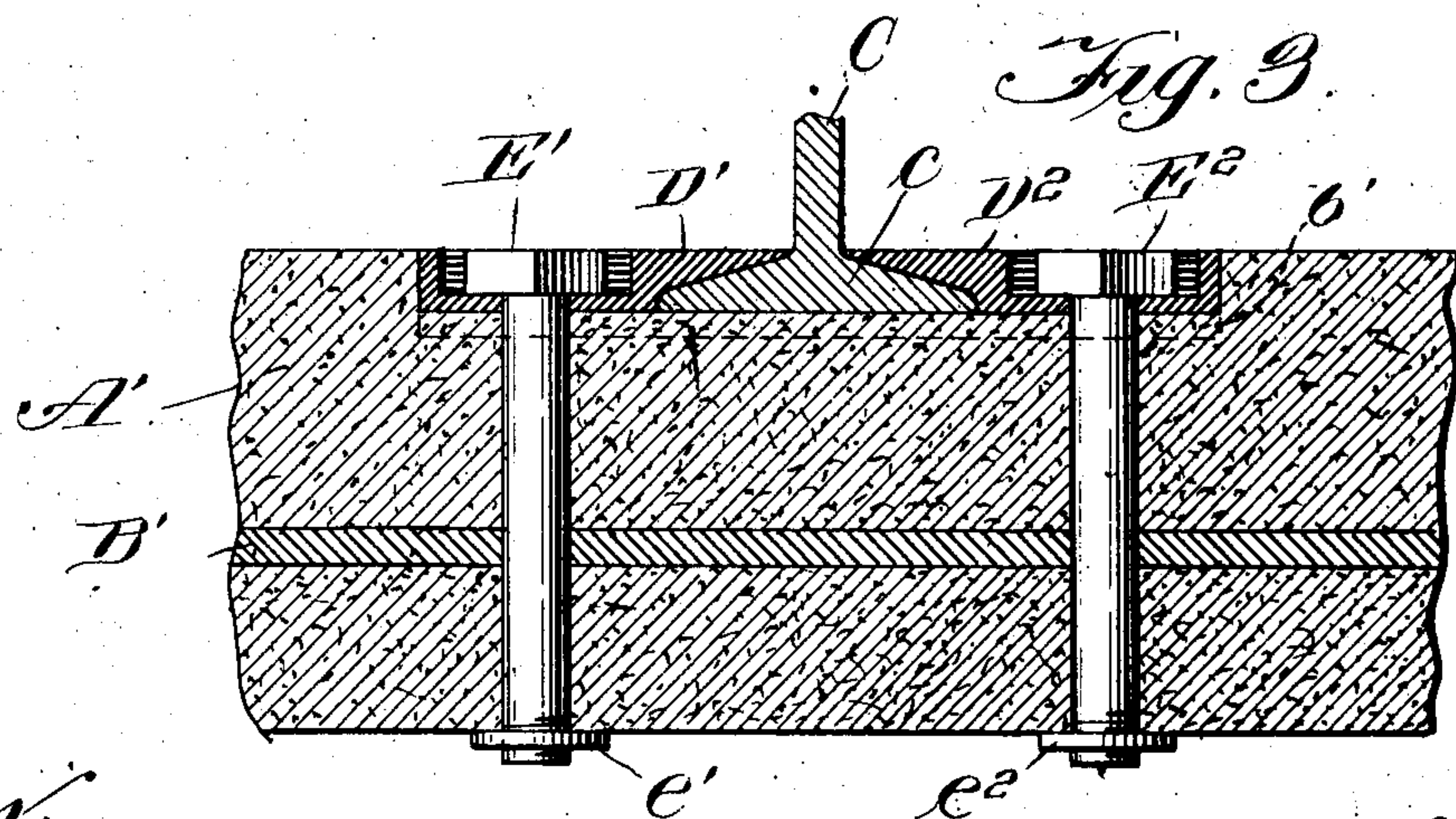
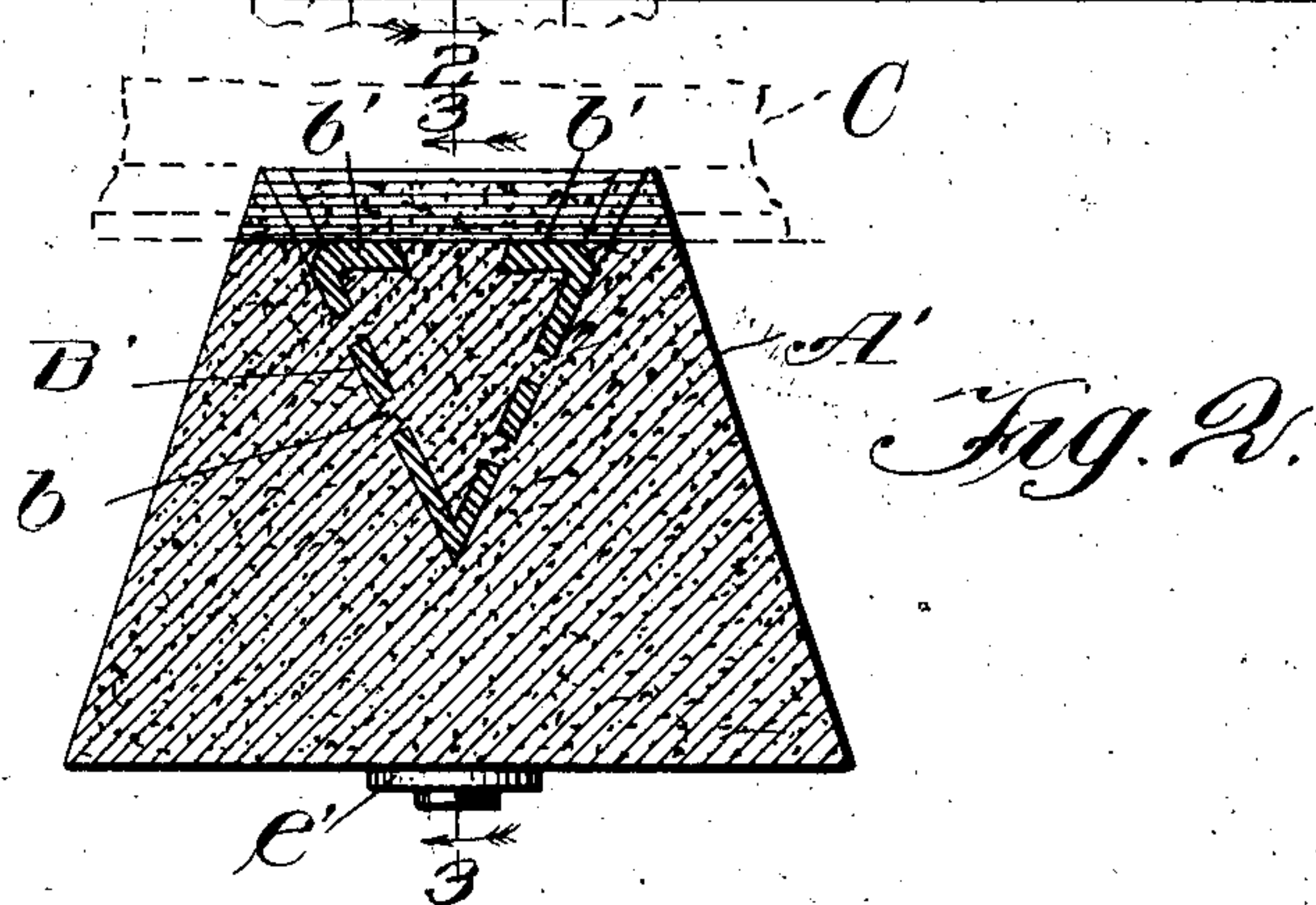
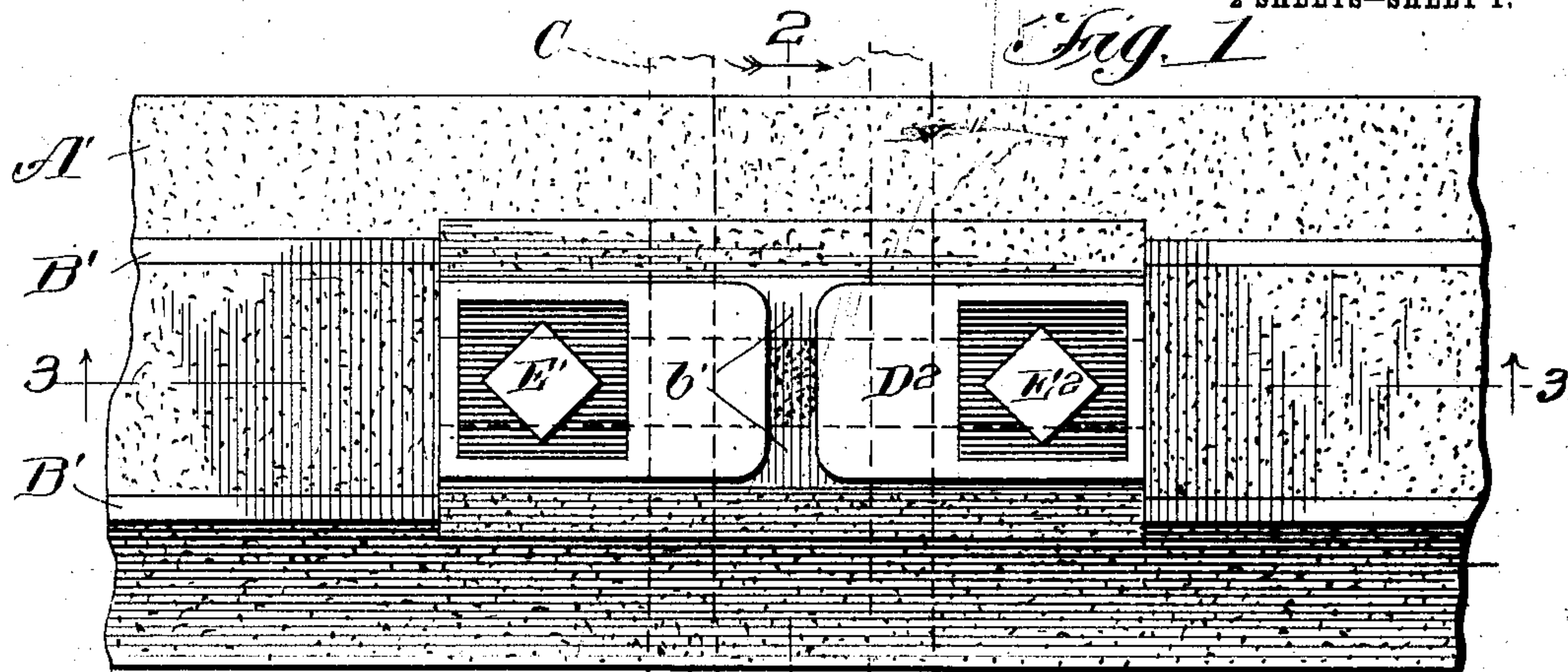
No. 833,913.

PATENTED OCT. 23, 1906.

E. H. BELL.  
RAILROAD TIE.

APPLICATION FILED FEB. 12, 1904.

2 SHEETS—SHEET 1.



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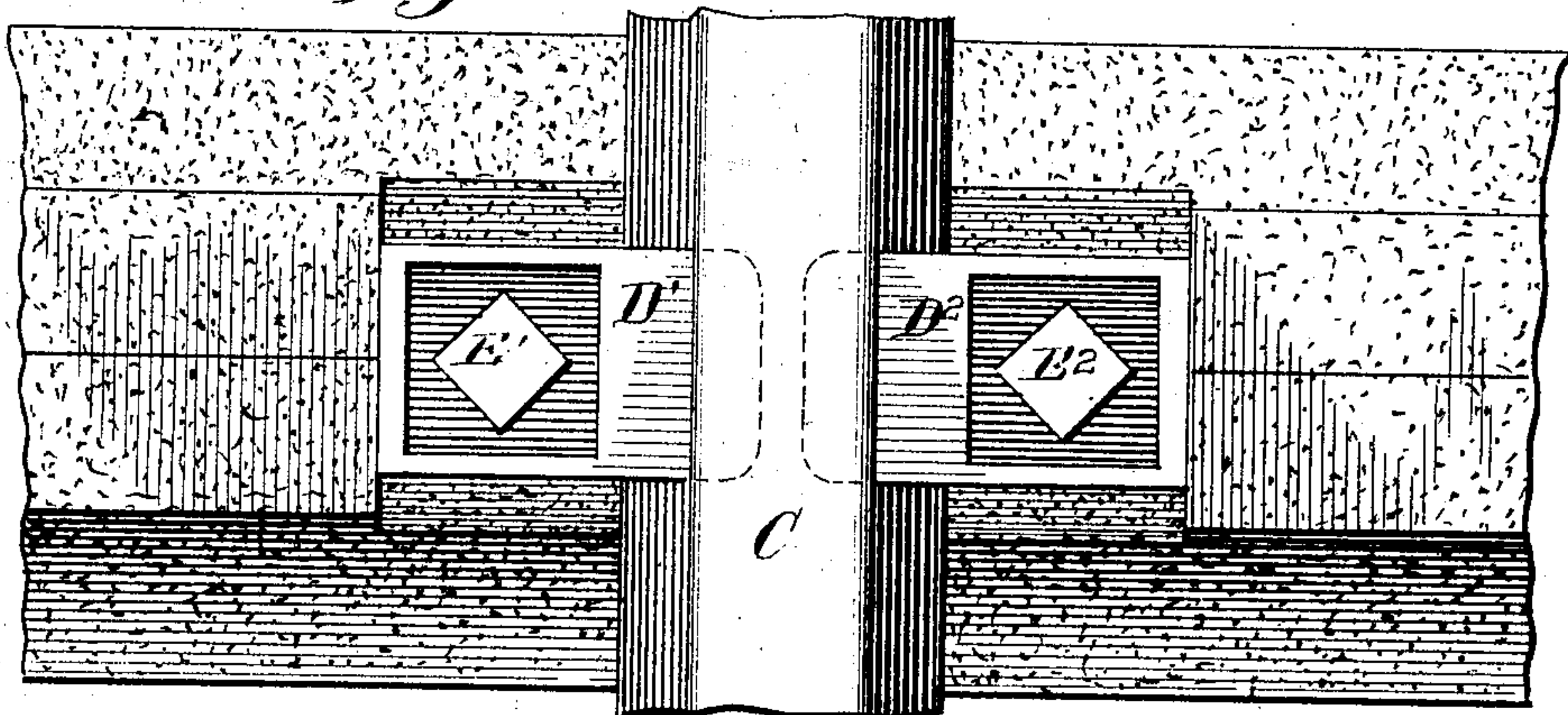
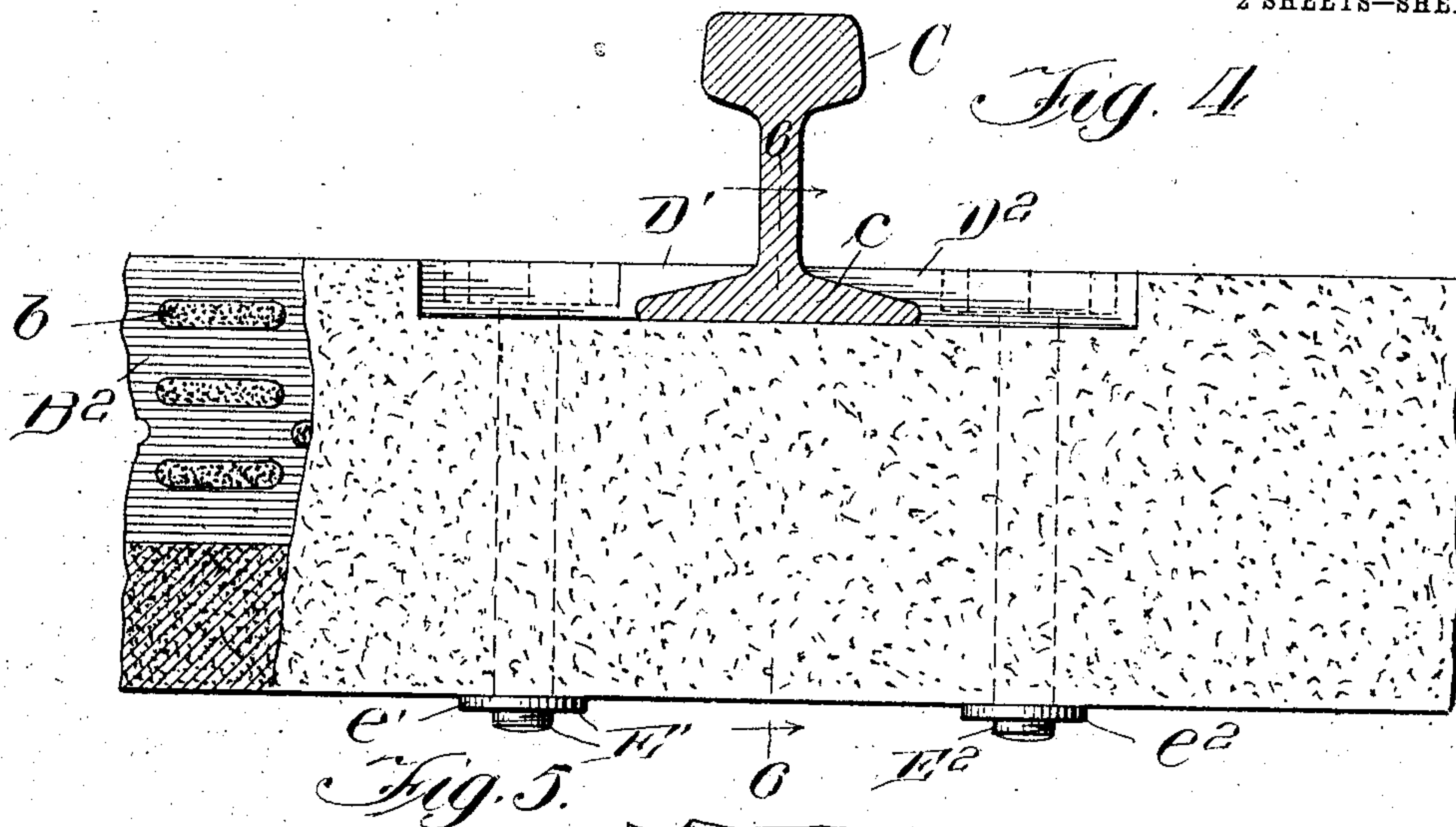
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# UNITED STATES PATENT OFFICE.

EDWIN H. BELL, OF CHICAGO, ILLINOIS.

## RAILROAD-TIE.

No. 833,913.

Specification of Letters Patent.

Patented Oct. 23, 1906.

Application filed February 12, 1904. Serial No. 193,237.

*To all whom it may concern:*

Be it known that I, EDWIN H. BELL, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in Railroad-Ties; and I 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates in general to railroad-ties, and more particularly to ties made of a composition of materials.

The increasing scarcity of timber renders the use of wooden railroad-ties quite expensive, especially as they are of comparatively short life and have to be replaced by new ones after a few years' usage.

The primary object of my invention is to provide a composition railroad-tie which will cost initially little more than a wooden tie and will be durable and efficient in use.

My invention, generally described, consists in a metallic core, preferably of V-shaped cross-section, surrounded by and embedded in cement, rail-clamps resting upon the core and engaging the rail-base, the latter preferably lying below the surface of the cement and being supported directly upon the metallic core.

My invention will be more fully described hereinafter with reference to the accompanying drawings, in which the same is illustrated as embodied in two convenient and practical forms, and in which—

Figure 1 is a plan view; Fig. 2, a cross-sectional view on line 2 2, Fig. 1; Fig. 3, a longitudinal sectional view on line 3 3, Figs. 1 and 2; Fig. 4, an elevational view, parts being broken away, of a modification; Fig. 5, a plan view of the modified form of my invention shown in Fig. 4; and Fig. 6, a sectional view on line 6 6, Fig. 4.

Similar reference characters are used to designate similar parts in the several figures of the drawings.

Referring more particularly to Figs. 1, 2, and 3, reference character A' designates a railroad-tie the principal portion of which is formed of cement. B' designates a core embedded in the cement to give the requisite rigidity and strength to the tie. The core B' is preferably V-shaped in cross-section

and is provided with a number of openings *b* through the two portions thereof in order that when the tie is formed by surrounding the core with the plastic cement the latter may pass freely to the space within the core, thereby insuring the complete embedding of the core within the cement and filling every portion of the space within the core with the cement.

When the core occupies a position in which the two members thereof diverge upwardly, as shown in Figs. 1, 2, and 3, the edges of the two members are flush with the upper surface of the tie, as shown in Figs. 1 and 2. The portions of the tie above which the rails of the track extend are countersunk and the two members of the core bent inwardly to form flanges, as shown in Fig. 2, upon which the base of the rail is directly supported.

In order that the rail may be readily and securely fastened to the tie, clamp-plates D' and D<sup>2</sup> are provided, which are located within the recesses in the top of the tie at either side of the rail-base. The clamp-plates are provided with tapered portions, which overlie the base *c* of the rail C, as clearly shown in Fig. 3, thereby immovably fastening the rail to the tie. The clamping-plates are of such a width that they will rest upon and be supported by the intumed flanges *b'* of the core B'. Any suitable means may be provided for securing the clamping-plates to the tie—such, for instance, as bolts E' and E<sup>2</sup>, the heads of which are received in recesses in the clamping-plates and which extend downwardly through openings in the core and enter into engagement with screw-threaded washers *e'* and *e''*, located at the bottom of the tie. Such washers may conveniently be embedded in the plastic cement when the tie is made.

In Figs. 4, 5, and 6 I have shown a modified embodiment of my invention in which the V-shaped core B<sup>2</sup> is so located that the members thereof diverge downwardly, as shown in Fig. 6. In this embodiment of my invention the countersunk portions at the top of the tie to receive the bases of the rails extend below the apex of the core, which is cut away to form a seat for the rails and securing-clamps. In this modified embodiment of my invention, as in the embodiment thereof first described, the base of the rail is directly supported upon the metallic core, as are also the retaining-clamps D' and D<sup>2</sup>, so



that the vibration of the rail incident to the passing of trains thereover will not injuriously affect the tie.

The manner of constructing and using my invention will be obvious from the foregoing description and is as follows: The tie is constructed by first providing the core with the openings *b* therethrough and with the seats to receive the rail-base and retaining-clamps, after which the cement in plastic form is molded around the core to impart to the tie the desired cross-section. After the cement has hardened the tie is ready for use and may be laid upon the road-bed in the customary manner. The rails are then placed upon the ties with their bases located within the countersunk portions thereof and resting directly upon the metallic cores. The clamping-plates are then placed in position and the bolts turned through the screw-threaded washers at the bottom of the ties, thereby causing the clamping-plates to forcibly engage the bases of the rails.

From the foregoing description it will be observed that I have invented an improved railway-tie which may be readily constructed and to which the rails may be easily and securely fastened and which will not deteriorate by usage, as it is in no wise injured by the moisture which destroys wooden ties and will, through its substantial construction, withstand the wear and tear to which railroad-ties are subjected by the constant passage of trains over the rails supported thereupon.

While I have described more or less precisely the details of construction, I do not wish to be understood as limiting myself thereto, as I contemplate changes in form and the proportion of parts and the substitution of equivalents as circumstances may suggest or render expedient without departing from the spirit of my invention.

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

1. In a railroad-tie, the combination with a body portion of cement, of a metallic core of substantially V-shaped cross-section embedded in the cement in an inverted position. 50

2. In a railroad-tie, the combination with a body portion of cement, of a substantially V-shaped core embedded in the cement in an inverted position, said core having holes therein through which the cement when plastic passes to the space between the members of the core. 55

3. In a railroad-tie, the combination with a body portion of cement, of a metallic core embedded therein, and seats formed in the core below the upper surface of the tie for supporting the rails. 60

4. The combination with a railroad-tie, of a body portion of cement, a V-shaped metallic core embedded therein, the top of said core extending flush with the upper surface of the tie, and seats formed below the top of the core for supporting the rails. 65

5. In a railroad-tie, the combination with the body portion of cement, of a substantially V-shaped metallic core embedded therein, seats formed in the upper surface of the tie and extending below the top of the core, and clamping-plates located within said seats for engaging the bases of the rails. 75

6. In a railroad-tie, the combination with the body portion of cement, of a substantially V-shaped metallic core embedded therein, seats formed in the upper surface of the tie and extending below the top of the core, clamping-plates located within said seats for engaging the bases of the rails, bolts engaging said clamping-plates and extending through the tie, and screw-threaded washers embedded in the under surface of the tie through which said bolts pass. 85

In testimony whereof I sign this specification in the presence of two witnesses.

EDWIN H. BELL.

Witnesses:

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