

No. 847,783.

PATENTED MAR. 19, 1907.

H. S. KILBOURNE.
RAILWAY TIE.

APPLICATION FILED APR. 5, 1906.

2 SHEETS—SHEET 1.

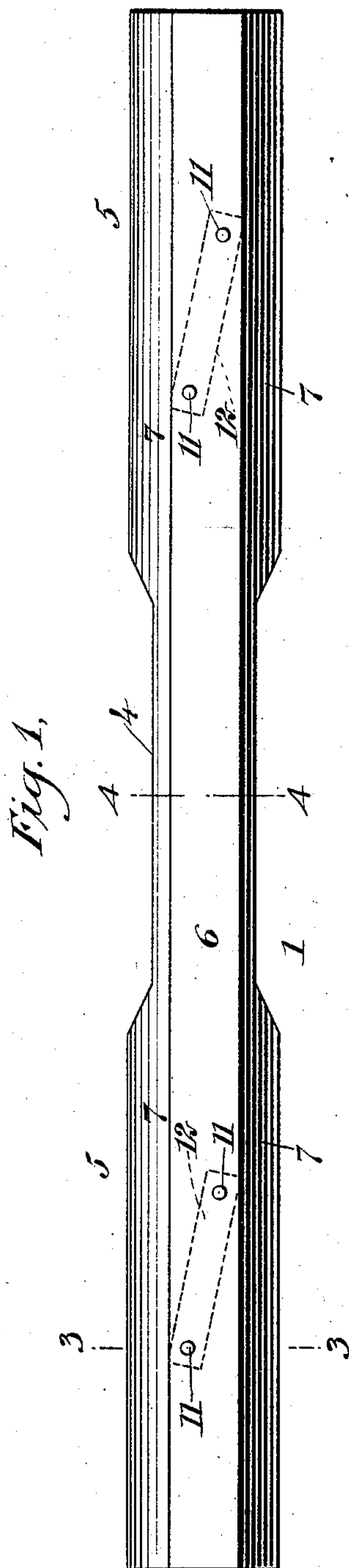


Fig. 1.

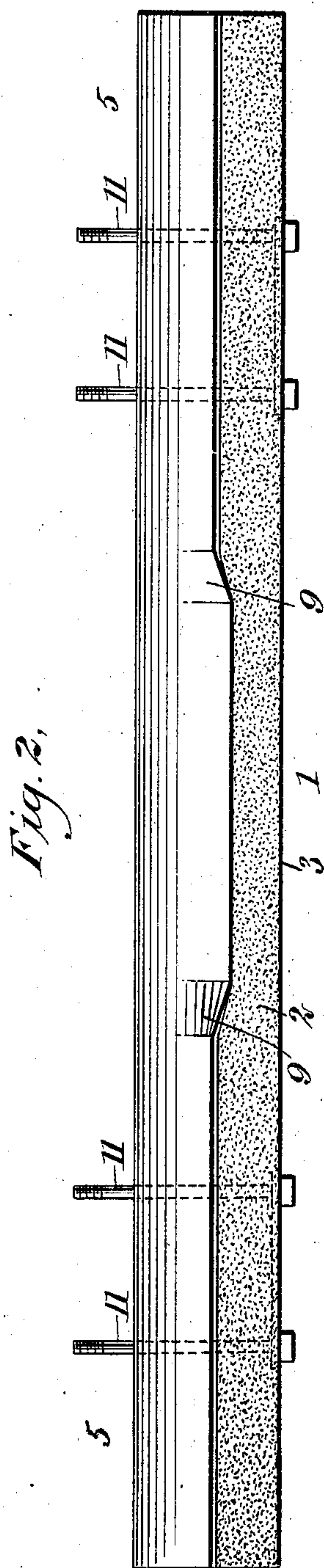


Fig. 2.

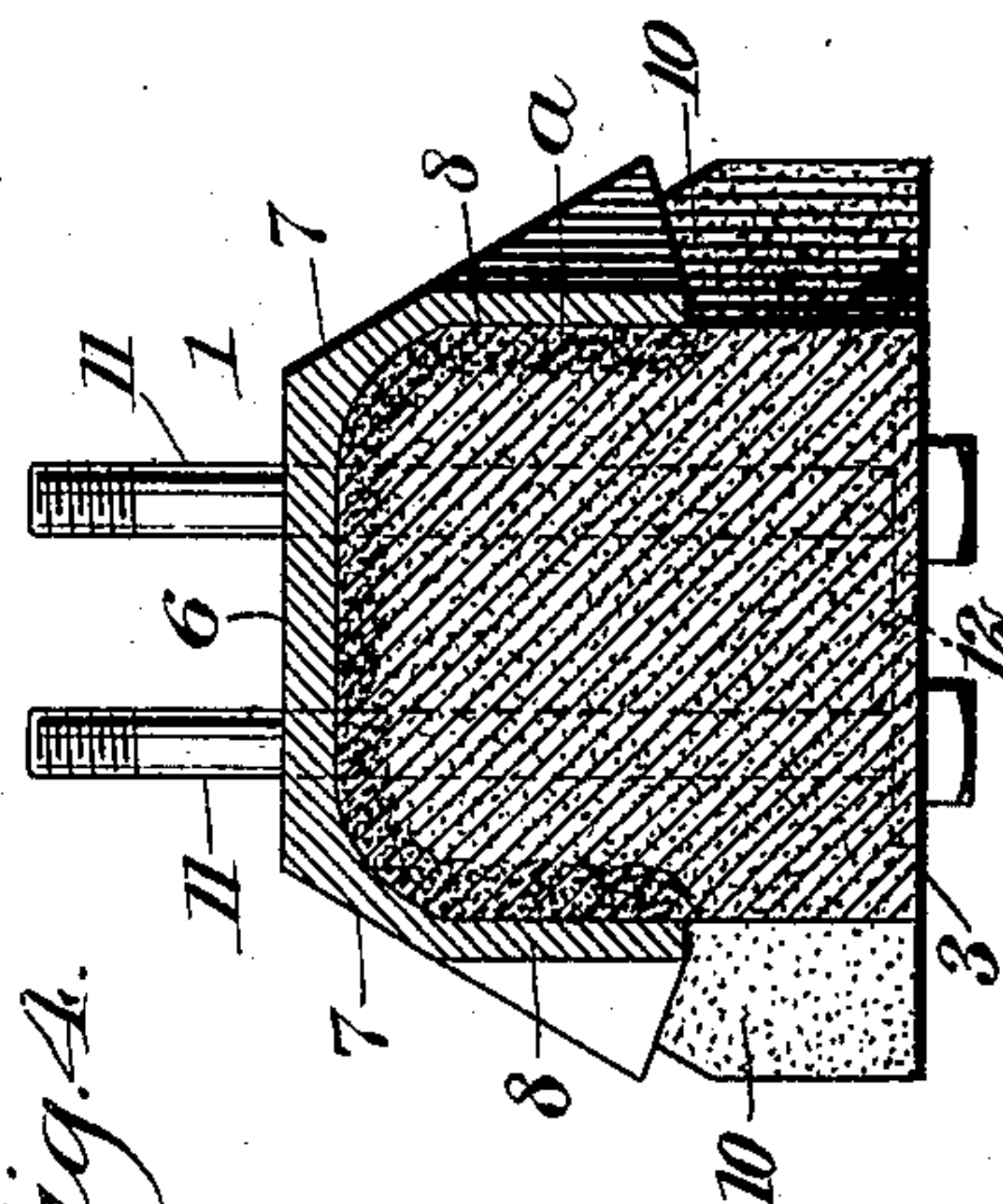


Fig. 4.

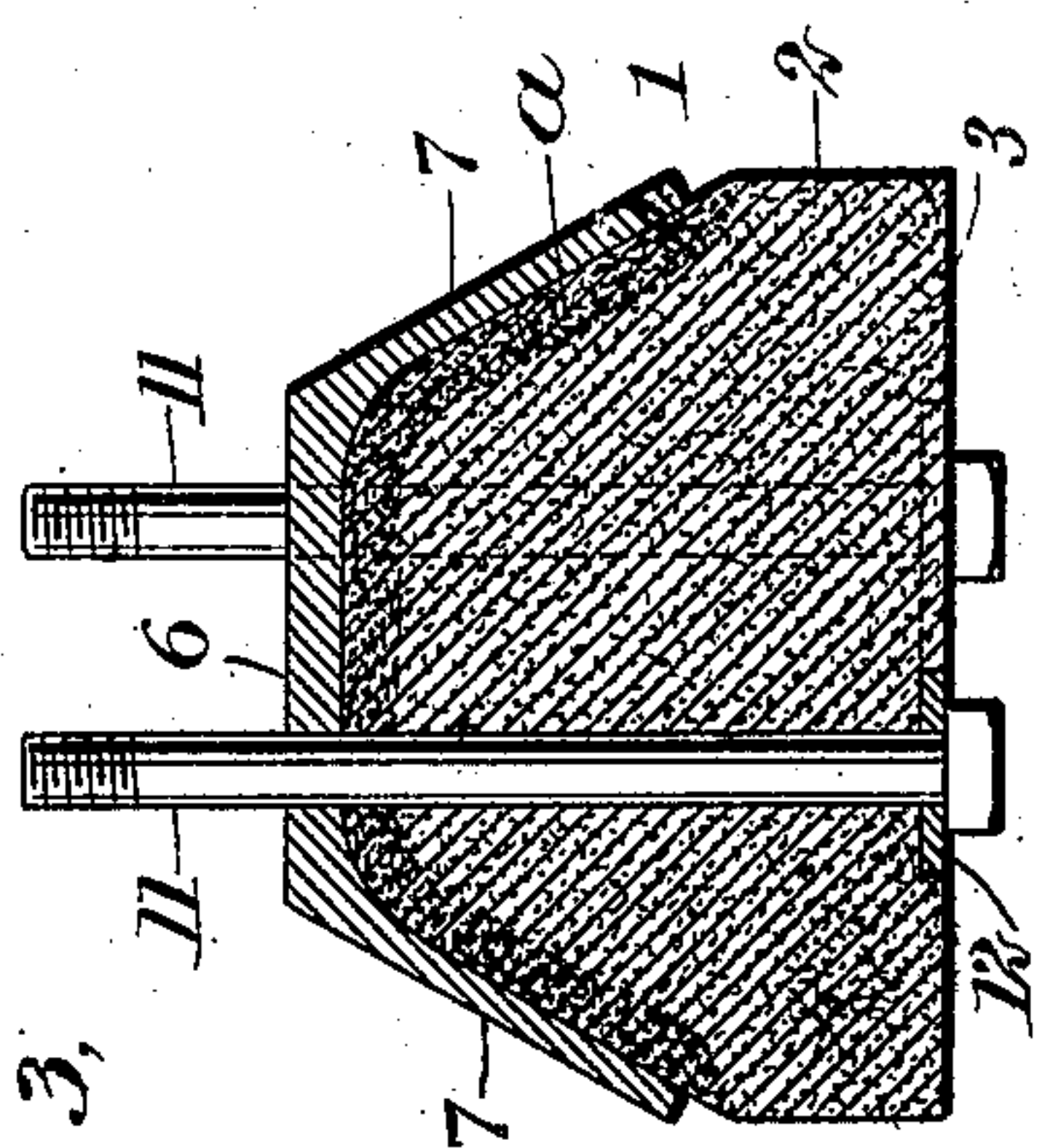


Fig. 3.

WITNESSES:

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2 SHEETS—SHEET 2.

Fig. 5,

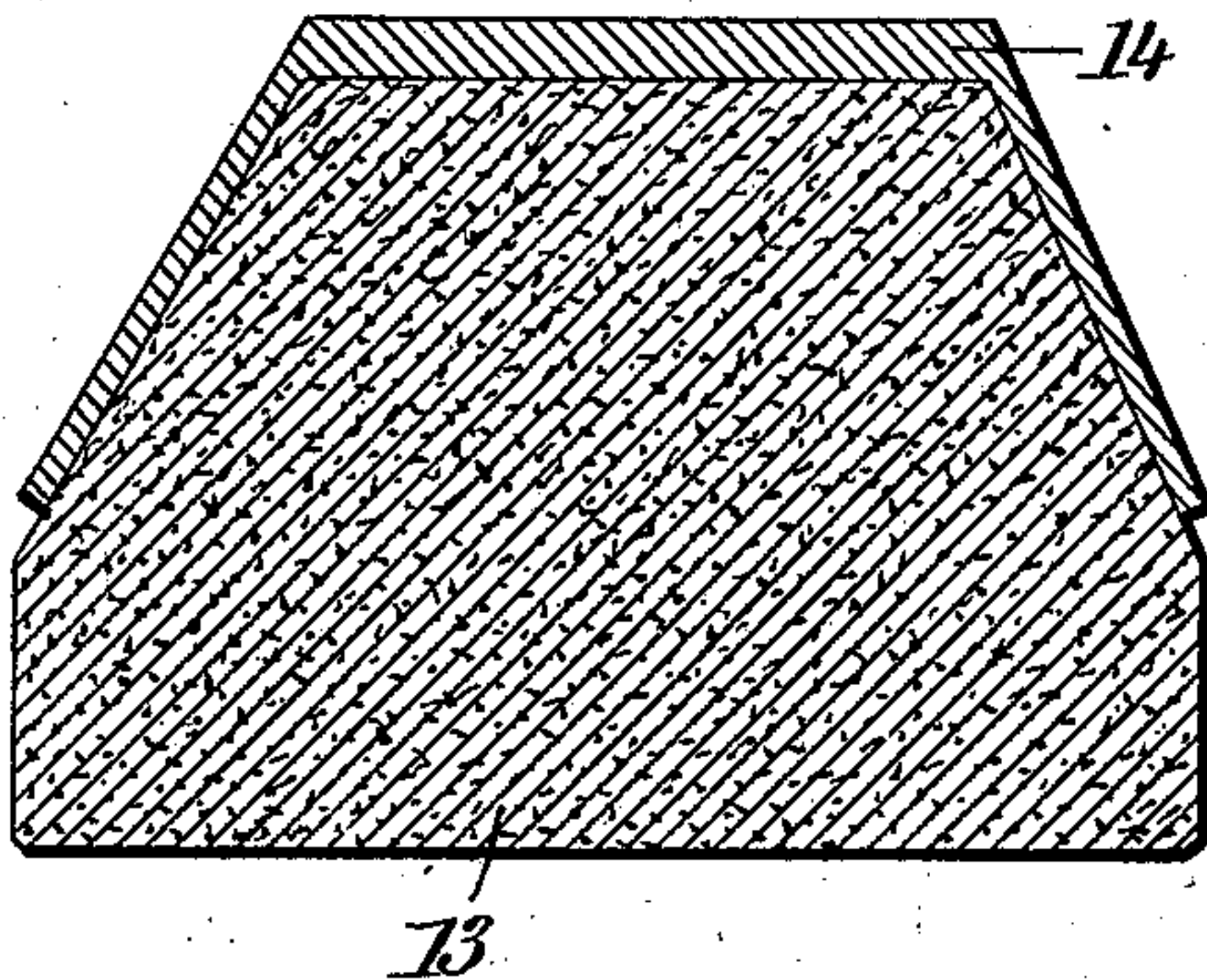


Fig. 6,

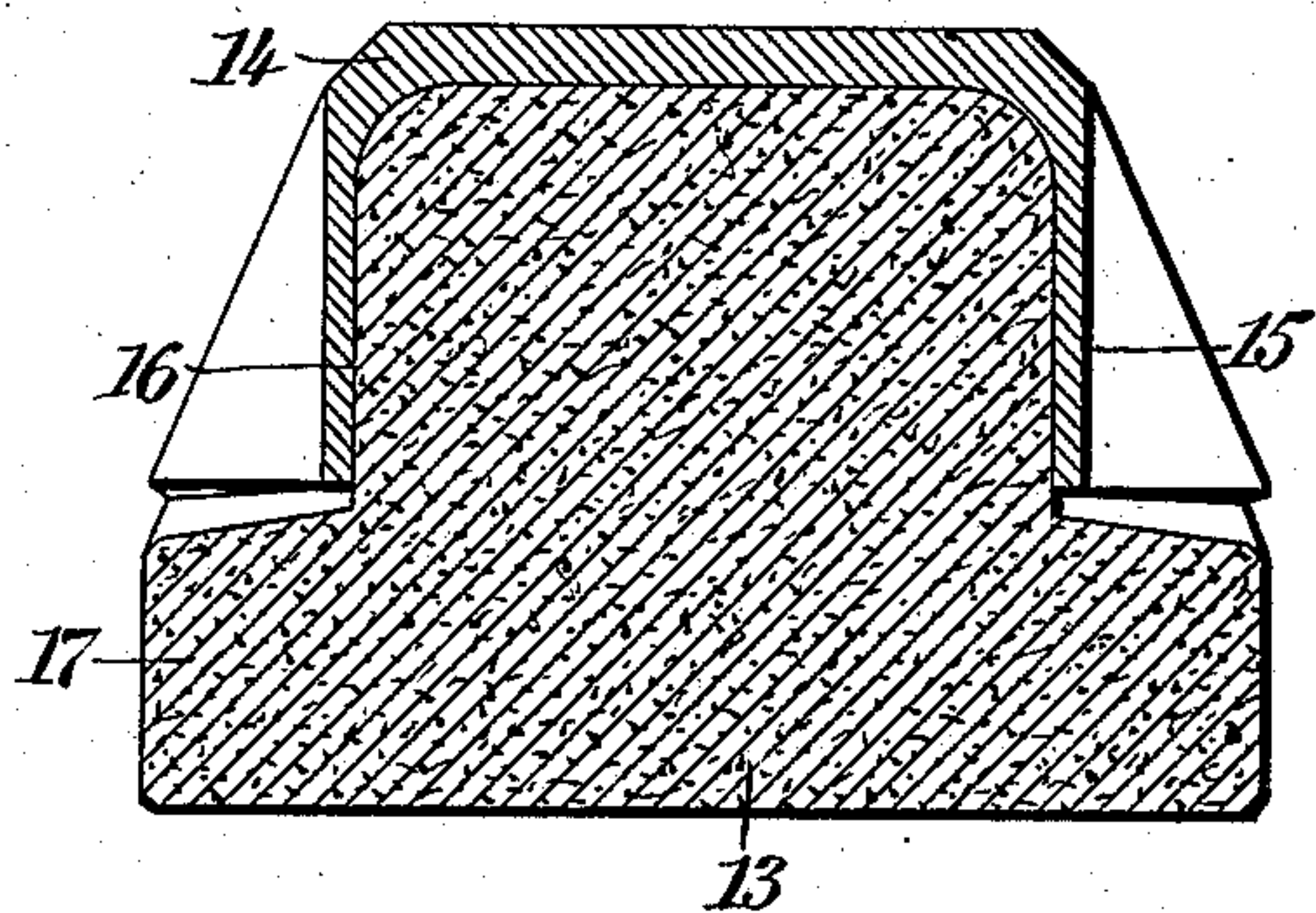


Fig. 7,

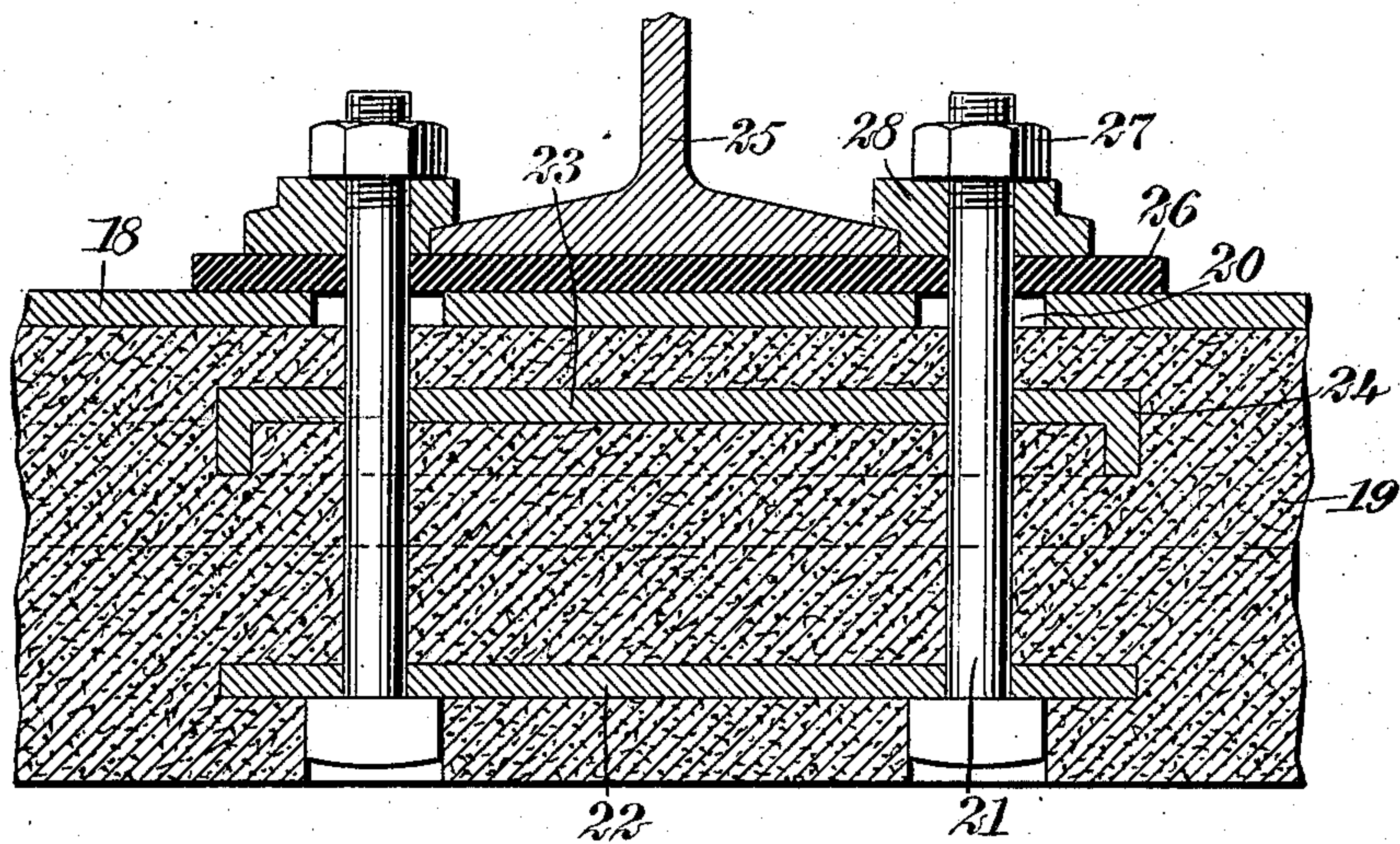
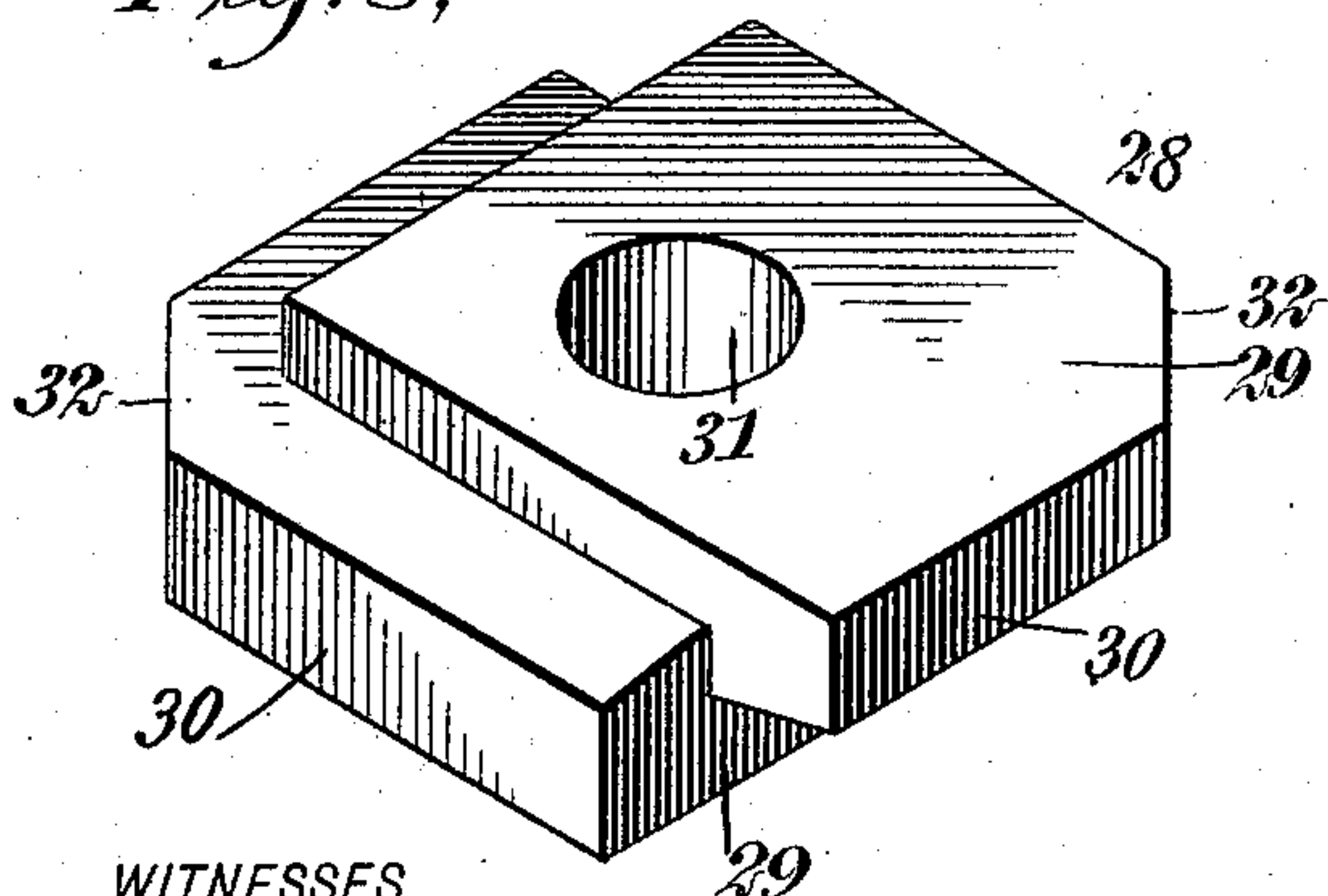


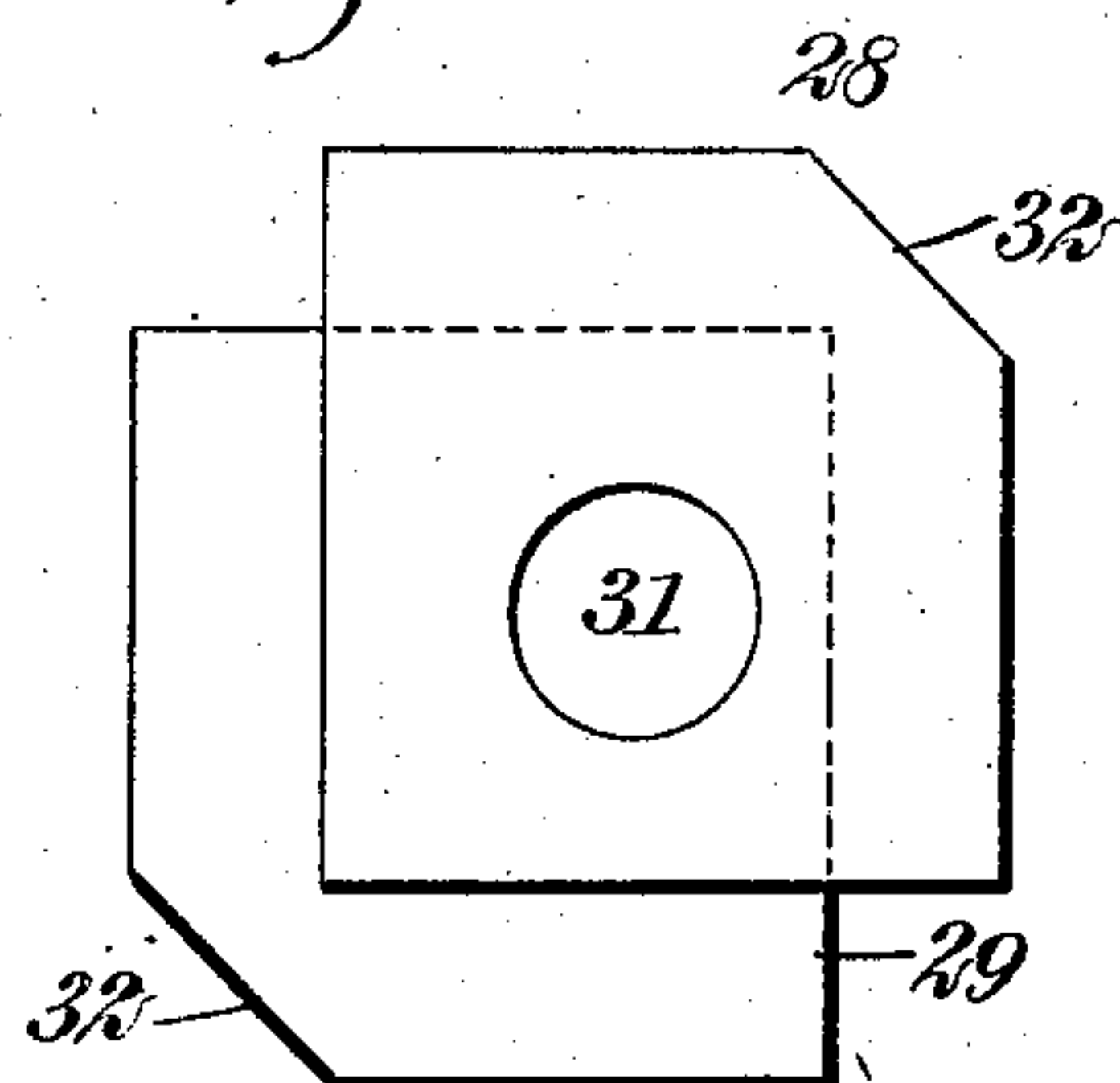
Fig. 8,



WITNESSES

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Fig. 9,



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UNITED STATES PATENT OFFICE.

HENRY S. KILBOURNE, OF NASHVILLE, TENNESSEE.

RAILWAY-TIE.

No. 847,783.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed April 5, 1906. Serial No. 310,015.

To all whom it may concern:

Be it known that I, HENRY S. KILBOURNE, a citizen of the United States, and a resident of Nashville, in the county of Davidson and State of Tennessee, have invented a new and Improved Railway-Tie, of which the following is a full, clear, and exact description.

This invention relates to railway-ties; and it consists substantially in the details of construction and combinations of parts hereinafter more particularly described, and pointed out in the claims.

The invention has reference more especially to what may be technically designated as "armored" composition railway-ties; and one of the principal objects thereof is to provide a structure of this kind of an embodiment to overcome numerous disadvantages and objections encountered in the use of many other structures of the kind hitherto devised.

A further object of the invention is to provide a railway-tie of the character referred to which is simple in construction and comparatively inexpensive to manufacture, besides being thoroughly effective and reliable for its purposes and possessing the capacity for long and repeated service.

A further object of the invention is to provide a construction of tie which enables the rail to be effectively insulated and to provide an improved clamping clip or block adapted to be used with the railway-tie which will meet different requirements as to gage.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which—

Figure 1 is a top plan view of one embodiment of my invention. Fig. 2 is a side view thereof. Fig. 3 is an enlarged transverse sectional view taken on the line 3 3 of Fig. 1. Fig. 4 is a similar view taken on the line 4 4 of Fig. 1. Figs. 5 and 6 are cross-sections through a tie of a modified form, taken, respectively, near the ends and the middle thereof. Fig. 7 is a longitudinal section through a railway-tie, showing the construction I adopt for insulating the rail. Fig. 8 is a perspective view of an adjusting block or clip, and Fig. 9 is a plan of the clip just referred to.

Before proceeding with a more detailed description it may be stated that I employ a specially-constructed railway-tie the body of which is of suitable composition, as ce-

ment, concrete, or the like, and provided with a metallic armor of special construction, special means being employed for securing together and reinforcing the parts of the structure, as will presently be explained.

In carrying my invention into effect I preferably form the armor of my improved railway-tie from an ordinary trough-plate of steel or other suitable metal such as may be found in the market, said trough-plate being of the desired dimensions and weight.

Reference being had to the accompanying drawings by the designating characters thereon and with special reference to Figs. 1 to 4, inclusive, 1 designates my improved armored composition railway-tie in entirety, the same comprising a body 2 of suitable composition material, preferably Portland cement concrete, and the bottom surface 3 of which is preferably flat, by which to adapt the said body to be properly seated upon the bed of the railway upon which the tie may be employed. The central portion or waist 4 of the tie in the completed form of the latter is contracted with respect to the ends 5 of the tie, as shown, the said body being of any desired length and depth. In constructing this form of my improved tie I may state that I take a trough-plate or channel-beam of steel or other desired metal, (indicated at 6,) the flanges 7 of which are oblique thereto, and for a suitable proportion of the length of said beam at the center I bend the said oblique flanges 7 to a vertical position, as indicated at 8 in Fig. 4, leaving the remaining portions of the flanges in their original condition. In this way I derive effective means for preventing endwise displacement of the armor of the tie relatively to the body 2 of the tie, as is apparent, since said body completely fills the trough-like space formed by the armor. I preferably first impart to the armor of the tie the general form hereinbefore explained and then fill the hollow or trough-like space thereof with cement or concrete to the desired depth while in a plastic condition, so that when the same hardens the structure will be practically a unitary one, it being understood, as hereinbefore explained, that the composition material of the body of the tie is built up to the depth which it is desired that said body shall have in practice. The armor of the tie preferably extends to the ends of the body of the latter, or, if desired, said ends may extend beyond the ends of the body and be

turned down against the latter ends as guards or protectors therefor. The armor, if found desirable in practice, may be shorter than the body of the tie. I prefer in some instances to provide intermediate of the concrete body of the tie and the metallic armor thereof a layer *a* of Portland silica cement, thus bringing the under or inner surface of the armor directly in contact with such layer, by which the said surface of the armor is protected from dampness and injury to the metal body of the armor by abrasion. As a further safeguard against displacement of the body and armor of the tie relatively to each other, any suitable means may be employed; but preferably I have herein shown suitable bolts 11, extending through corresponding openings therefor in the body 2 and channel-beams 6 at desired positions relatively to the ends 5 of the tie, and which not only subserve the function just stated, but also serve to strengthen the union between the body and armor of the tie, as well as furnishing convenient means for the attachment or placing in position upon the tie of any preferred form of railway-fastenings that may be employed in the use of the tie, it being mentioned that said bolts are extended sufficiently above the upper surface of the tie and externally threaded by which to adapt them for the said named purpose. Also to furnish convenient bearings for the said bolts 11 at the under side of the body 2 of the tie, as well as to impart rigidity to the structure at the places of location of the bolts I may provide a diagonally-disposed plate 12 for each pair of bolts 11, embedded in the material of the body 2, flushly with the under surface of said body. These plates, if found desirable in practice, may be placed longitudinally of the body of the tie.

I may adopt the form of tie shown in Figs. 5 and 6, where Fig. 5 shows the cross-section of the body 13 of the tie to be substantially the same as that shown in Fig. 3. The armor-plate 14 has the same form as before, having its flanges 15 bent vertically at its middle portion. However, the width of the lower face of the body 13 is not reduced, so that oppositely-disposed recesses 16 are formed and laterally-projecting flanges 17. With this form of tie the bearing-surface is not reduced.

In Fig. 7 I illustrate a construction for securing the rail to the tie, while at the same time insulating it from the tie. Such a construction as this is especially useful in connection with railways having what is popularly known as a "third" rail—that is, a conductor-rail for an electric current. With this construction the armor-plate 18 caps the composition body 19 of the tie in the manner described above. The plate is provided at suitable points determined by the road-gage with openings 20 of enlarged diameter, and

through these openings anchor-bolts 21 pass upwardly, the bodies of the said bolts being embedded in the body of the tie. In order to increase the rigidity of the bolts, anchor-plates 22 and 23 are provided, through which the bolts pass upwardly, the said plates being in a substantially horizontal position and embedded in the tie-body, as indicated. The upper plate 23 is formed with a flange 24 at its margin. Between the rail 25 and the tie an insulating-plate 26 of fiber or wood is placed, and on this plate the rail is laid. The bolts 21 pass upwardly through the insulating-plate and carry nuts 27, which screw down upon clamping-clips 28, which engage the flanges of the rail. The form of one of these clips is very clearly shown in Figs. 8 and 9. It consists of a block which in one aspect may be considered to be formed of two integral superposed thick plates 29 of substantially square form. These plates are not centered upon each other, but are displaced diagonally, so that projecting flanges 30 are formed on the four edges of the block. Two of these flanges overhang when the clip is resting on one face, and the other two flanges will overhang if the clip is inverted. The inner faces of the flanges are beveled slightly, so that they may fit closely to the flange of the rail, as shown in Fig. 7. Each clip is provided with an opening 31, which receives the end of the clamping-bolt, and this opening is eccentrically placed on the clip, so that its distance from the clamping edges of the clip increases progressively, preferably by a uniform amount, such as one-sixteenth of an inch. In this way the reversible clip affords four positions in which the rail may be clamped. Thus the clamping-clip is given a four-fold utility without materially increasing its mass. This adaptability or adjustability of the clip enables the gage of the rails to be varied accurately where desired, and the clips are found useful in this connection on tangents as well as on curves. The corners of the clip which are most separated are preferably cut off, as indicated at 32.

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

1. A railway-tie having a composition body presenting a reduced waist with substantially vertical side faces and having enlarged ends presenting inclined side faces, and a cover-plate inclosing the upper portion of said body, said cover-plate having substantially vertical side faces at its middle portion lying against the sides of said waist, and inclined side faces at its ends lying against said inclined side faces of said body.
2. A railway-tie having a composition body, a cover-plate upon the same, bolts passing up through said body and projecting above said cover-plate to secure the rails to

said tie, said bolts being arranged in pairs the members whereof are displaced laterally with respect to each other, and diagonal anchor-plates embedded in the under side of said
5 body, passing under the rails, and through which said bolts pass.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

HENRY S. KILBOURNE.

Witnesses:

JOHN T. PRICE,

WM. B. FISCHER.