

(No Model.)

2 Sheets—Sheet 1.

S. A. BUCHANAN.

CONNECTION FOR END POSTS AND BOTTOM CHORDS OF BRIDGES.

No. 387,139.

Patented July 31, 1888.

FIG. I -

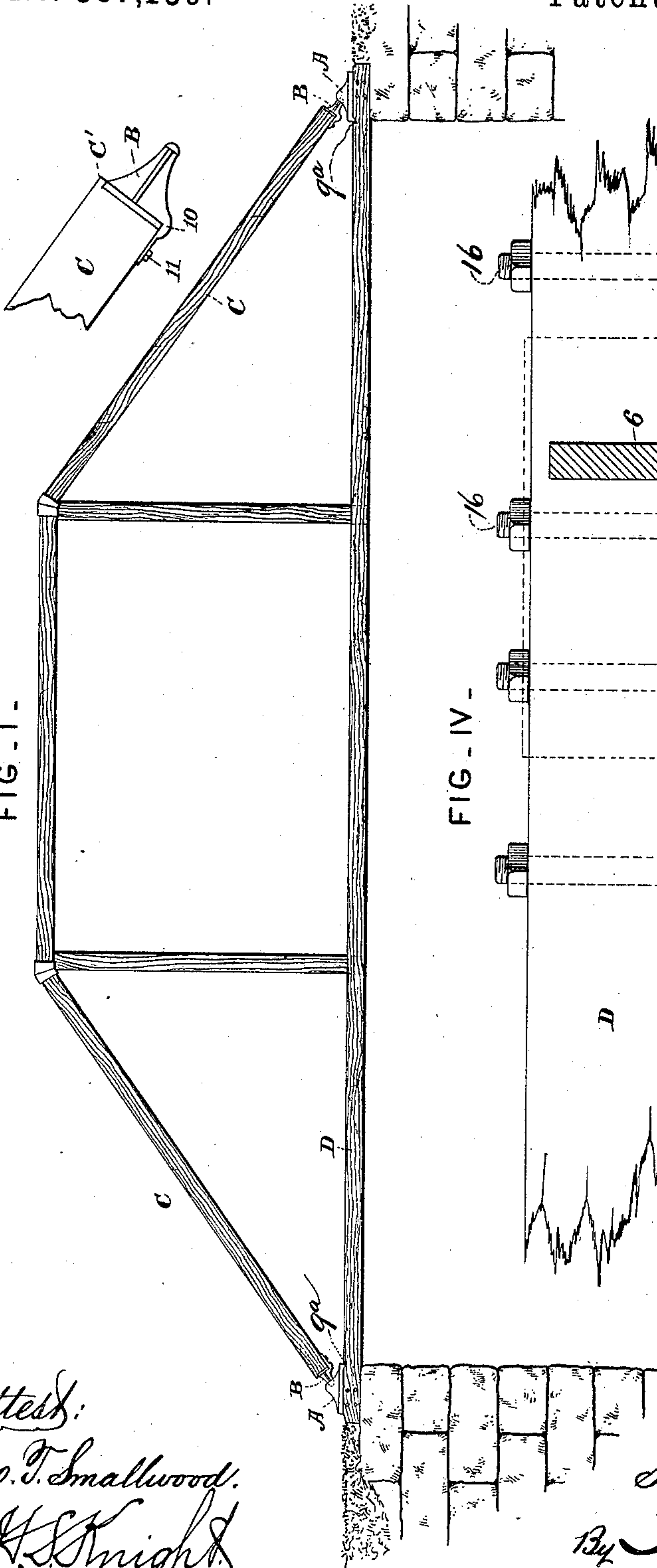
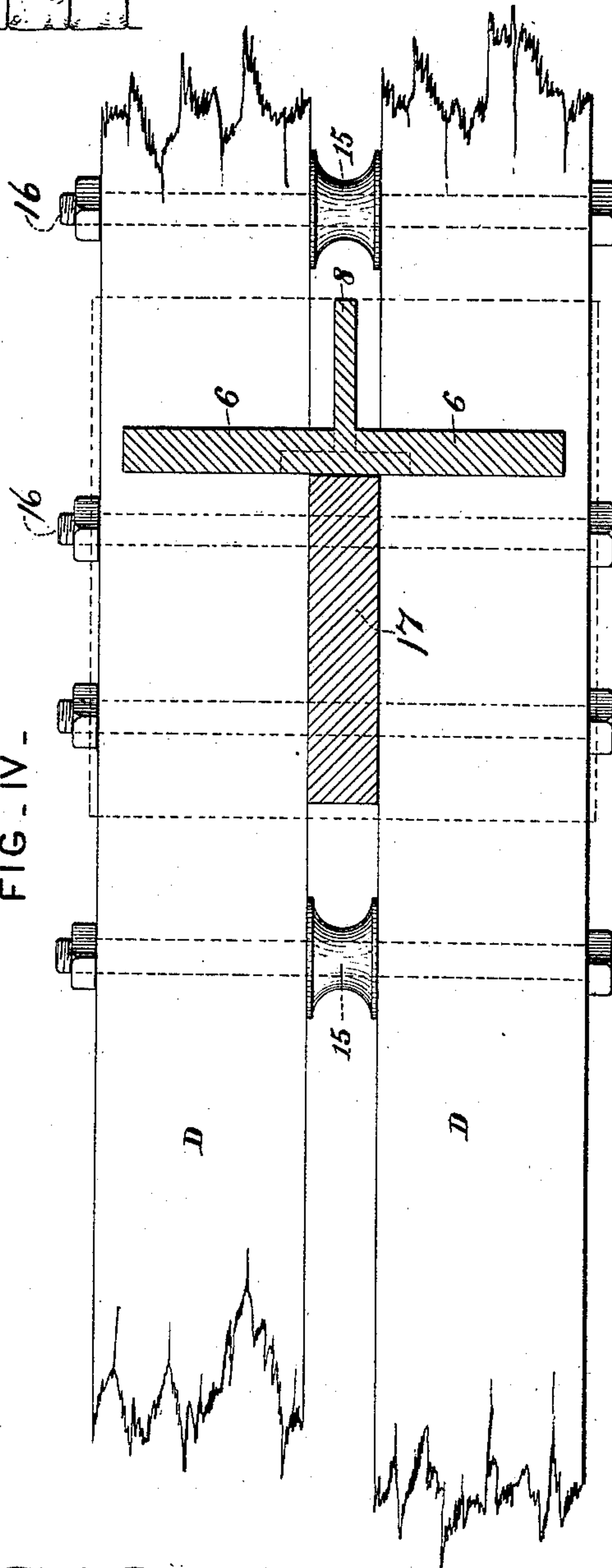


FIG. IV -



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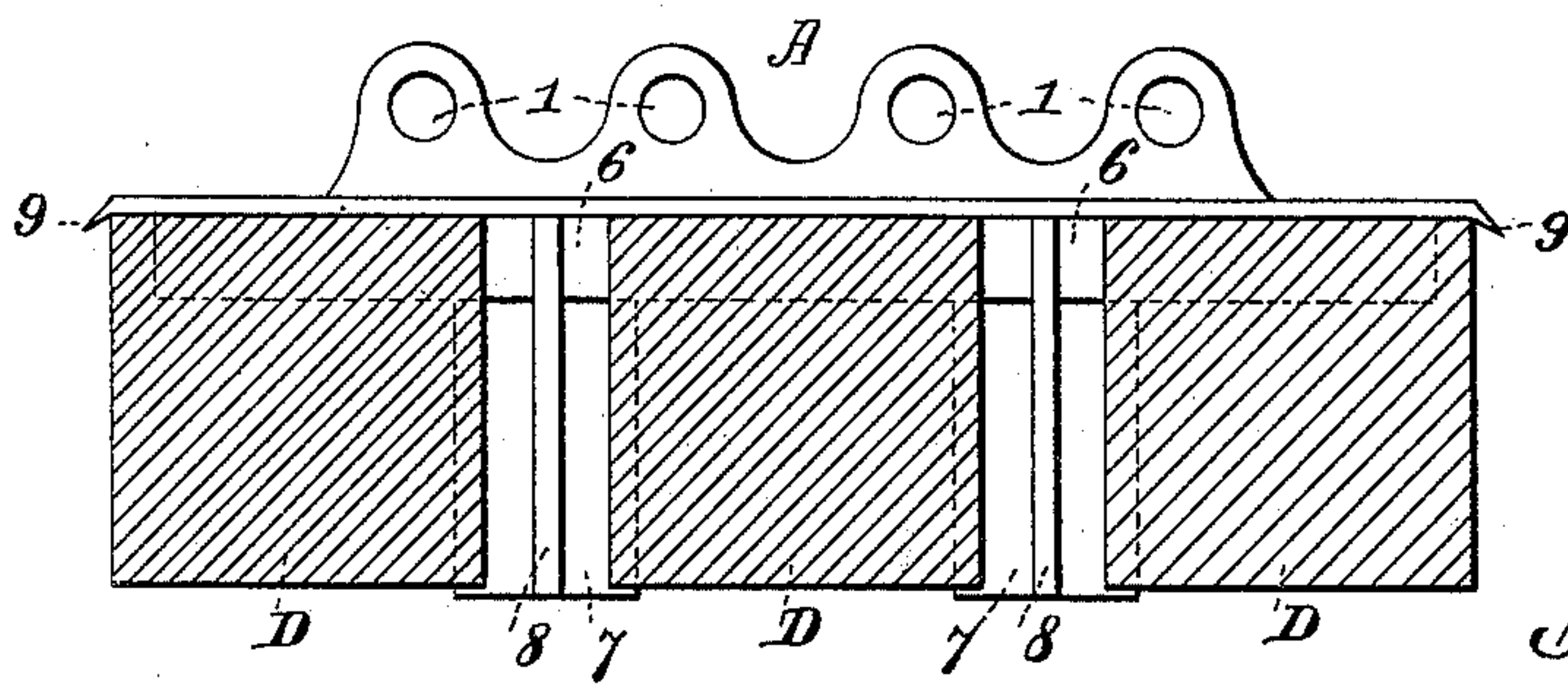
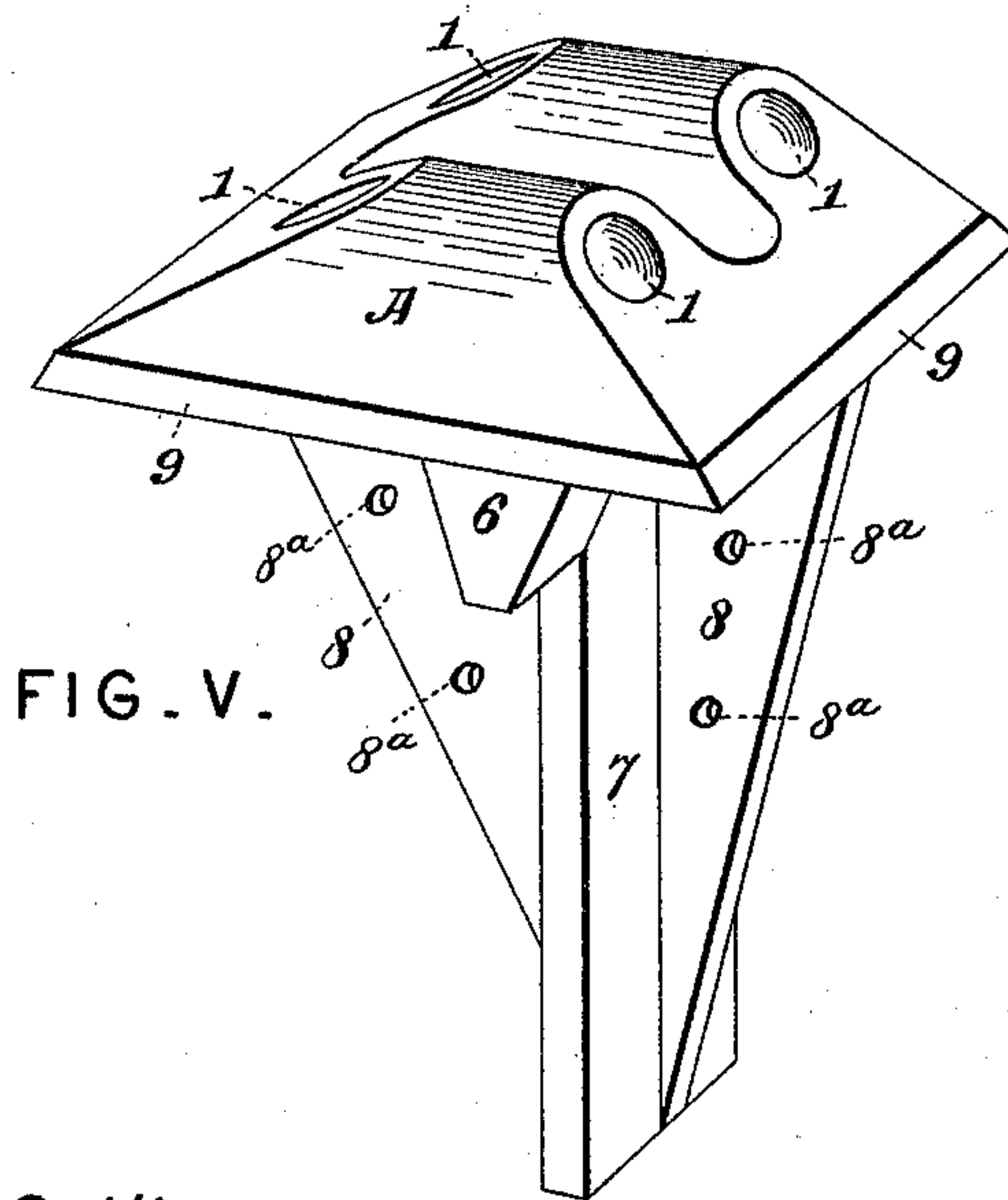
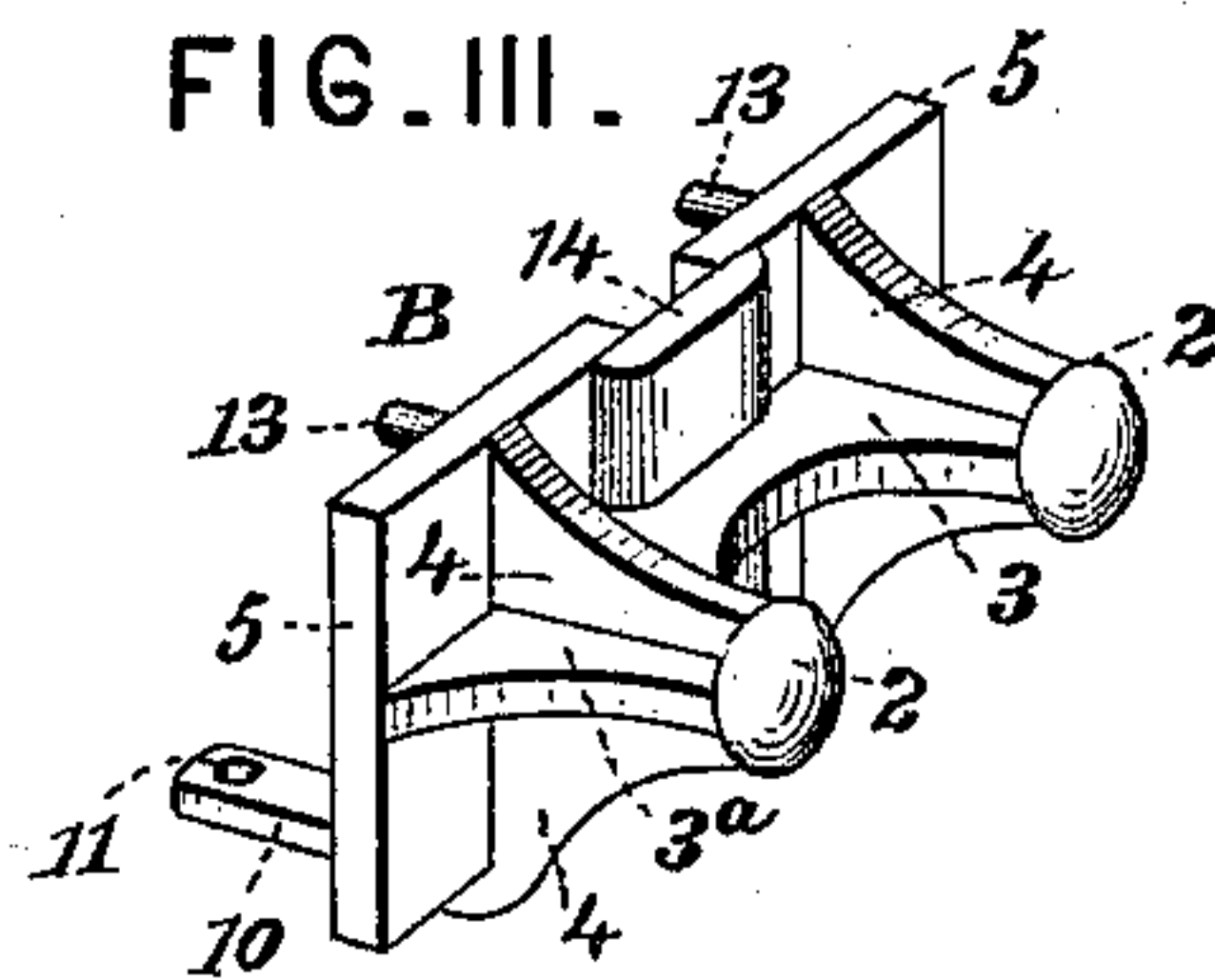
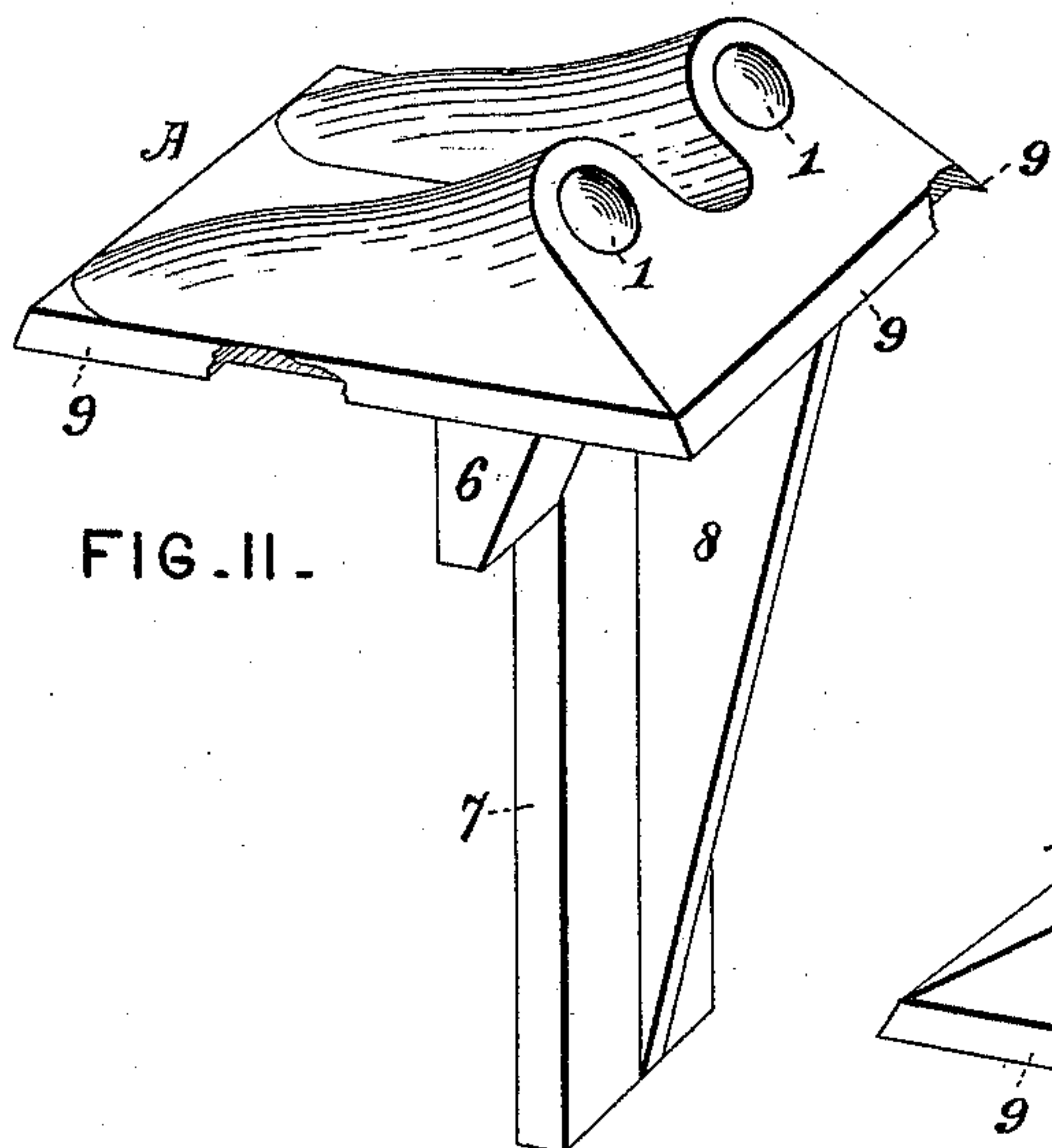
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UNITED STATES PATENT OFFICE

SAMUEL A. BUCHANAN, OF BELLEFONTAINE, OHIO.

CONNECTION FOR END POSTS AND BOTTOM CHORDS OF BRIDGES.

SPECIFICATION forming part of Letters Patent No. 387,139, dated July 31, 1888.

Application filed February 8, 1888. Serial No. 263,369. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL A. BUCHANAN, a citizen of the United States, residing at Bellefontaine, Logan county, Ohio, have invented certain new and useful Improvements in Connections for Chords and Bows or Struts of Bridges, of which the following is a specification.

My invention relates to connections for the ends of the bows, struts, or end posts of wooden bridges with the bottom chords thereof, the same being effected by means of plates secured to the above-named parts, and has for its object to provide a joint which is adapted for use on chords and bows meeting at any angle, being made light and durable, adapted to shed water from the joints, and comparatively inexpensive. To these ends I provide the ends of the bows or struts with plates having hemispherical projections which fit in counterpart sockets formed in plates secured to the bottom chords. These plates are also provided with suitable projections and flanges for securing them in place, as will be hereinafter more fully described, and pointed out in the claims.

In the accompanying drawings, Figure I is a side elevation of one side of a truss-bridge, showing my connecting-plates applied. Fig. II is a perspective view of the chord-plate. Fig. III is a similar view of the upper or bow plate. Fig. IV is a horizontal section on an enlarged scale. Figs. V and VI are modifications.

Of these ball-and-socket connections there may be any number in a transverse series, and it is intended that the plates to be described are to be attached to the ends of each bow or strut in the bridge and to the bottom chord, where the same is met by the end posts of the bows or struts, and I will proceed to describe one such connection.

A is the chord-plate, having sockets 1, wedge-shaped transverse ribs 6, terminating in tongue 7, and having re-enforce bracket or rib 8 transversely thereto, all of which parts are preferably cast in one piece. This plate has also formed integrally thereon the downturned portions 9, for the purpose of keeping the water from entering the joints of the wood-work. This downturned flange extends entirely around the plate, (being broken away slightly in Fig. II for the purpose of illustration.)

The upper surface of this chord-plate may be beveled each way from a transverse central ridge, and the portion between the grooves may be hollowed out, as illustrated. This plate may also be slightly modified to serve for central or intermediate struts by having sockets in both of the beveled faces without departing from my invention.

B is the upper or bow plate, and has projections 2 with hemispherical heads, transverse webs 3 extending between the projections and forming ribs 3^a beyond them, and the longitudinal ribs 4 perpendicular to and on both sides of the web. This plate is also provided with transverse faces or flanges 5, formed on the plate in such manner as to afford in the proper relative positions bearings for the several pieces in the end post. If there are as many to the end post as there are ball-and-socket joints on the plates, it is preferable to have the flanges 5 concentric with said joints, so as to equally distribute the strain on the plates.

10 are projecting brackets, having perforations 11 for the reception of screws or bolts.

13 are dowels cast on the face of the flanges 5 for insertion in the ends of the pieces.

The bottom chords, D, and struts or bows C of wooden bridges are generally formed of the same number of timbers or parallel pieces, spaced, say, about one and one-half inch apart, and in applying the chord-plate the main portion or plate proper rests upon and extends to the edges of the two pieces, the flange 9 extending down so as to prevent the water from entering between the plate and wood, the end flanges being admitted by the recesses or beveled portion 9^a formed in the wood, as shown in Fig. I.

The flange 6 and tongue 7 are let into the chord by mortising, while the bracket or support 8 is admitted in the space between the members or pieces of the chord. A packing-block, 17, is inserted into the space between the said members behind the tongue and flange, and there secured by bolts 16, which also serve to draw the chord-piece securely together to securely bind the bracket, flange, and tongue of the plate.

C and D are respectively the end posts and bottom chords.

When the bottom chord is made three or

four ply, the top plate is increased in size to cover all the timbers and the downwardly-extending flanges simply multiplied accordingly. When two or more sets of flanges are used, the flange 6 is made to extend across the several timbers to within about half an inch of the outside of the outer timbers, as shown in Fig. V.

If the modification shown in Fig. V be employed, it is evident there will be no necessity for the packing-block, bracket 8 being formed on both sides of the tongue and the bolts passed through perforations 8^a therein; or, if I prefer, I may employ the construction of the lower portion shown in Fig. V for a single face-plate without altering the character of my invention.

In securing the bow-plates to the ends of the bows or end posts such ends are dressed square to fit the faces of flanges 5, with a hole for the admission of the dowel 13, and a bolt, nail, or screw is then inserted through the hole 11 in bracket 10. I prefer in fitting plates onto these pieces to leave a portion, C', of the post C overlapping in such manner as to exclude water from the joint.

14 are re-enforce webs formed between the projecting edges of the parts of the plates B in order to bind them together.

15 are packing-rings used to space the timbers in bottom chords and bows or end posts apart. They are secured in desired positions by means of bolts passed through the timbers, and are as numerous as the case may require.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. The combination, with a bottom chord of a bridge, of a plate, A, having sockets 1 for the reception of the end of the bow, the said plate being provided with a downwardly-projecting flange adapted to be mortised into the said chord, as set forth.

2. The combination, with chord C, of plates A, for supporting the ends of the bows, said plates being provided with flanges 9 for excluding water, as set forth.

3. The combination, with the bottom chord, C, formed of two or more members, of plates A, secured thereto for securing the ends of the bows, the said plates having flanges 6 and tongues 7 mortised into the chord, and the brackets or supports 8 extending between the members, as set forth.

4. The combination, with the bottom chord formed of two or more members, of plates for securing the ends of the bows and packing-blocks interposed between the members, the said plates having downwardly-projecting ribs or flanges adapted to abut against said packing-blocks, as set forth.

5. The combination, with a bow or truss of a bridge, of a plate secured to the end thereof for bearing against a seat on the chord, the said plate having the flanges 5, dowel 13, and projection 10, having screw-aperture 11, as set forth.

6. The combination of the plate A, having flanges and sockets, substantially as described, with the plate B, having projections 2, adapted to fit in said sockets, said plates being secured in place on the horizontal and inclined members of the bridge respectively, as set forth.

7. A bearing-plate for members of wooden bridges, consisting of the flanges 5, against which the ends of the pieces in said members bear, projections 2 on said flanges 5 for supporting the plate, and the strengthening webs or ribs 3, 3^a, and 4, said plates being secured to the members in the manner described.

8. The herein-described connecting-plate to be secured to the timbers of a bridge member, which consists of transverse bearing faces or flanges 5 for the ends of the said timbers in the member, projections 2, extending from said flanges 5, and strengthening-webs 14, substantially as set forth.

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Witnesses:

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EDWARD HIGGINS.