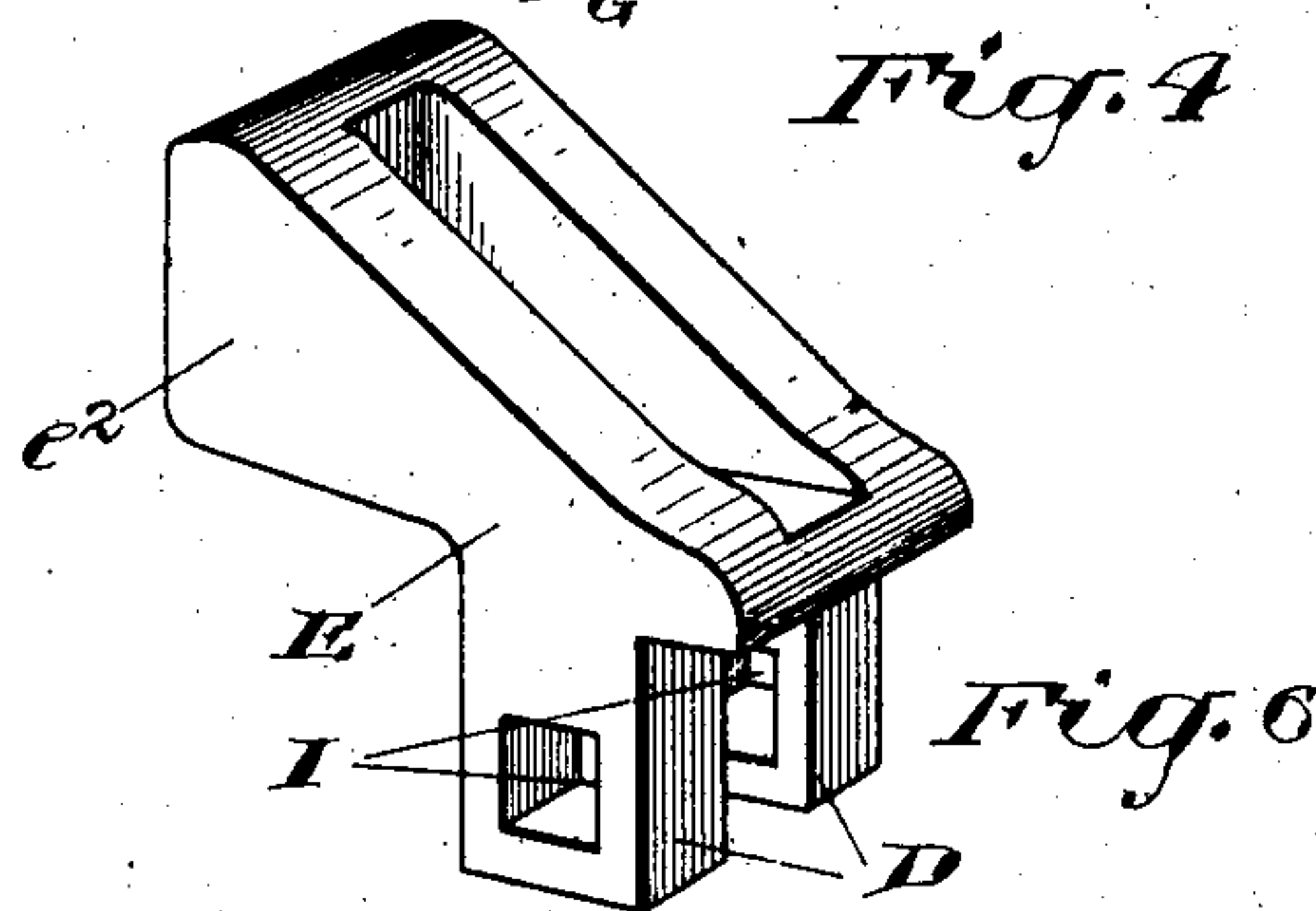
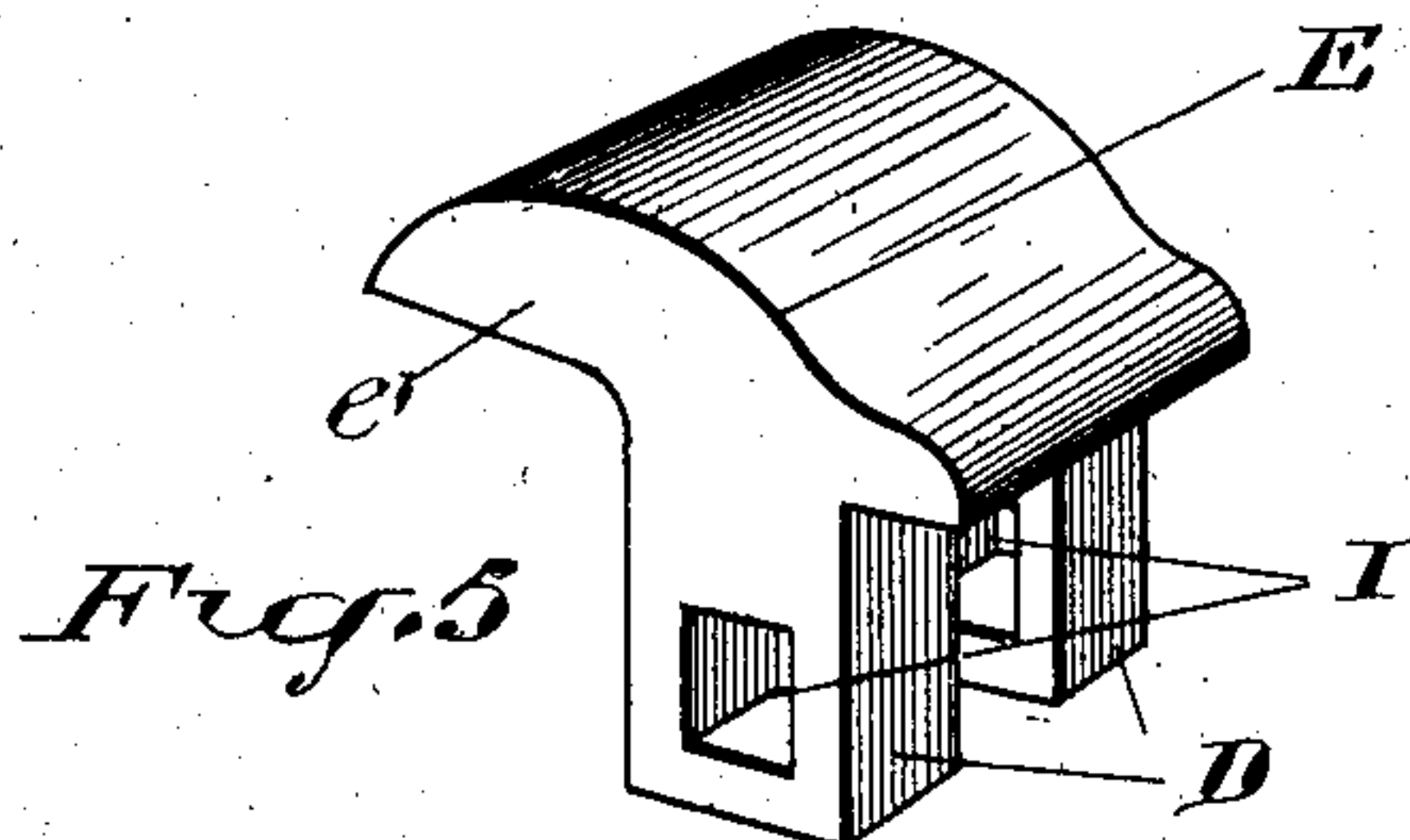
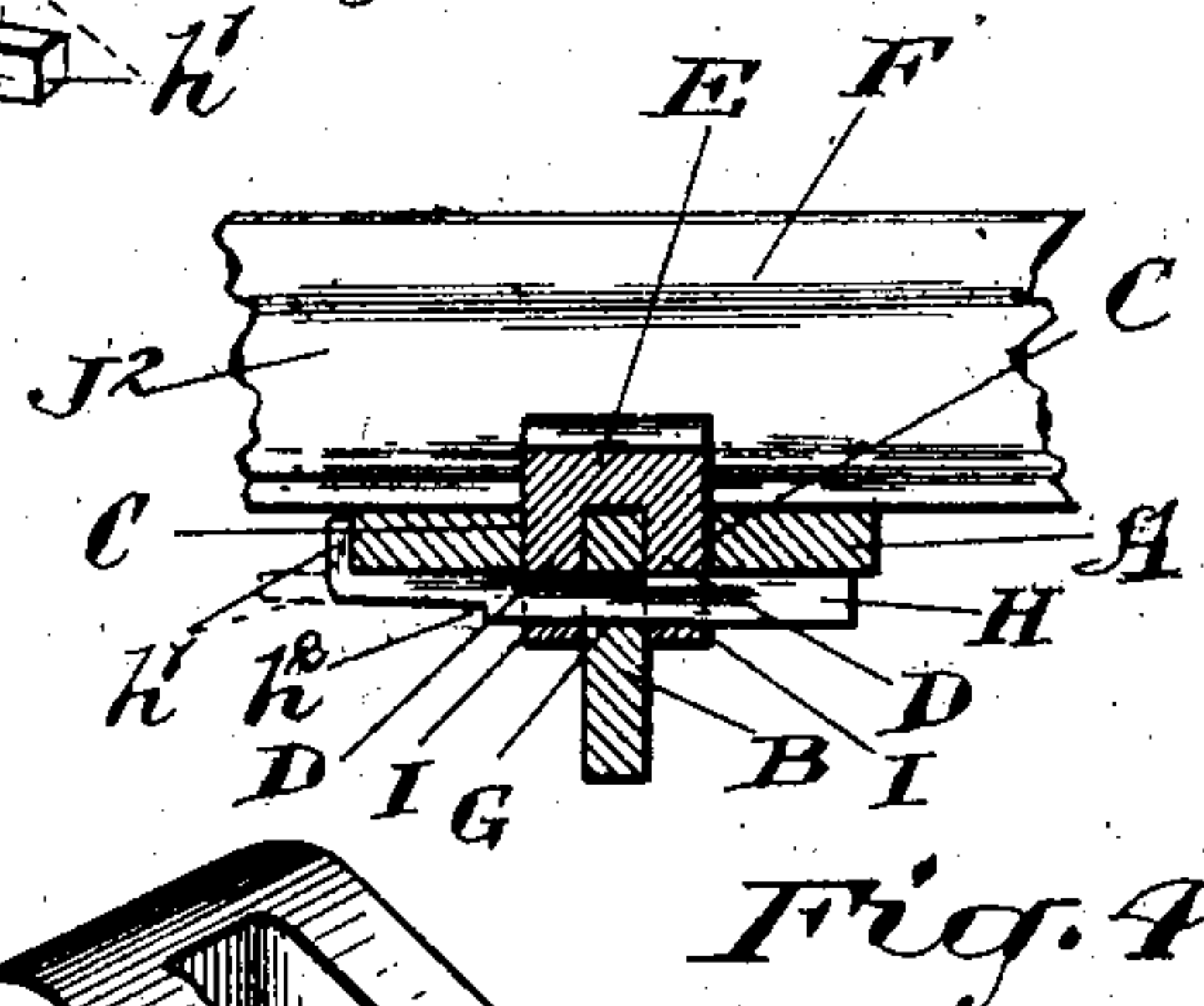
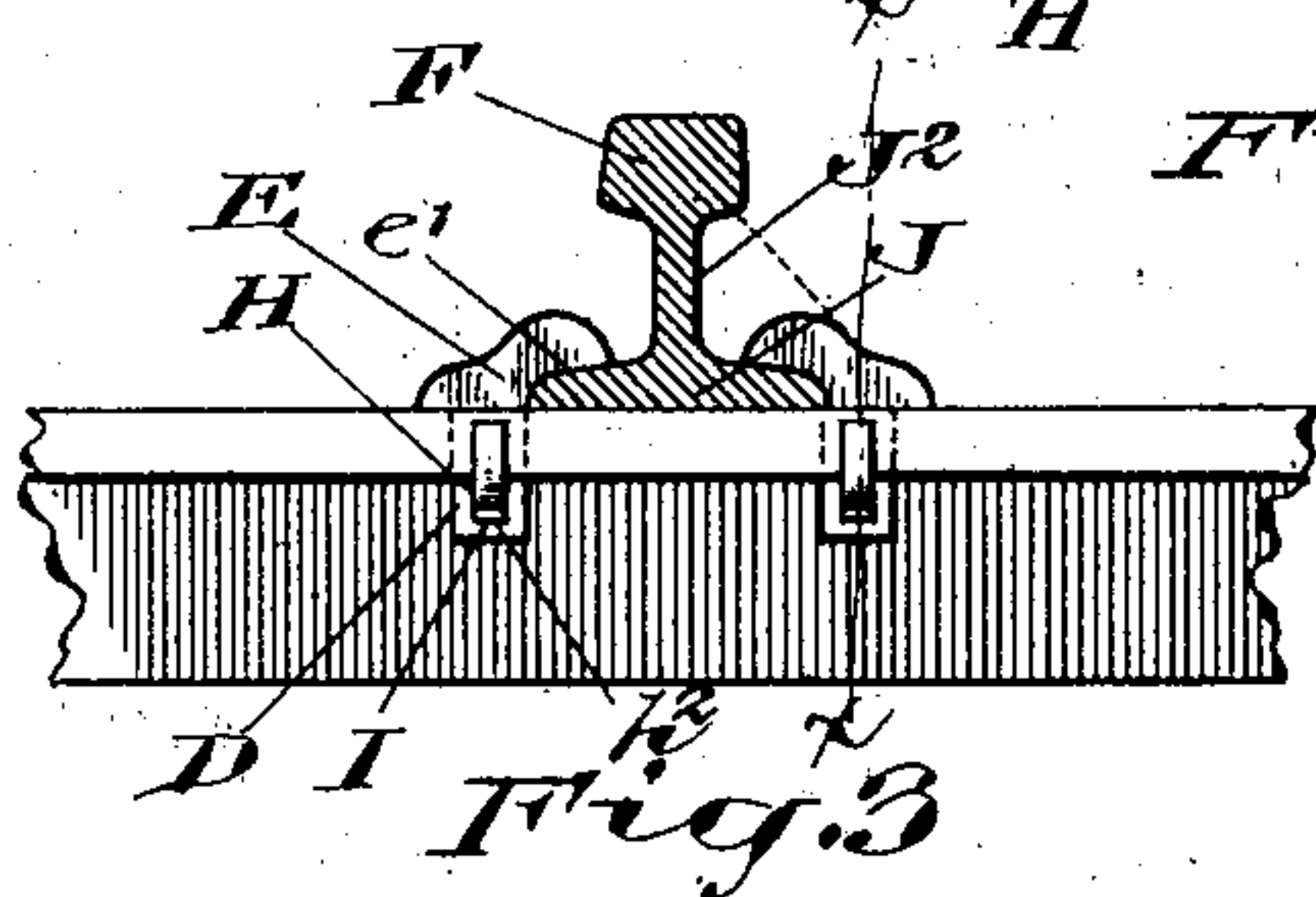
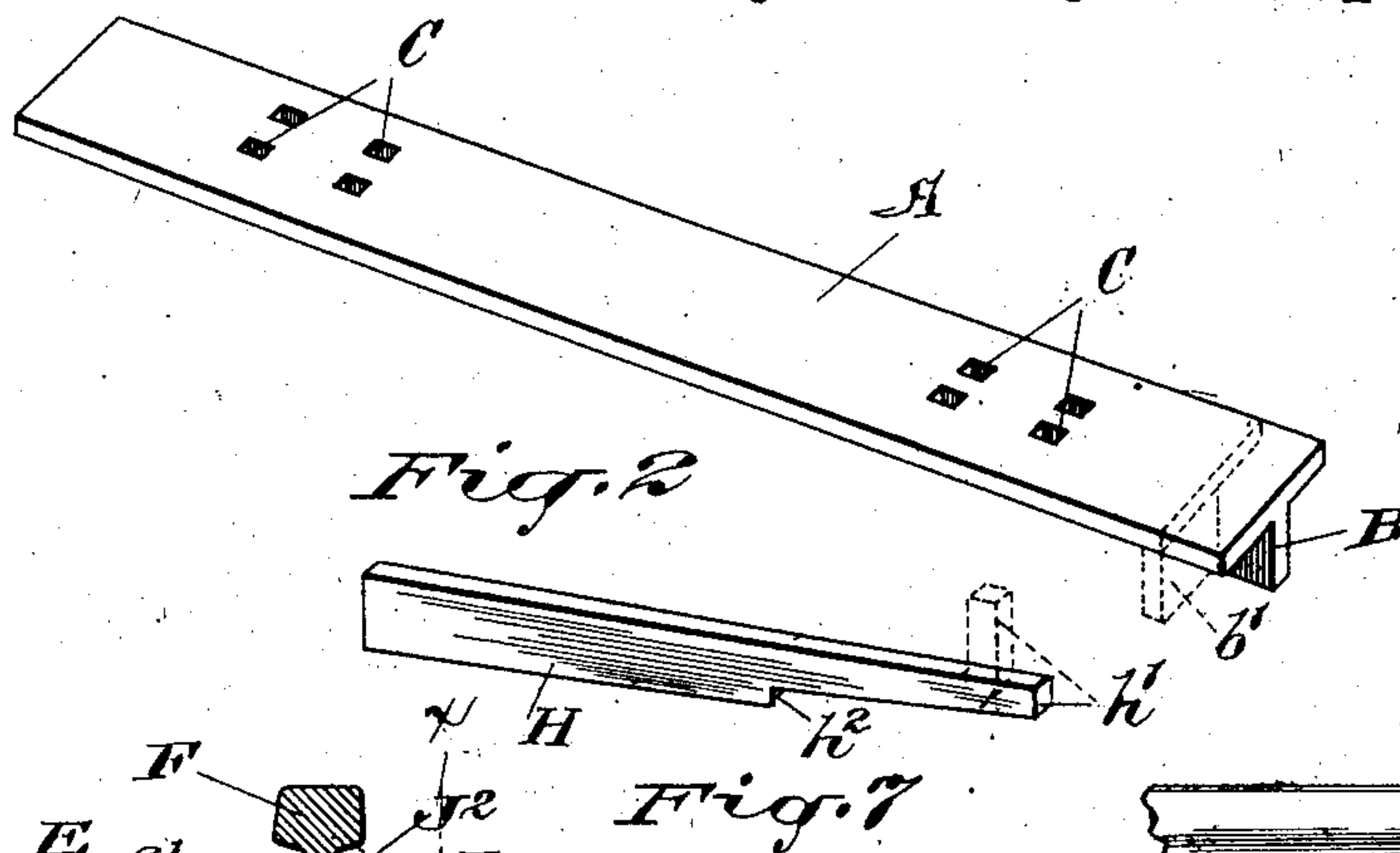
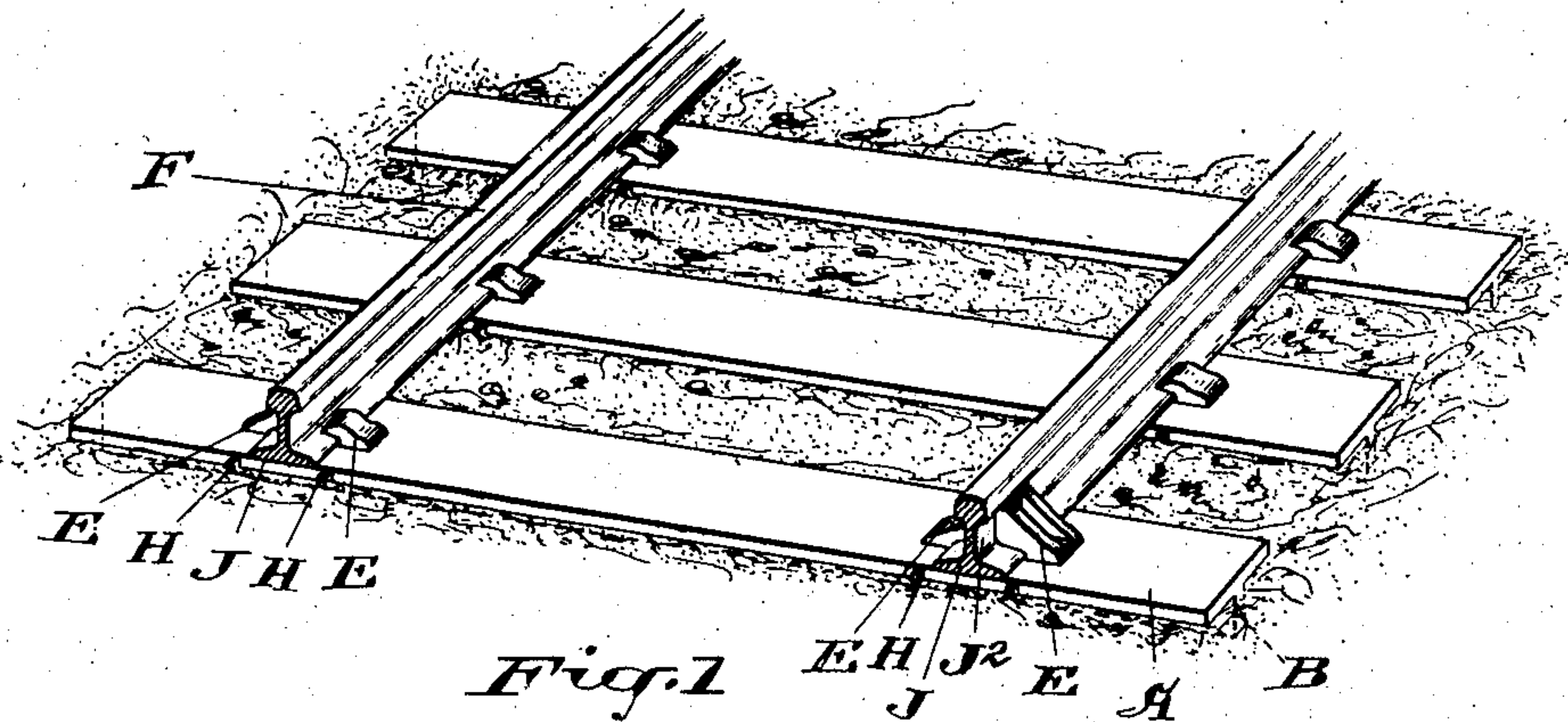


No. 834,348.

PATENTED OCT. 30, 1906.

A. WARFIELD,
METALLIC RAILWAY TIE AND RAIL FASTENING.
APPLICATION FILED OCT. 16, 1905.



Witnesses
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UNITED STATES PATENT OFFICE.

AARON WARFIELD, OF TORONTO, ONTARIO, CANADA.

METALLIC RAILWAY-TIE AND RAIL-FASTENING.

No. 834,348.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed October 16, 1905. Serial No. 282,947.

To all whom it may concern:

Be it known that I, AARON WARFIELD, electrical engineer, a citizen of the United States, and a resident of No. 356 Euclid avenue, in the city of Toronto, in the county of York, Province of Ontario, and Dominion of Canada, have invented a new and useful Metal Railway-Tie and Rail-Fastening, of which the following is a specification.

My invention relates to a metal railway-tie molded or rolled into a T shape in cross-section, as I have illustrated in the accompanying drawings. The tie in this construction comprises suitable means by which it may be firmly anchored to the road-bed and will also have means by which the rails may be fastened to the tie and in such a manner that the rails will be prevented from spreading by the fastening means becoming loosened. I attain these objects by the device illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view of a section of a track. Fig. 2 is a perspective view of one of the ties. Fig. 3 is a detail view of a section of a rail and the means for fastening same to the tie. Fig. 4 is a sectional detail on lines *x x*, Fig. 3. Fig. 5 is a perspective view of one of the fastening-dogs. Fig. 6 is an alternative form of a fastening-dog in perspective view, and Fig. 7 is a perspective view of the locking-key.

Like letters refer to like parts throughout the drawings and specification.

The tie may be molded or rolled in any desired width or thickness, substantially T shape in cross-section, comprising a top or crown plate A, and a flange B, depending from the under side, adapted to be set and packed into the ground and act as an anchor.

Formed through the top or crown plate A are a series of holes C, adapted to receive the lugs D of the fastening-dogs E, by which the rails F may be fastened to the tie, and passing through the flange B, in alinement with the holes C, are holes G, provided that the key H may pass through the two lugs D of the dog E, as the holes C are so situated that one lug comes on each side of the anchor-flange B. The holes C and G, formed in the plate A and flange B, respectively, may be cast or drilled in any suitable shape adaptable to the lugs D. The fastening-dogs E are cast or formed comprising a head *e'* and two depending lugs D, having openings I formed therein. The head *e'* forms a fastening-

flange adapted to fit over the base-flange J of the rail F to clamp it firmly to the tie.

In fastening the rail to the tie the fastening-dogs E are arranged one on each side of the rail F, with the lugs engaging in the openings C. To hold the dogs firmly in position, a locking-key H is passed through the openings I in the lugs D along the under side of the crown-plate A until the end *h'* projects beyond the edge of the plate A. To hold the key H firmly in engagement with the dogs, the end *h'* is bent up against the edge of the plate A, as illustrated in Fig. 4. The key H is constructed so that one end may be readily bent up against the edge of the crown-plate and also to provide a shoulder *h²* to provide a means by which the key may be knocked out of the lugs when it is required to remove or alter the rails.

In Fig. 6 I have shown a modified form for the fastening-dog. In this form the head *e²* is adapted to fit over the flange J of the rail F and also up against the web J². This form of fastening-dog is fastened to the tie in the same manner as the dog E, but is adapted to be used at the ends of rails and on curves; but for strengthening and supporting the rails it might be found advisable to use a series of them to every so many feet of rail. When the tie is to be used in connection with a road-bed in which a sharp curve occurs, it might be found necessary to provide means to prevent lateral displacement of the tie. For this purpose I show in dotted lines in Fig. 2 where the end of the top or crown plate A may be cut away and the flange B bent over at right angles, as shown at *b'*.

With a railway-tie as described in my invention I provide means by which a very flat and smooth bed may be constructed. Further, the tie may be firmly packed into the earth, and it will be found very convenient to operate on in the event of removal or for ballasting.

Slight modifications may be made in the shape and construction of the fastening-dogs and means for fastening them to the tie without deviating from the nature of my invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a metal railway-tie and means for fastening rail to same, a tie comprising a top or crown plate, a flange formed integral and depending from the under side of said top or

crown plate, openings formed through the said top or crown plate, and openings formed through the said flange, said openings adapted to receive means for fastening the rails to the said tie, substantially as described.

2. In a metal railway-tie and means for fastening rail to same, a tie comprising a top or crown plate, a flange formed integral and depending from the under side of the top or crown plate, openings formed through the said top or crown plate, and openings formed through the said flange, a series of fastening-dogs adapted to be fastened in the openings in the top or crown plate, substantially as described.

3. In a metal railway-tie and means for fastening rail to same, in combination with a tie comprising a top or crown plate, a flange depending from the under side of the top or crown plate, a series of openings through the said top or crown plate, openings formed through the said flange, fastening-dogs detachably fastened to the said top or crown plate, said dogs having lugs engaging in the openings in said top or crown plate, a fastening-key adapted to pass through openings in the said lugs and openings in the said flange,

said key adapted to be bent up against the edge of the top or crown plate to prevent removal, substantially as described.

4. In a metal railway-tie and means for fastening rail to same, a tie substantially T-shaped in cross-section, said tie comprising a top or crown plate, an anchor-flange depending from the under side of the top or crown plate, openings formed through the said top or crown plate, and through the said anchor-flange, fastening-dogs detachably fastened in the top or crown plate, said dogs having lugs engaging in the openings in the said top or crown plate, said lugs having openings formed therethrough, a locking-key adapted to pass through the said lugs and through the openings in the said anchor-flange, said key adapted to be bent up against the edge of said top or crown plate, substantially as described.

Signed at Toronto this 11th day of October, 1905.

AARON WARFIELD.

Witnesses:

S. ALFRED JONES,
H. L. WALSH.