

No. 847,642

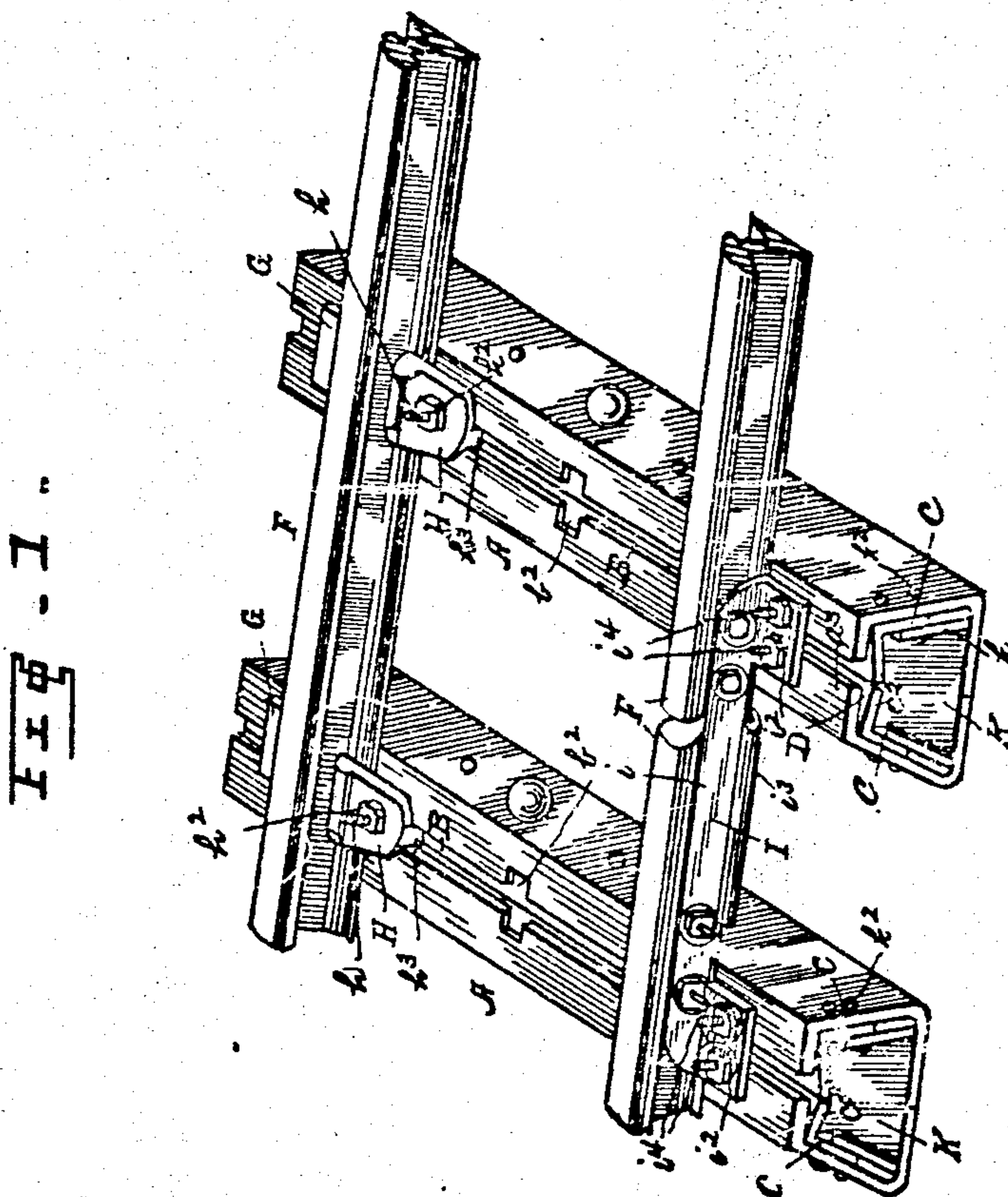
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W. E. BOYLES.

RAIL TIE.

APPLICATION FILED JULY 11, 1906.

8 SHEETS--SHEET 1.



**Witnesses:**

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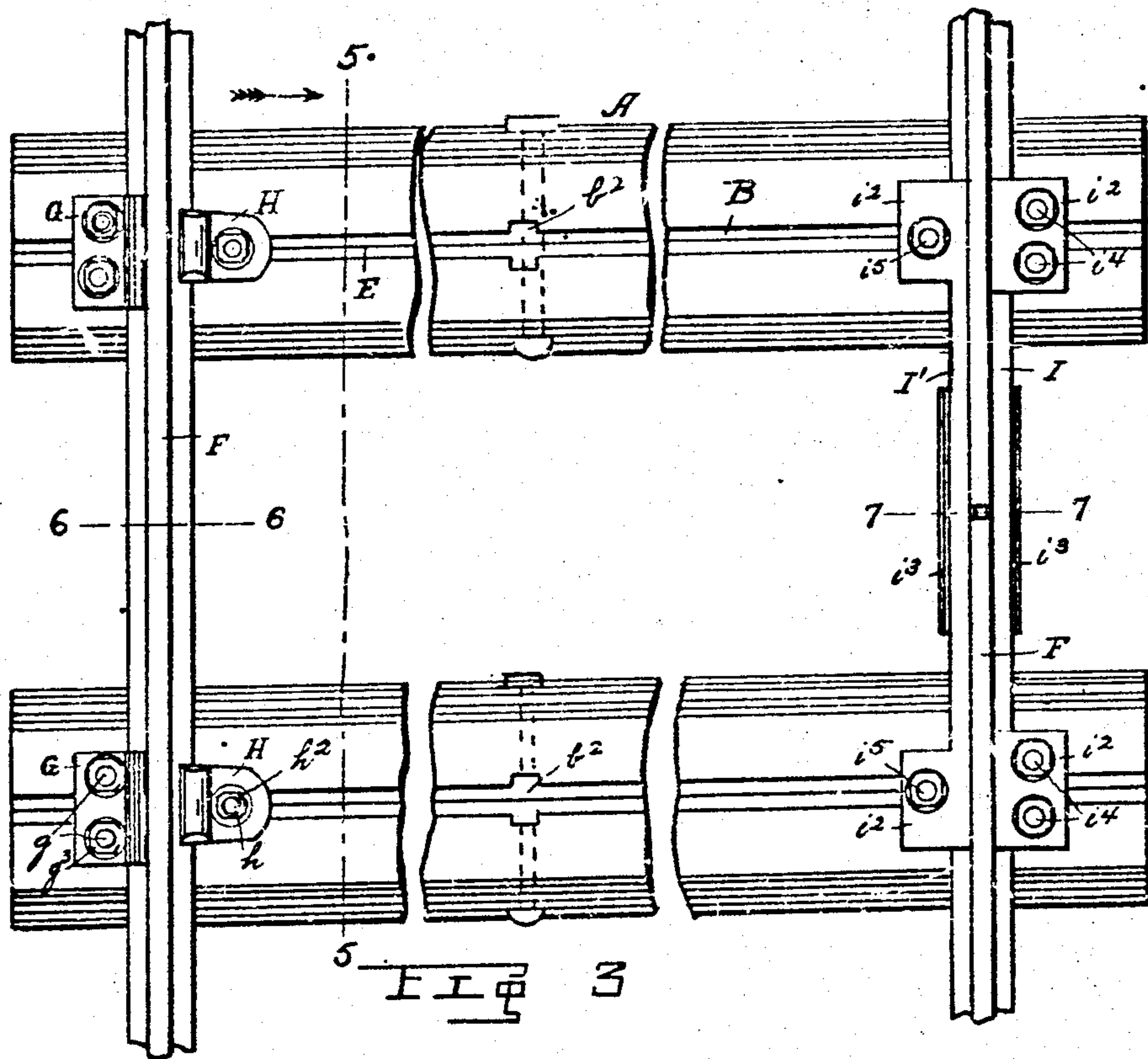
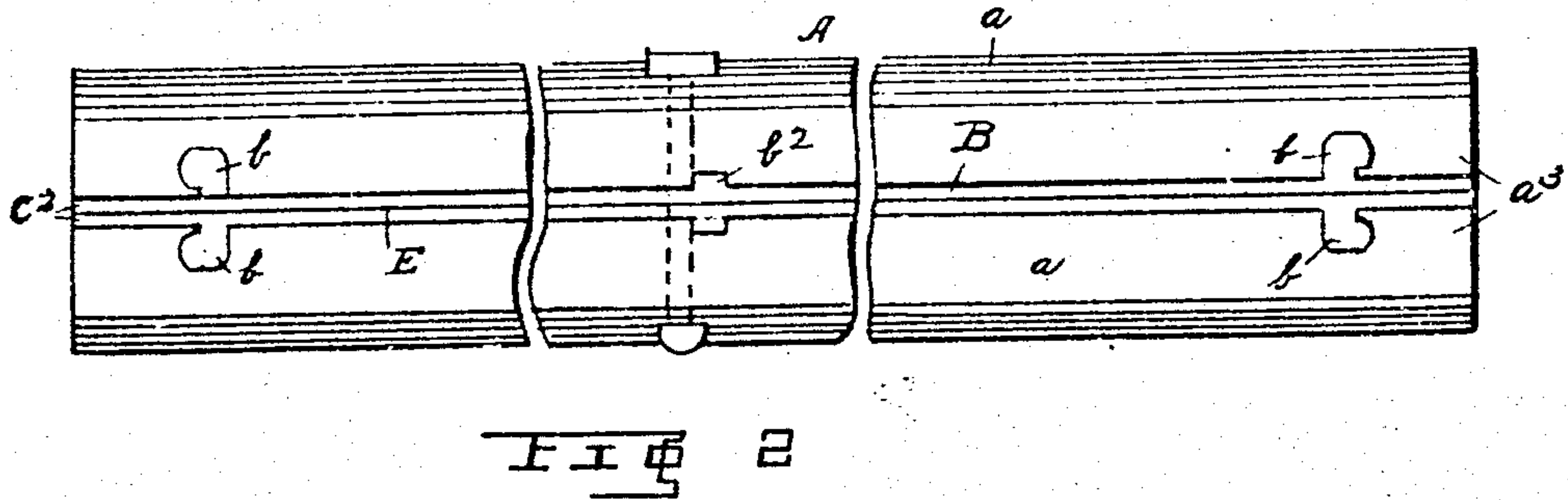
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3 SHEETS—SHEET 2.



Witnesses

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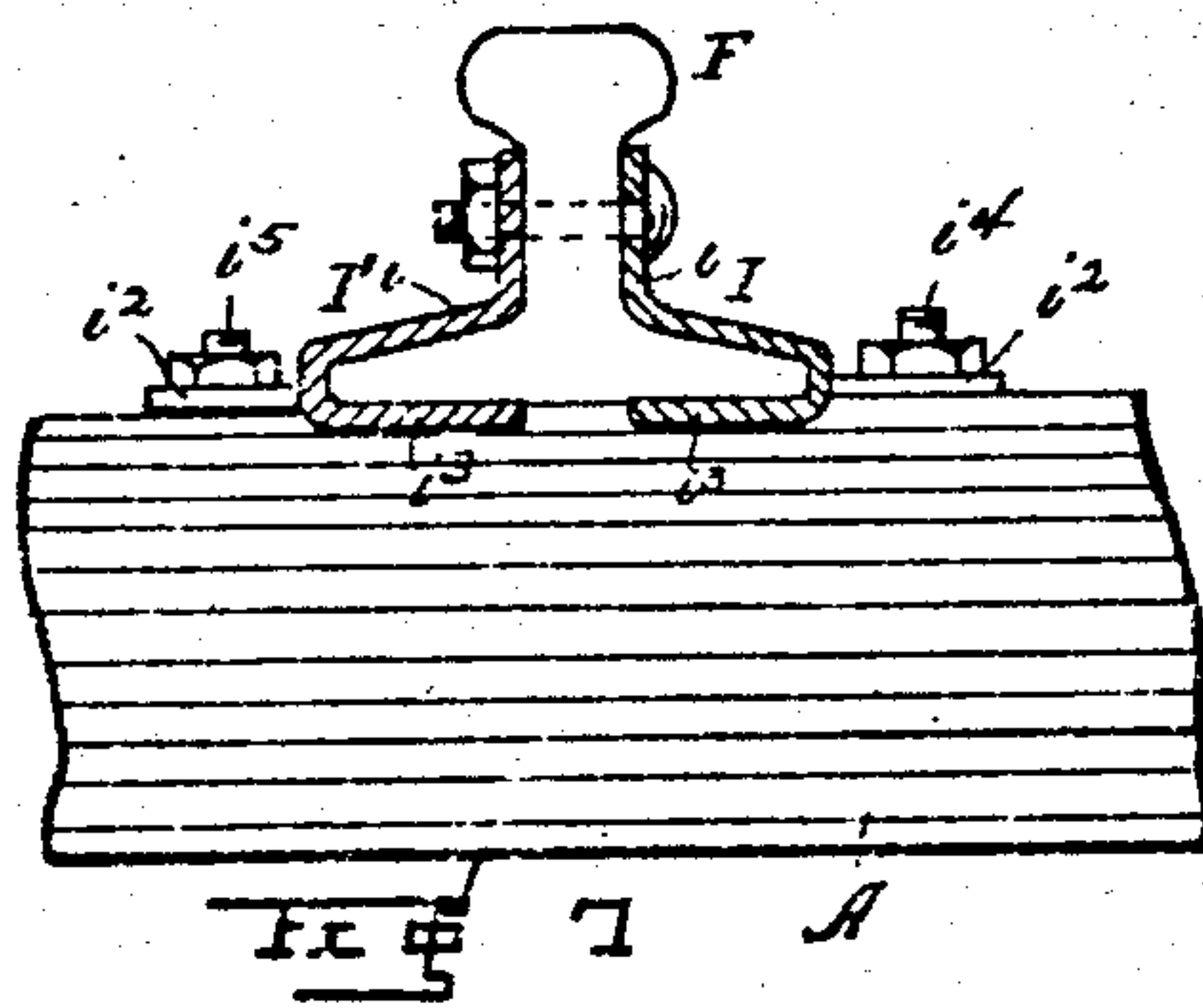
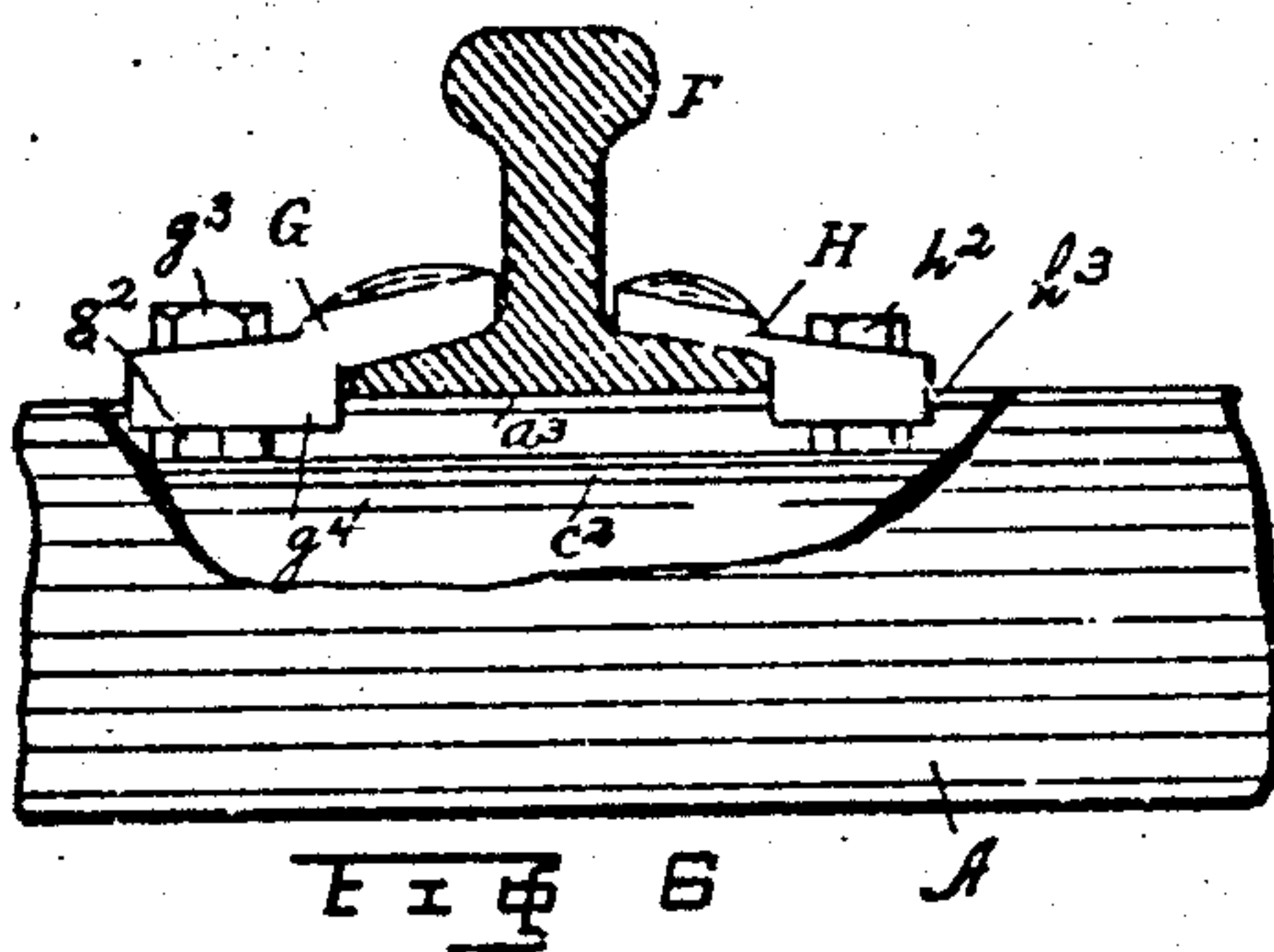
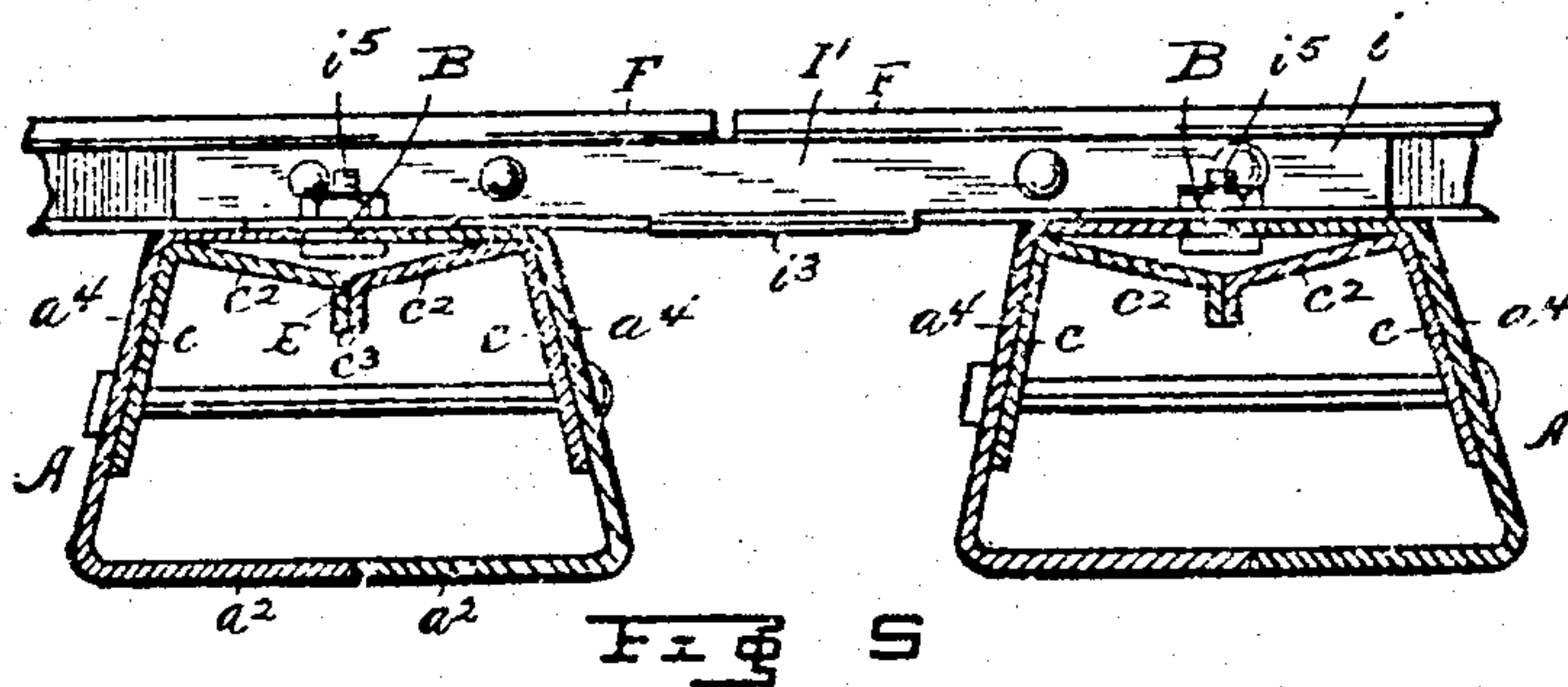
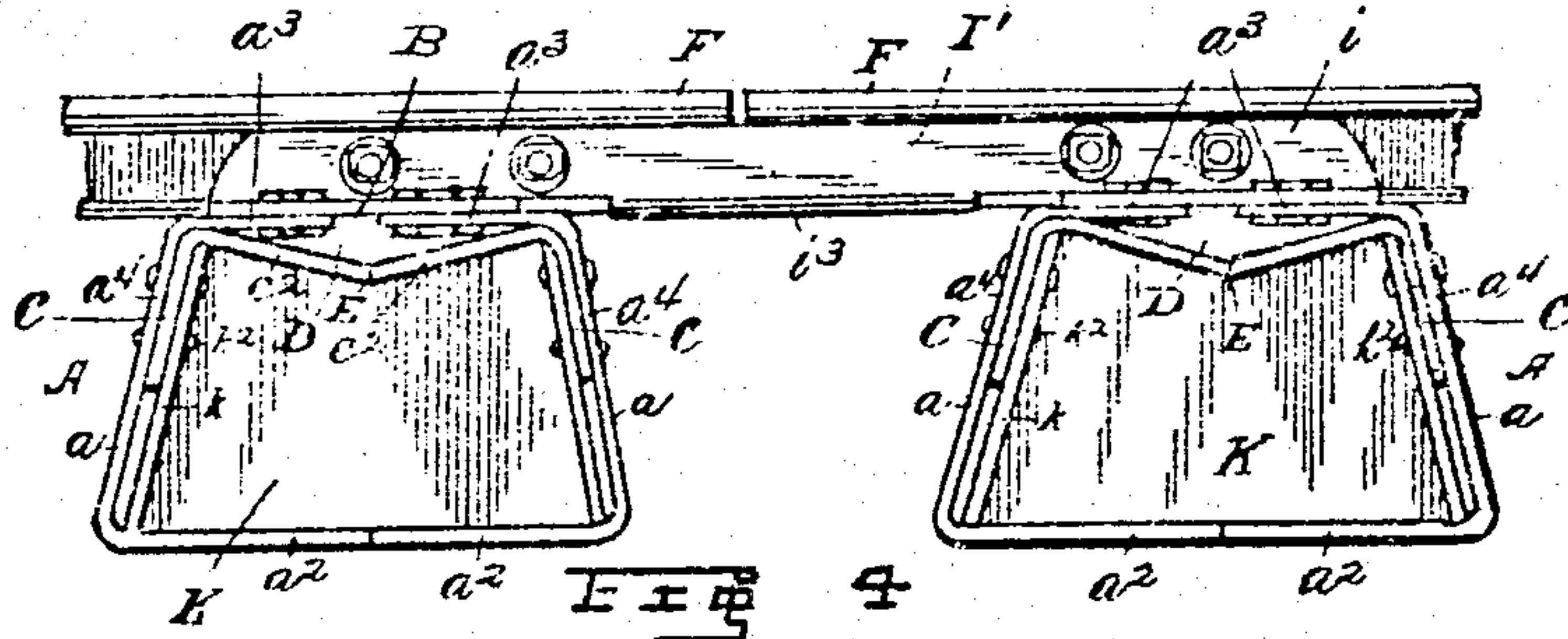
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3 SHEETS—SHEET 3.



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# UNITED STATES PATENT OFFICE.

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## RAIL-TIE.

No. 847,642.

Specification of Letters Patent.

Patented March 19, 1907.

Application filed July 11, 1906. Serial No. 325,702.

*To all whom it may concern:*

Be it known that I, WILLIAM E. BOYLES, a citizen of the United States of America, and a resident of Grafton, county of Taylor, and State of West Virginia, have invented certain new and useful Improvements in Rail-Ties, of which the following is a specification.

My invention relates to new and useful improvements in railway ties and clamps; and it consists in the particular construction, arrangement, and combination of parts, which will hereinafter be fully described, and pointed out in the appended claims.

The chief object of my invention is to provide a railway cross-tie having clamp-holding means and rail-retaining clamps therefor, both said tie and said clamps being of simple construction and adapted for securely mounting and holding the track-rails.

A further object of the invention is to provide a railway-tie having means whereby the track-rails may be quickly mounted thereon and removed therefrom and, further, having means whereby clamp-holding bolts may be conveniently removed and renewed as occasion requires without disturbing the tie or the track-rails.

Other objects of the invention will be made apparent as further progress is made in this specification.

In describing the invention in detail reference is herein had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of a portion of railway-track, showing my invention and illustrating the application thereof. Fig. 2 is a top plan view of the cross-tie. Fig. 3 is a similar view of a portion of track, illustrating my invention. Fig. 4 is a side elevation of a portion of track, showing the clamp for securing the rails at a joint and showing the ties in end elevation. Fig. 5 is a cross-section on the line 5 5, Fig. 3. Fig. 6 is a cross-section of a rail on the line 6 6, Fig. 3, showing the rail-clamps in side elevation, the tie being partially broken away; and Fig. 7 is a cross-section on the line 7 7, Fig. 3.

Referring to said drawings, in which like reference-letters designate like parts throughout the several views, A indicates the cross-tie proper, which is preferably formed by bolting together two similarly-shaped longitudinal metal sections  $a$ , the edges of the horizontal bases  $a^2$  of which join closely together, as shown, while the edges of the hori-

zontal upper faces  $a^3$  thereof stand apart, forming a longitudinal channel or slot B throughout the length of the tie. Secured to each of the sides  $a^4$  of said cross-tie, on the inner face thereof, is a longitudinal metal strip C, the vertical side  $c$  of which lies close against the side  $a^4$ , while a horizontal side  $c^2$  thereof stands below and substantially parallel to the horizontal upper face  $a^3$  of the tie, thus leaving a channel D therebetween. Said strips C meet, as shown at E, and preferably have their edges  $c^3$  turned downward, forming bearing-faces which firmly brace the sections  $a$  of the tie. The slot B is of sufficient width to admit the clamp-securing bolts to be slipped therethrough with their heads in the channel D. The bolts cannot drop from their proper positions when the nuts are removed therefrom, but have their heads resting upon the sides  $c^2$  of the strips C.

In securing the rails F upon the cross-ties clamps G and H are employed, the former for fitting on the outer side of the rail and the latter on the inner side thereof. Clamp-securing bolts  $g$  are inserted in the slot B with their heads  $g^2$  in the channel D and their bodies standing upright, and are slipped forward and into recesses  $b$  in the top of the tie. Then the clamp G is set in place upon said bolts  $g$  and nuts  $g^3$  are screwed thereon. The head of a bolt  $h$  is inserted in the channel D through an opening  $b^2$ , formed by recessing the edges of the horizontal upper faces  $a^3$  of the tie A, as shown. Said bolt is forced along the slot B to a position close to the rail F, and the clamp H is set in place thereon, and a nut  $h^2$  is screwed firmly thereon to hold it in place. Said clamps G and H each have rail-base and rail-web engaging portions, as shown, and a rearward extension for lying flat upon the cross-tie and through which the bolts project when secured in place. On the base of the clamp G is a longitudinal integral rib  $g^4$  for engaging the slot B, and consequently for preventing lateral movement in said clamp. A similar rib  $h^3$  is provided on the base of the clamp H.

The recesses  $b$  are slightly oblong, as shown in Fig. 2, to admit of the clamp G being slightly adjusted as to position.

To connect the ends of rails when my cross-tie is employed, I provide plates or clamps I and I', the former for the outer and the latter for the inner sides of the rails. Said clamps each consist of a fish-plate  $i$  for embracing the web and the top of the base of



the rail and having integral extensions  $i^2$ , through which the securing-bolts are projected. Between the ends of each of said fish-plates is an integral rail-base-engaging lug  $i^3$ , said lugs being adapted to lie between the ties and to serve as a chair for the meeting ends of the rails. The extensions  $i^3$  on the clamp I differ from those on the clamp I' in that the former are each made broader and are adapted to be held by two bolts  $i^4$ , while the latter are each held by one,  $i^5$ , said bolts being inserted in recesses and slots in the same manner as those employed with the clamps G and H, hereinbefore described.

End pieces K may be employed for closing the ends of the cross-tie, the same being shaped to conform to the shape of the openings therein and provided with outwardly-extending lugs or flanges  $k$ , which are bolted or riveted to the sides  $a^1$  of the tie, as shown at  $k^2$ .

As is obvious, various slight alterations and modifications may be made in the construction and general arrangement of my invention and in the parts thereof without departing from the general spirit or scope thereof. Hence I do not wish to limit myself to the precise construction and arrangement of parts herein shown and described.

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

1. In a cross-tie, two similarly-shaped longitudinal metal sections bolted together, a metal strip riveted on the inner side of each of said sections, said strips having horizontal portions which stand substantially parallel to the upper faces of said sections, a channel between said faces and said horizontal portions, a slot between the edges of said sections, and recesses in said faces which open into said slot.

2. A rail-tie comprising a casing having in the top thereof a longitudinal slot throughout its length, recesses in said top having communication with said slot, longitudinal strips secured on the inner sides of said casing, said strips having horizontal portions with bearing-faces which meet under said slot, said horizontal portions standing below said top and forming a channel between said portions and top, and means for securing rails on the ends of said tie.

3. A rail-tie comprising two metallic half-sections bolted together to form a casing, said sections having inwardly-extending

meeting base portions and inwardly extending top portions, said top portions approaching but not meeting, recesses in the edges of said top portions, and angular strips secured within said half-sections, the horizontal portions of said strips standing below said top portions and having bearing-faces, and means for securing track-rails upon said tie.

4. A railway-tie comprising two half-sections of angular form in cross-section bolted together to form a casing, said sections having inwardly-extending base portions which meet and inwardly-extending top portions which approach each other but do not meet, recesses in the edges of said top portions, a longitudinal strip, angular in cross-section, secured on the inner side of each of said sections, said strips having horizontal portions with downturned edges forming meeting bearing-faces, said horizontal portions standing below the top portions of said sections, and end plates secured within the ends of said casing.

5. In a rail-tie and a clamp for securing railway-rails thereon, a casing having a longitudinal slot in its upper face throughout the length thereof, recesses in the said upper face which communicate with said slot, bolts standing upright in said recesses, and clamps mounted on said bolts, each of said clamps comprising rail-web and rail-base embracing portions, an extension for lying upon the tie, and a rib on the base of said extension for engaging the slot in the casing.

6. The combination with the approaching ends of railway-rails, of rail-ties and means for securing said rails thereon, said ties each comprising a casing having a longitudinal slot in the top thereof and recesses in said top communicating with said slot, and said securing means comprising rail-holding clamps or fish-plates adapted to closely embrace the webs and tops of the bases of the rails, integral extensions carried by said fish-plates at each end thereof for resting upon the tops of the ties, bolts standing upright in the recesses in said ties and projecting through holes in said extensions, and lugs carried by said fish-plates which are bent under the bases of the rails between said rail-ties.

Signed by me in the presence of two subscribing witnesses.

WILLIAM E. BOYLES.

Witnesses:

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M. L. GOUGH.