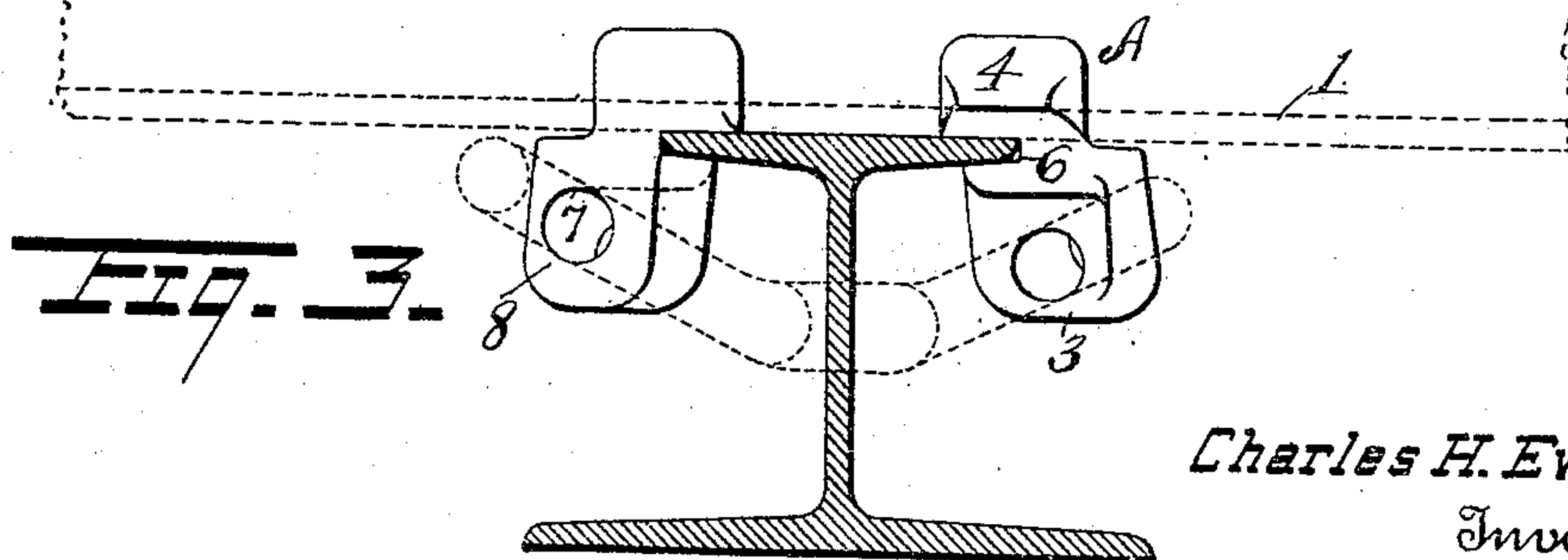
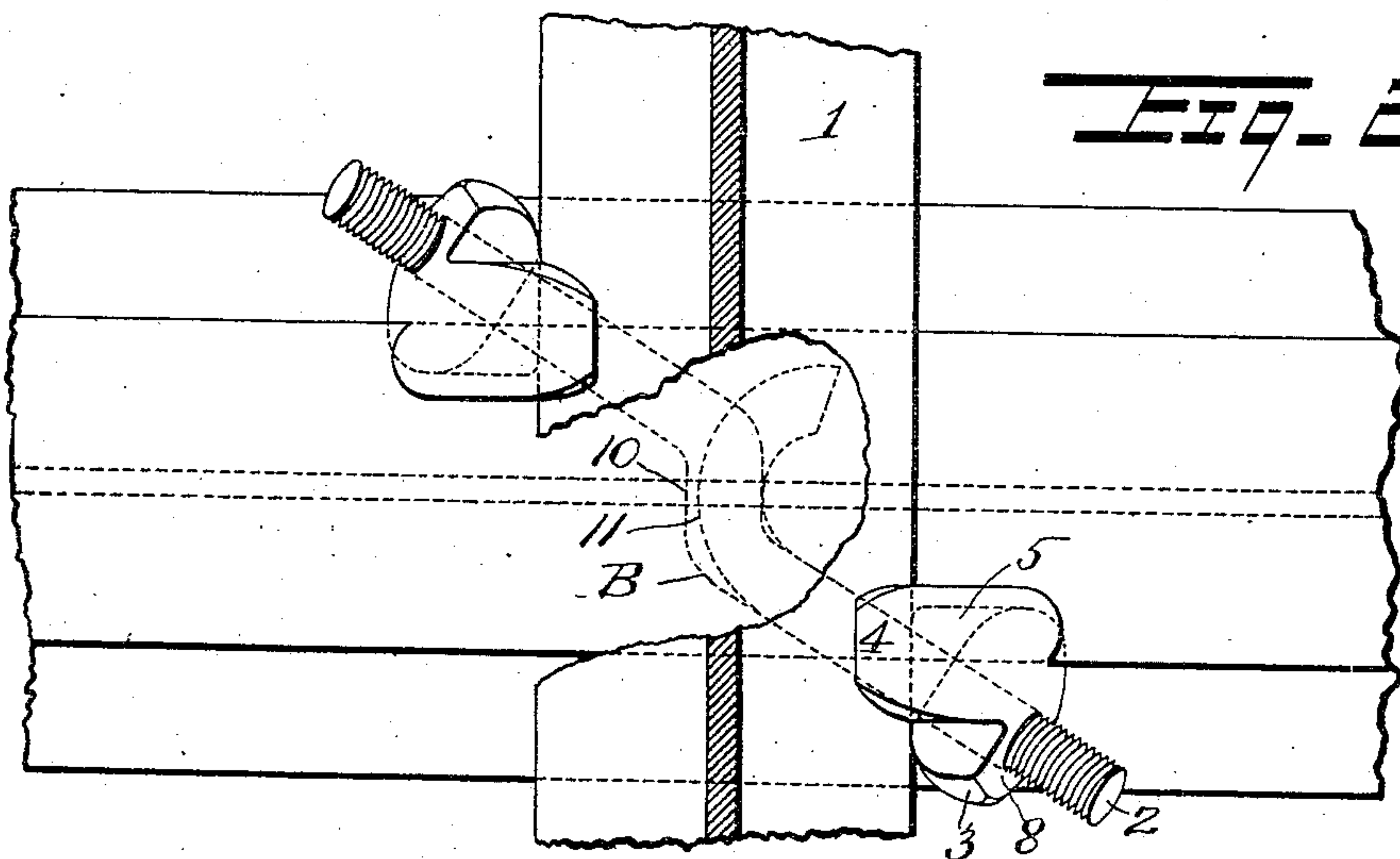
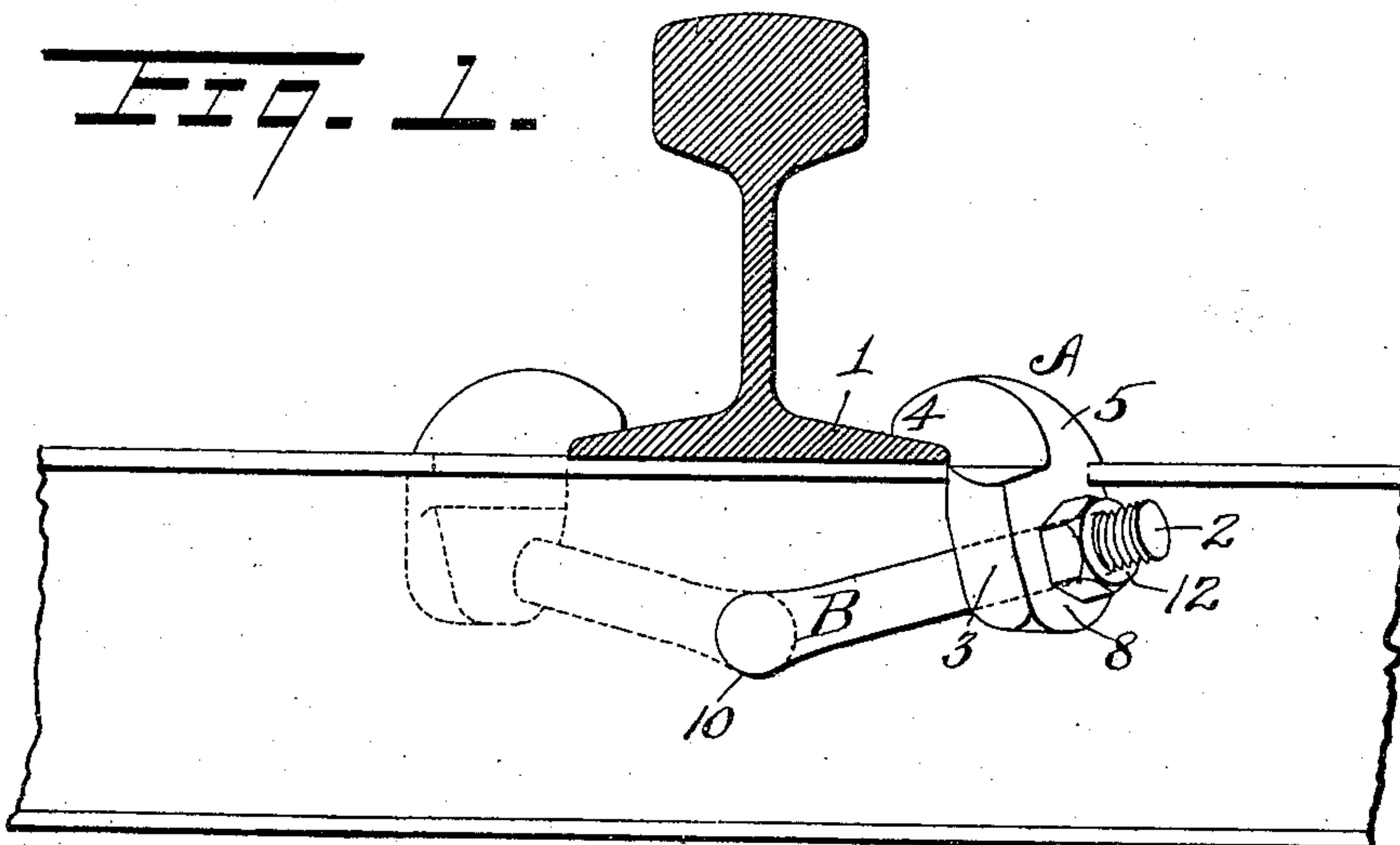


No. 854,728.

PATENTED MAY 28, 1907.

C. H. EWING.  
RAIL FASTENING.  
APPLICATION FILED OCT. 17, 1906.



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Witnesses  
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# UNITED STATES PATENT OFFICE.

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## RAIL-FASTENING.

No. 854,728.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed October 17, 1906. Serial No. 339,311.

*To all whom it may concern.*

Be it known that I, CHARLES H. EWING, a citizen of the United States, and a resident of the city of Reading, in the county of Berks and State of Pennsylvania, have invented certain new and useful Improvements in Rail-Fastenings, of which the following is a specification.

The object of my invention is to provide a simple and practically satisfactory rail fastening, adapted more particularly for use in connection with metal ties; the results particularly aimed at being, first to enable the rail to be adjustably and effectively secured without requiring any change in the normal form of the tie, as for instance a rolled beam; and second to permit of ready renewal without involving any disturbance of or work upon the tie itself, or any departure from uniformity in the fastening devices because of varying conditions.

The invention is fully described in connection with the accompanying drawings illustrating a preferred embodiment thereof, and the novel features are specifically pointed out in the claims.

Figure 1 is a longitudinal elevation of a cross-tie showing a rail, indicated in cross-section, fastened thereto by my improved means; duplicate oppositely arranged clips and a double clamping bolt being illustrated. Fig. 2 is a plan view of the same, portions of the rail being cut away to more clearly show the fastening means. Fig. 3 is a cross-sectional view of the tie with clips in position thereon, the rail flange being indicated in dotted lines.

The well known I-beam form of cross-tie is indicated, as a simple and apparently preferable form, though ties of different construction may be readily employed in connection with my invention. The rail, as shown, is seated directly upon the T-head of the tie, and is secured thereto by clips A, which slide upon the edge portions of the tie-head, and have their rail-engaging ends adjustably pressed against the rail-flange or base 1 by means of a clamping bolt B suitably fixed to the tie and having its screw-threaded body 2 projected through a clamping lug 3 on the clips.

The clip A is formed with a rail-engaging end 4 overhanging the rail-base 1, and a body portion 5 which rides upon the upper surface of the tie adjacent the edge thereof; a longitudinal groove 6, extending at right an-

gles to the rail-engaging end 4, being provided as shown to receive the edge portion of the tie-head flange, and the clamping-lug 3 extending laterally and downwardly from the body portion 5, and having an oblique bolt-opening 7 therethrough, and correspondingly beveled nut-face 8.

The clamping bolt B, as shown, is secured to the tie by providing a perforation 10 in the web portion of the latter, and forming the bolt with a hooked portion 11, which is engaged in said perforation; and its body portion 2 extends therefrom through the oblique opening 7 in the clamping lug of the clip, with its screw-threaded end projecting to receive the nut 12. The location of the clamping-lug opening relative to the point of attachment of the bolt to the tie at the perforation 10, is such as to give an oblique direction to the body of the bolt whereby the strain brought upon the clip in adjusting the latter against the rail-base as required, will at the same time press the clip tightly into contact with the edge of the tie-head, thus insuring the positive and permanent fastening of the rail in determined position upon the tie without providing the latter with any special clip-engaging means.

In the preferred construction indicated the clips are employed in pairs, arranged upon opposite sides of the cross-tie in diagonal relation, and independently adjustable thereon so as to permit of any desired spreading of the rails. Instead of employing separate clamping bolts, each having a terminal hook engaged in a perforation 10 as indicated in dotted lines Fig. 2, a double clamping bolt having an intermediate hooked portion as shown, may be advantageously used, the clamping strains upon the opposing clips being thus carried through the double-bodied bolt itself and the intermediate connection to the tie serving mainly to positively retain both clips and rail in the desired position upon the tie to which they are adjusted by setting up or withdrawing the opposing clamping nuts.

The hooked portion 11 of the bolt is preferably made of somewhat greater cross-sectional area (round or angular) than the body portions, so as to permit of the latter being readily passed through the perforation 10, while at the same time avoiding objectionable looseness of the hooked portion in said perforation. The clamping nuts being located below the surface of the rail base, are not



liable to be torn off or loosened by derailed wheels, while the springiness of the bolt practically serves to lock them against any accidental withdrawal.

5 It will be seen that my improved fastening devices are simple and inexpensive in themselves, and that they involve practically no special provision therefor in the tie construction, while at the same time they are well  
10 adapted to the practical requirements of roadway construction and actual service.

The preferred embodiment of the invention which has been specifically described and shown may obviously be modified without  
15 departing from the spirit of the invention.

What I claim is:—

1. In a rail fastening, a clip slidable upon the edge portion of a cross-tie to engage and disengage the rail base, and an obliquely arranged tie bolt engaging a clamping lug on  
20 said clip substantially as set forth.

2. In a rail fastening, a clip slidable upon the edge portion of a cross-tie to engage and disengage the rail base and formed with a  
25 clamping lug having an oblique tie-bolt opening substantially as set forth.

3. In a rail fastening, a clip grooved at right angles to the rail-clamping end thereof to slidably engage the flange of a cross-tie,

and an obliquely arranged tie bolt engaging  
30 said clip to simultaneously press the same into engagement with the tie-flange and with the rail-flange in clamping the rail to the tie.

4. In a rail fastening the combination with a cross-tie having a vertical web and a flanged  
35 rail-bearing head, a rail-clip slidably engaging the edge portion of the tie flange, and a clamping bolt having a hooked portion engaged in a perforation in the tie-web and extending upward and outward from said per-  
40 foration into adjusting engagement with said slidable clip.

5. In a rail fastening the combination with a cross-tie having a vertical web and a T-head, a pair of rail clips slidably engaging  
45 opposite edge portions of said tie-head, and a double clamping bolt having an intermediate hooked portion engaged in a perforation in the tie-web and extending upwardly and outwardly from said perforation in opposite di-  
50 rections into adjusting engagement with the respective slidable clips.

In testimony whereof, I affix my signature, in the presence of two witnesses.

CHARLES H. EWING.

Witnesses:

D. M. STEWART,  
W. G. STEWART.