

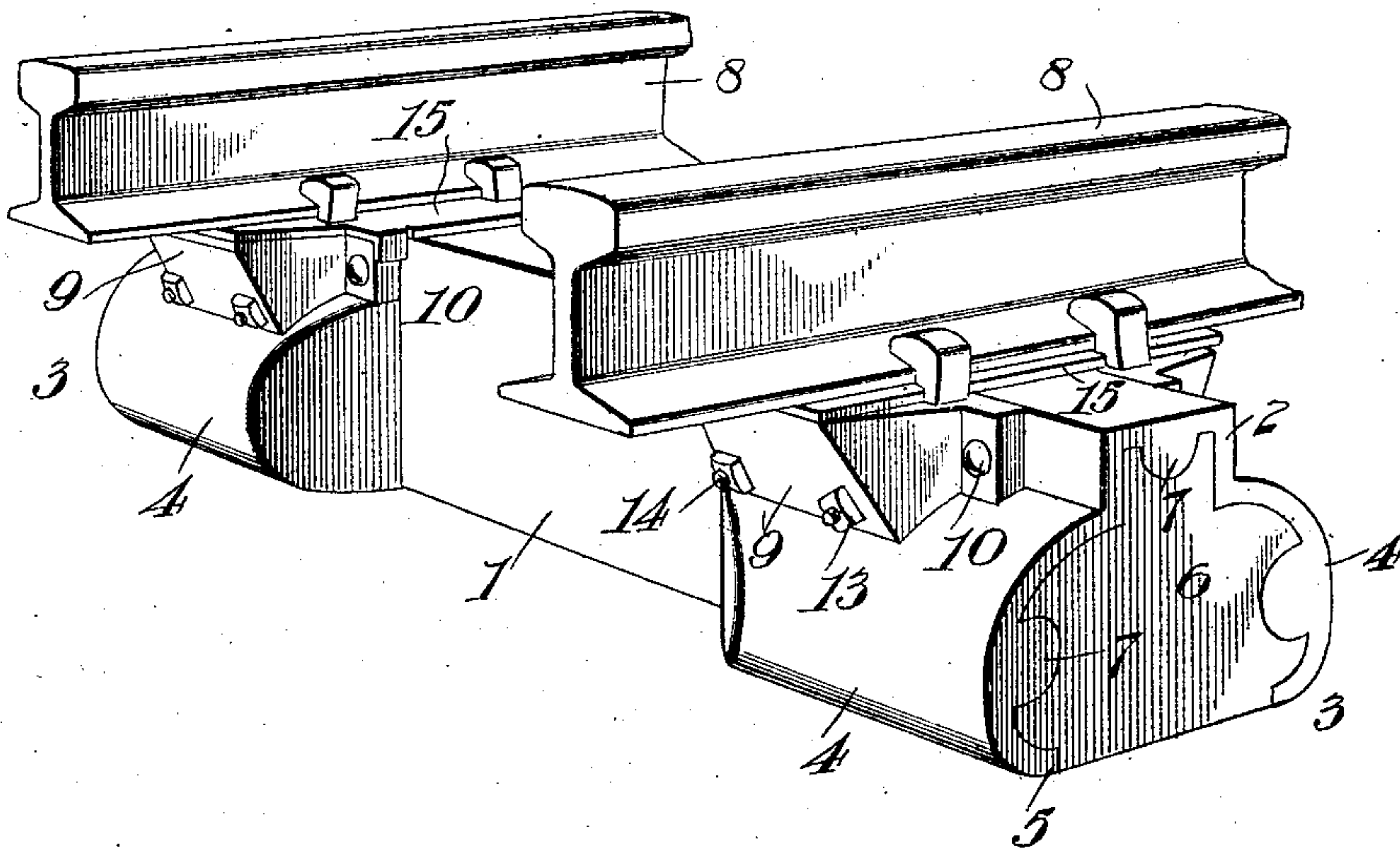
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 COMBINED RAILWAY TIE AND TRACK FASTENER.  
 APPLICATION FILED AUG. 2, 1909.

966,334.

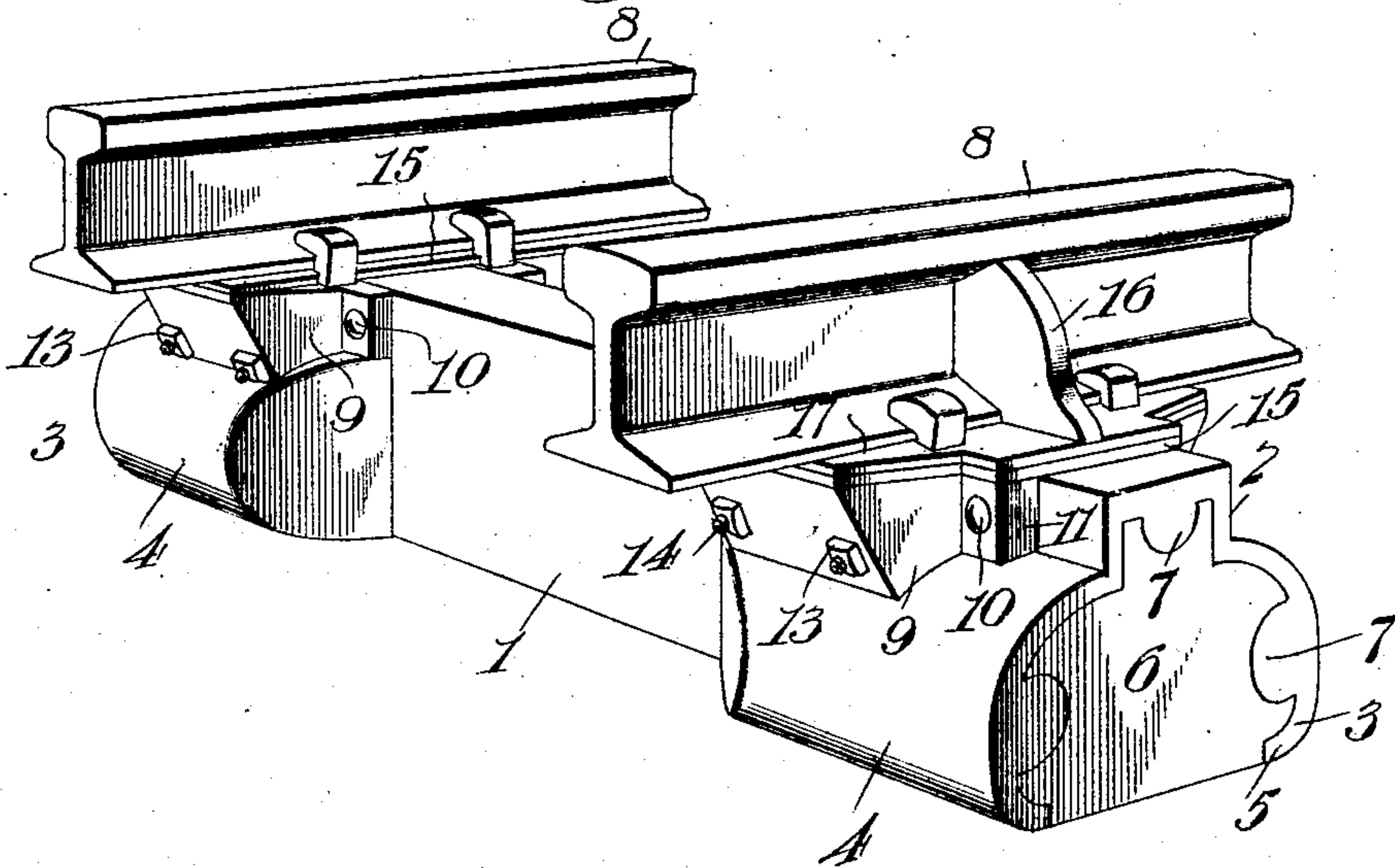
Patented Aug. 2, 1910.

2 SHEETS—SHEET 1.

*Fig. 1.*



*Fig. 2.*



Inventor,

*Jacob A. Hyle*

By

*Jas. L. Skidmore*

his Attorney.

Witnesses

*J. L. Moorman*  
*May M. Plyer*

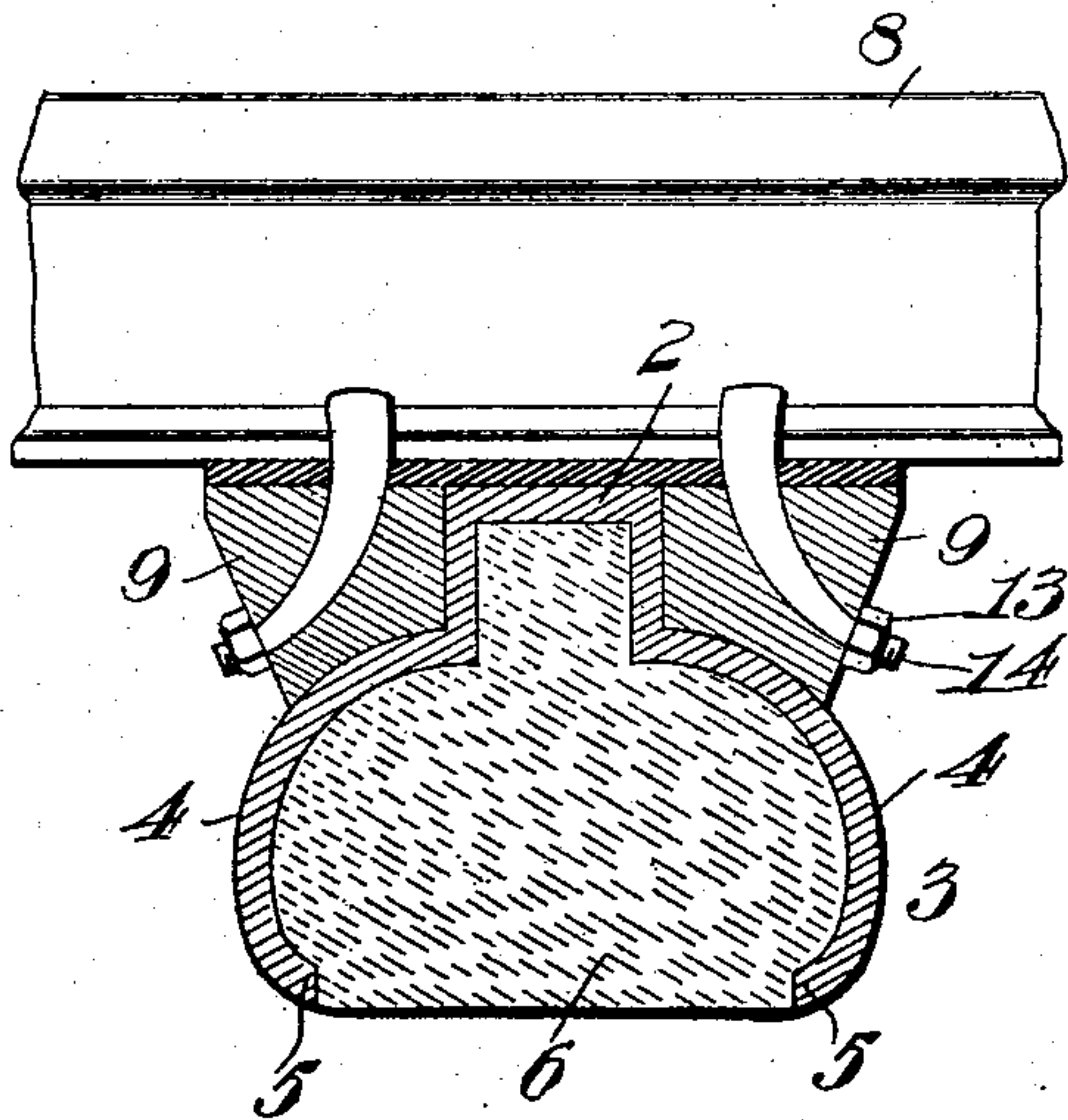
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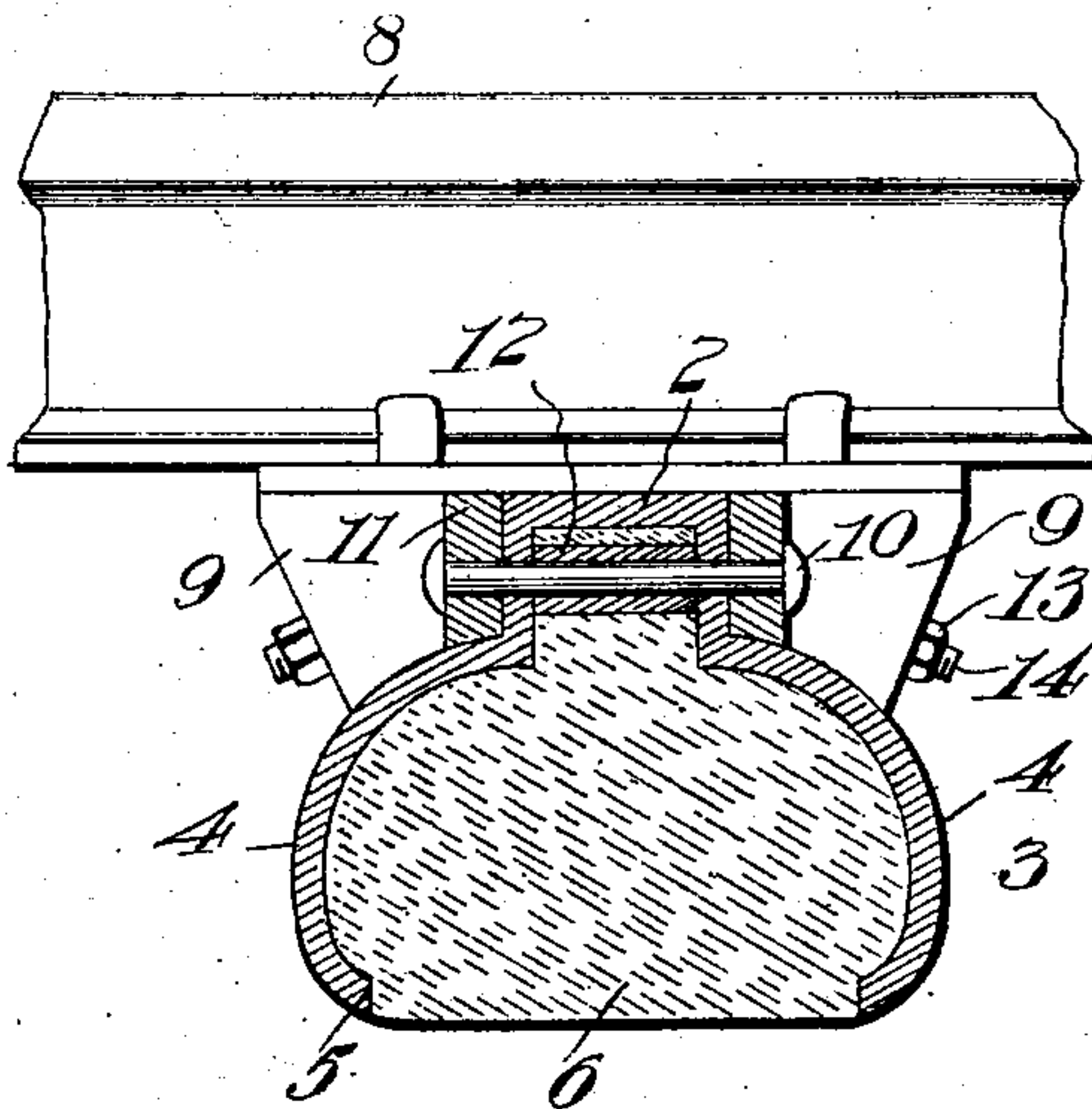
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2 SHEETS--SHEET 2.

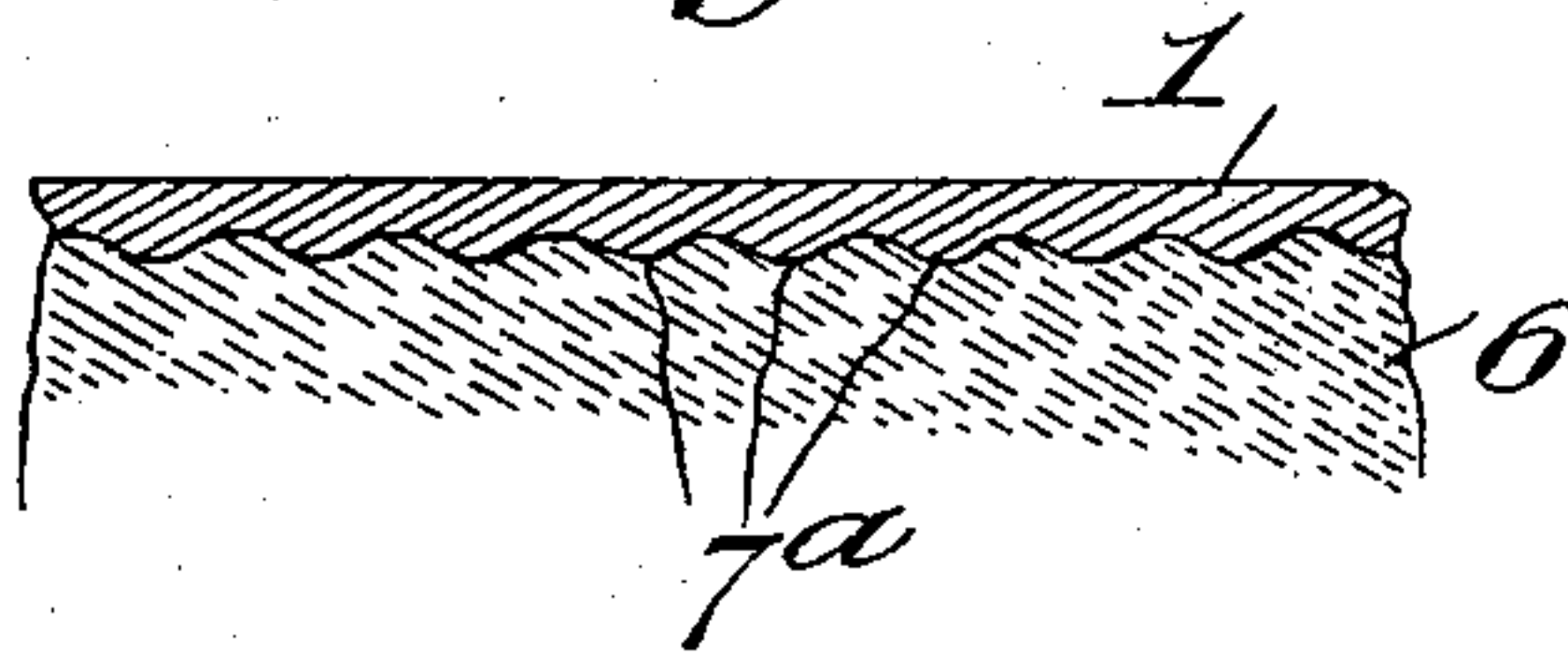
*Fig. 3.*



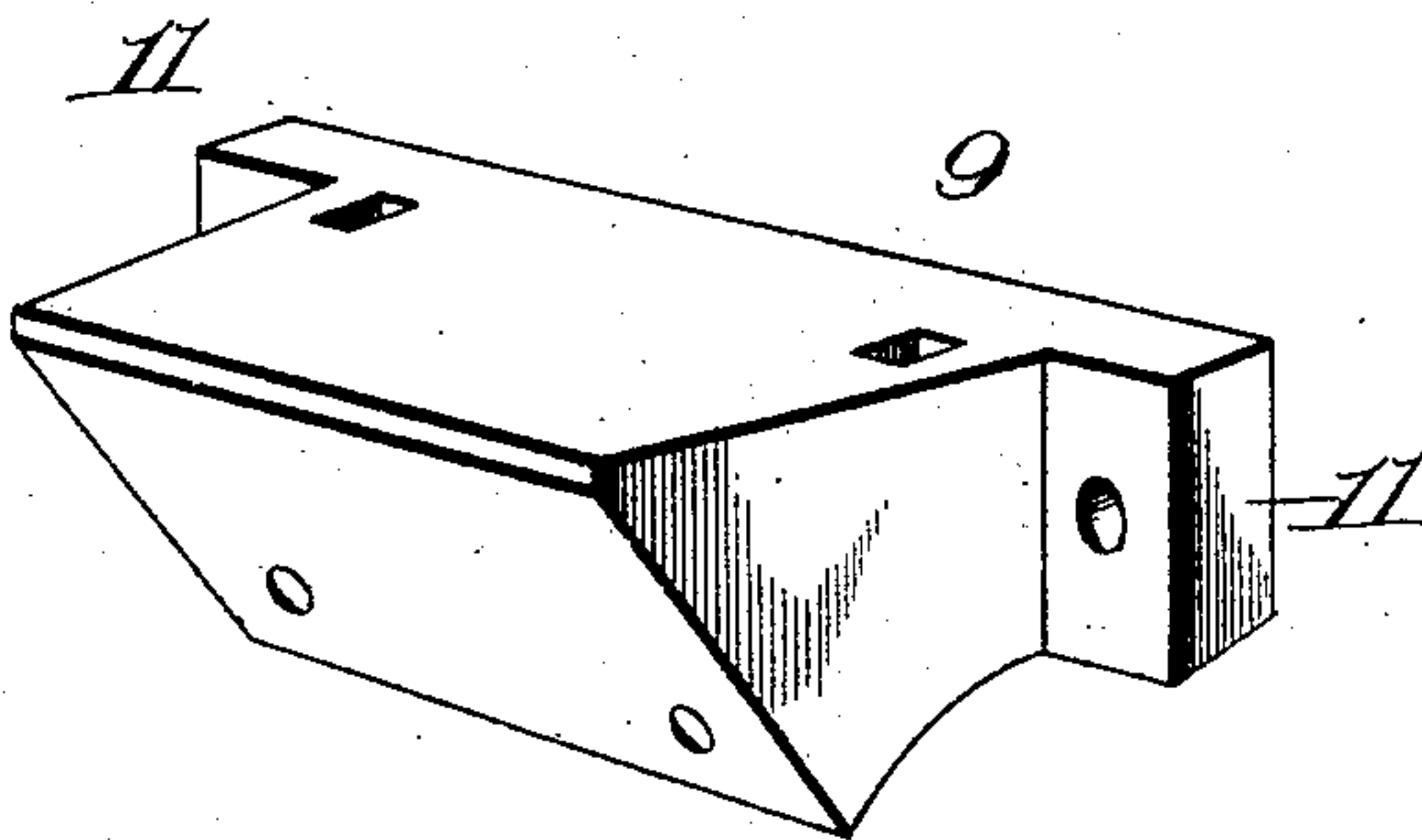
*Fig. 4.*



*Fig. 5.*



*Fig. 6.*



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# UNITED STATES PATENT OFFICE.

JACOB A. HYLE, OF CHICAGO, ILLINOIS.

## COMBINED RAILWAY-TIE AND TRACK-FASTENER.

966,334.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed August 2, 1909. Serial No. 510,901.

*To all whom it may concern:*

Be it known that I, JACOB A. HYLE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Combined Railway-Ties and Track-Fasteners, of which the following is a specification.

This invention relates to railway ties adapted for use with either steam or electric railways; and has especial reference to railway cross ties constructed of metal and concrete.

The invention has for its object to improve the construction, and increase the efficiency of railway ties of this kind.

The invention has further for its object to provide a railway tie of this character, which will be so constructed that it can be easily and readily put in place, and will be so properly placed, as to afford a solid support for the rails; can be easily ballasted; cannot get out of alinement and is so constructed, that only about sixty per cent (60%) of the usual number of ties in use will be required in laying a given piece of track.

With these and other objects in view, as hereinafter more particularly described the invention consists of an improved railway cross-tie, adapted to be used for steam, or electric railways, and in details of construction thereof, as hereinafter more specifically set forth and claimed.

A tie constructed in accordance with this invention comprises in its general features a hollow tie of any suitable metal, preferably malleable iron, or pressed steel, filled with concrete or any solution, or mixture, which will remain intact and not crumble from severe strain, and jar caused by the wheels of locomotives or cars passing over the rails supported by ties of this construction.

The enlarged end portions of the tie being held by the ballast will prevent the tie from moving endwise, and also prevent its rocking when a heavy weight is passing over the rail.

A plate of suitable elastic material is placed between the rail and the top of the tie braces and serves as a cushion for the rail, as well as electrically insulating the same from the tie.

In connection with this plate another plate is placed between it and the rail, at a curve, the upper plate having a chair or

brace which bears against the outside of the rail. The second plate serves to hold the outer rail at a higher elevation than the inner rail, thereby permitting the tie to remain in a horizontal position.

Referring to the accompanying drawings in which similar figures of reference indicate like parts, Figure 1 is a perspective view of a railway tie constructed in accordance with this invention and secured to a pair of rails. Fig. 2 is a similar view showing a brace for the outer rail in a curve. Fig. 3 is a view in cross section of the tie taken in line with the rail. Fig. 4 is a detail view in cross section showing the braces fastened to the tie. Fig. 5 is a detail view in longitudinal section showing the grooved, or ribbed inner surface of the tie. Fig. 6, is a detail view in perspective of one of the braces detached.

In carrying out the invention the tie is formed of a metal casing, preferably of malleable iron or pressed steel, and having the central longitudinal portion 1, and the top end portions 2 of an inverted U shape, and the enlarged end portions 3, extending transversely to the central portion 1, and preferably having oval or bulging sides 4, which taper inward to the central portion 1. The lower edges of the tie are bent inward to form horizontal flanges 5.

The tie is filled with concrete 6 or any solution or mixture that will remain intact, and not crumble or give away from severe strain and jar caused by the wheels of locomotives and cars passing over the rails. The flanges 5 retain the concrete or filling material in place.

In addition to the flanges 5 the outer end of the enlarged portions 3 and the top end portion 2 of the rail may be provided with lips or projections 7 which are bent over the filling material and aid to hold it in place.

The tie is preferably formed on its inside with transverse corrugations or ribs 7, which not only aid in retaining the filling in place but also serve to strengthen the tie.

By having the lower edges of the tie bent in to form horizontal flanges 5, and with the concrete retained thereby forming a flat bottom to the tie, the track hands have no difficulty in driving the ballast firmly under the tie from each end toward the center of the space between the rails. The smooth round outer edge formed by bending in the flanges 5 enables the trackmen to wedge



the ballast firmly under the tie. The top of the tie is flat from end to end. The top of the tie is of the same width from end to end, and the top and bottom of the tie between the enlarged portions 3 are of the same width. The enlarged end portions 3 of the tie give the tie double the earth or ballast support, as that of the tie between the portions 3. The rails 8 rest on the tie adjacent to its ends and above the enlarged portions 3. In order to secure the rail to the tie, and have the enlarged portions 3 serve as a broad base to support the rail, braces 9, preferably of the shape shown, are provided, which rest on the top of the enlarged portions 3, one on each side of the top portion 2 of the rail, and are riveted thereto by rivets 10 preferably of wrought iron, which extend through projections 11 on the braces 9, and through the top portions 2 of the tie and the concrete.

Inside the tie the rivet 10 extends through a thin metal pipe or sleeve 12 shown in Fig. 4 of the drawings, which prevents the concrete or filling from becoming fixed to the rivet, so that if any of the structure should break the end of the rivet may be cut off and the rivet removed, and easily and quickly replaced when the break is repaired. The braces 9, which are preferably of pressed steel or malleable iron serve two purposes, viz:—as a means for carrying the spikes or bolts by means of which the rail is secured to the tie, and also while resting on the tie affording a double base support for the rail. The rails are secured to the tie by means of bolts or spikes, as for example the spikes 12' which engage the flange of the rail and extend down in a curve through the braces 9, and are secured by nuts 13 on a threaded end 14 of the spikes. The spikes 12' are so curved that should the nut become loose and drop off, the spikes would still remain in position and hold the rail and prevent it from spreading. The threaded end 14 of the spike is of such a shape and in such position under the rail and close to the brace 9 that the nut can be removed only by a person having the proper kind of wrench for such purpose. This prevents a train wrecker from removing the spikes without such wrench. Between the rail 8, and the top of the tie is interposed a cushion, which may be a plate 15 of any suitable material for such purpose, such as fiber or cork. The plate 15 may be of any suitable thickness and of such a length as to cover the top of the tie, and braces, and of a sufficient width to extend outward a short distance from the base of the rail on either side. This plate while serving as a cushion for the rail, also acts to electrically insulate the rail from the tie where rails are used as electrical conductors for signaling.

Referring to Fig. 2 there is shown in connection with the construction hereinbefore described, a brace or chair 16, employed where there is a curve in the track. The brace or chair 16, which is preferably of pressed steel or malleable iron rests against the flange, web, and head of the outer rail, and is secured to or integral with a base plate 17 which is interposed between the base of the rail and the cushion plate 15. By means of this plate 17 resting on the plate 15, the outer rail of a curve is elevated above the inner rail, without the tie being tilted by ballast, as in the old way, the tie in the present instance remaining horizontal.

It will be seen that by means of this invention as hereinbefore set forth, a durable tie is provided, which will be firmly held from sliding or getting out of position; that will be economical in construction and strong, that portion of it between the rails being reduced in size, without weakening it, and the enlarged end portions affording a broad supporting base for the rails.

The parts of the device are simple in construction and can readily be replaced.

Having described the invention, what I desire to secure by Letters Patent and claim is:—

1. A railway tie, consisting of a metallic casing having open ends and bottom, and formed at a distance below the top of the tie at each end thereof with enlarged transverse end portions, a solid filling in said casing, and means integral with the tie and extending inward and downward for retaining said filling in place.

2. A metallic railway tie, having enlarged end portions transverse to the tie, rail supporting braces on said end portions, and curved rail-retaining spikes engaging said braces.

3. A metallic railway tie, having enlarged end portions transverse to the tie, rail supporting braces on said end portions, curved rail-retaining spikes engaging said braces, and means for locking said spikes in place.

4. A metallic railway tie having enlarged end portions transverse to the tie, rail supporting braces on said end portions, curved rail-retaining spikes extending through said braces and each having a threaded end, and a nut on said threaded end.

5. A hollow metallic railway tie having enlarged end portions transverse to the tie and located beneath its top portion, braces resting on said end portions, and riveted to the tie, sleeves inclosing said rivets in the tie, and a solid filling in the tie surrounding said sleeves.

6. A metallic railway tie formed of a single piece of metal having enlarged end portions transverse to the tie, said enlarged end portions being located at a distance beneath its top portion, braces resting on and



embracing said enlarged end portions and secured to the tie and forming therewith a support for the rail, a cushioning plate resting on said braces and each end portion, and  
5 a plate with a brace resting on one of said cushioning plates.

7. A railway tie consisting of a metallic casing with enlarged end portions transverse to the tie, said tie having transverse

ribs on its inner surface, and an open bottom 10 and ends, the lower edges of the tie being bent inward, and the edges of the tie having projections bent inward, and a solid filling in said casing.

JACOB A. HYLE.

In presence of—  
EDWARD W. CADY,  
MAY M. PLYER.