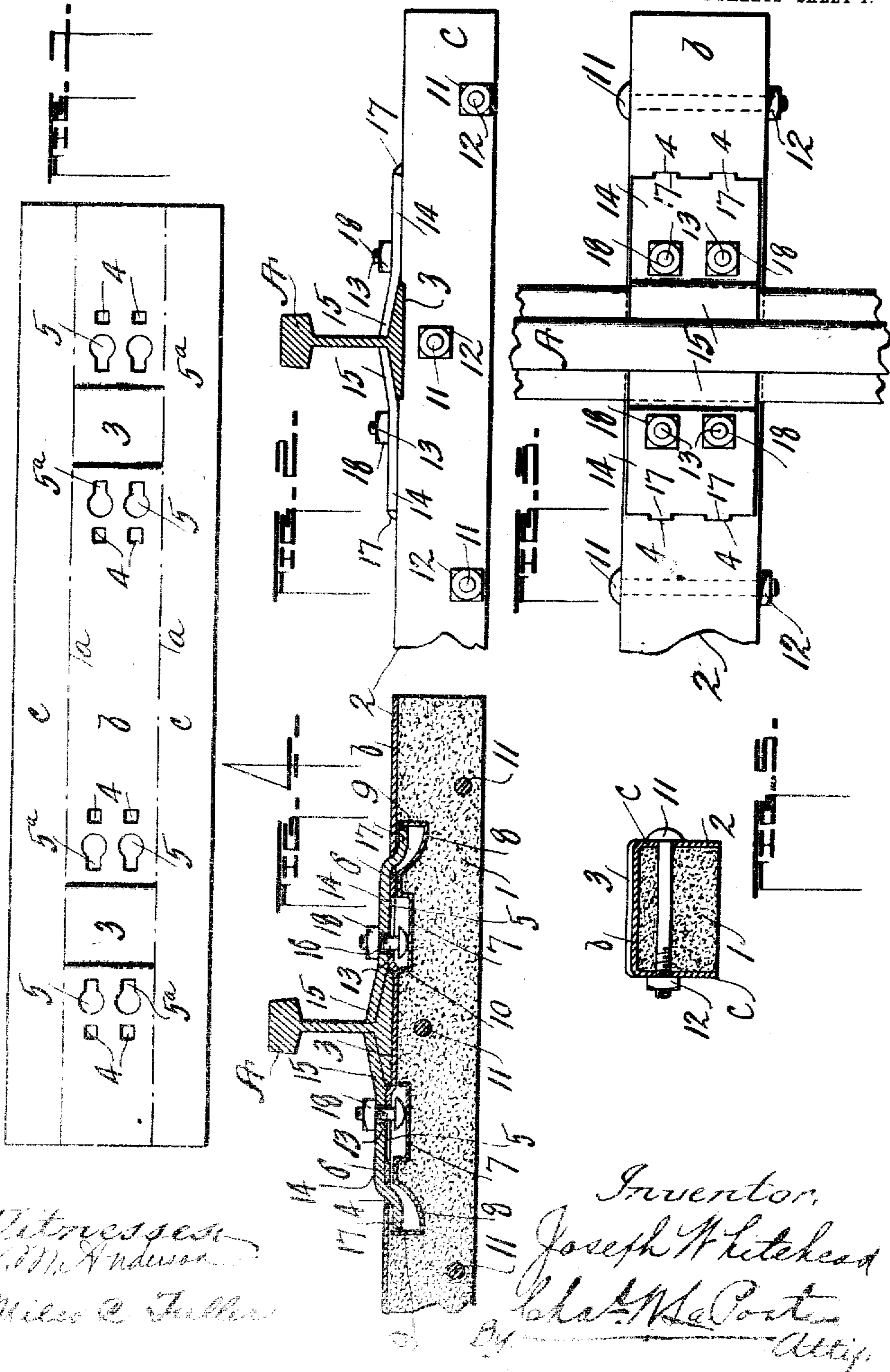


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J. WHITEHEAD.
RAILWAY TIE.
APPLICATION FILED MAY 24, 1906.

Patented Mar. 22, 1910.
2 SHEETS—SHEET 1.



Witnesses
J. M. Anderson
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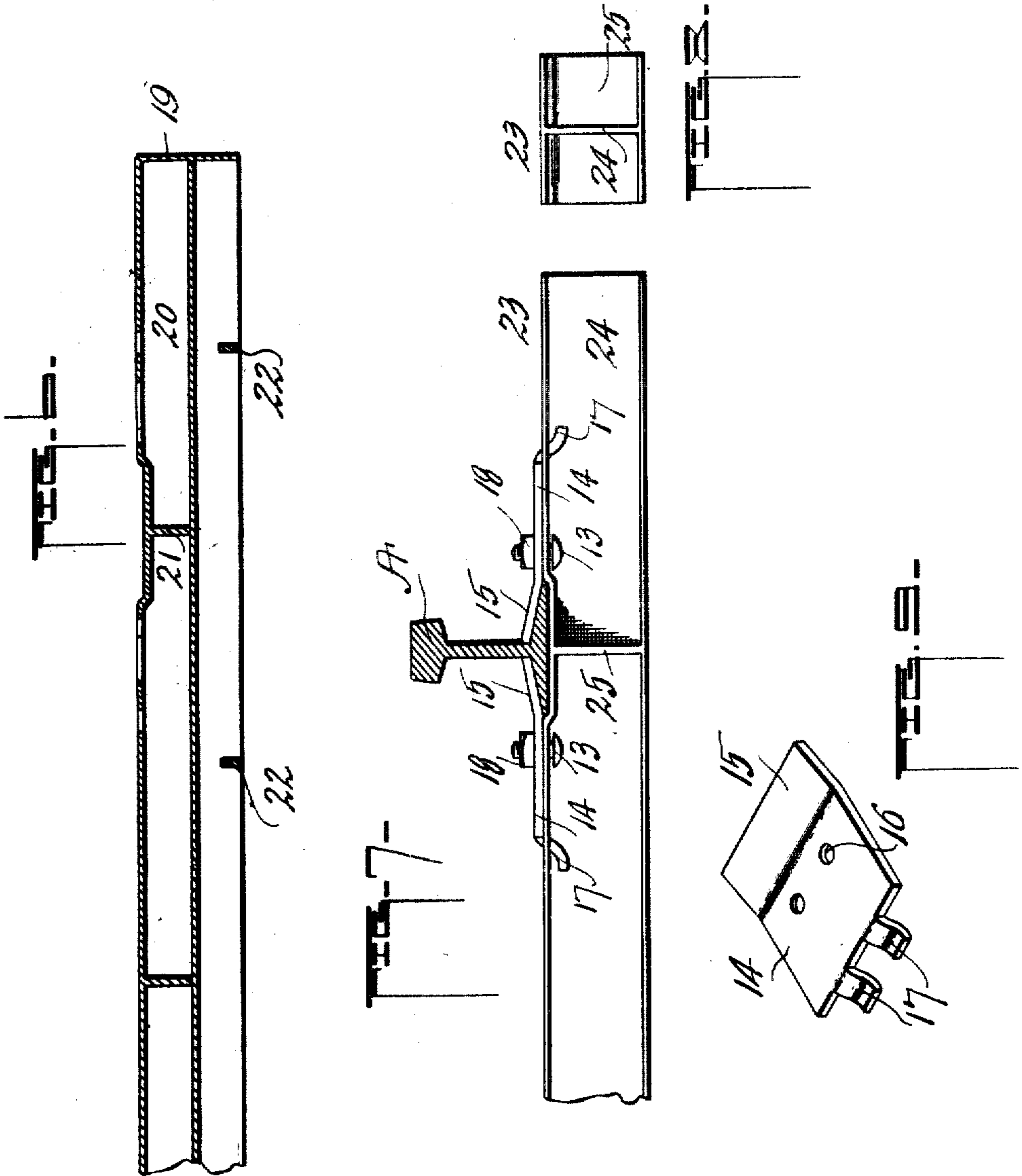
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UNITED STATES PATENT OFFICE.

JOSEPH WHITEHEAD, OF FARMINGTON, ILLINOIS.

RAILWAY-TIE.

952,718.

Specification of Letters Patent. Patented Mar. 22, 1910.

Application filed May 24, 1906. Serial No. 318,447.

To all whom it may concern:

Be it known that I, JOSEPH WHITEHEAD, a citizen of the United States, residing at Farmington, in the county of Fulton and State of Illinois, have invented certain new and useful Improvements in Railway-Ties; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

This invention has reference to improvements in railway ties, having for its object a tie constructed of steel or other suitable metal, or a tie constructed with a metal casing containing a composite filling, and means for firmly securing rails thereto.

A further object of the invention is a tie constructed of a metal casing, preferably inclosing three sides of said tie and adapted to contain a composite filling; said metal casing being preferably formed from a strip of sheet metal bent into the form of an inverted U, and provided with recess-bearings or depressions near each end thereof to receive the rails and insure the placing of the rails always equidistant to each other; also in the provision of a series of suitable perforations in the upper surface of said tie upon the opposite sides of the recesses and depressions therein for the detachable connection of means for securely fastening rails in the recesses and depressions of said tie.

The invention consists further, in forming a metallic casing for the composite filling of a railway tie said casing being provided with rail-seats and a series of perforations on opposite sides thereof; plates adapted to have a detachable connection with certain perforations in the said casing and arranged for wedging engagement with the webs of rails adapted to be seated in the rail-seats aforesaid; and shields provided for the interior of the said casing to protect the perforations therein aforesaid, when said casing is filled with said composite filling.

The above objects are accomplished by the novel construction of railway-tie hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the claims at the end of the specification.

Figure 1 is a greatly reduced plan of a metallic strip which is adapted to serve as

the housing for a composite tie; the dotted lines indicating where the strip is bent and the rail-seats and perforations being shown, whereby to receive rails; Fig. 2 is an elevation of a portion of my improved tie, showing a rail seated in a rail-seat and firmly secured therein by means of a pair of detachable plates; Fig. 3 is a plan of Fig. 2; Fig. 4 shows a longitudinal sectional view of the tie, rail, and securing means for the rail illustrated in Fig. 2; Fig. 5 is a transverse, sectional view of the tie seen in Fig. 2, the same being taken where the rail-seat is provided in the metallic casing of said tie; Fig. 6 is a longitudinal sectional view of the casing of a tie adapted to contain a composite filling, wherein said casing is cast from suitable metal instead of stamped or formed from sheet metal; Fig. 7 is an elevation of a portion of a metallic tie; wherein the said tie is preferably an I beam, and showing detachable plates for securing rails to said tie, similar to the plates seen in Figs. 2, 3 and 4; Fig. 8 is an end view of the tie seen in Fig. 7, and Fig. 9 is a perspective view of one of the plates used for securing the rails to the tie.

Like characters of reference indicate corresponding parts throughout the figures.

The preferred construction of tie is shown in Figs. 1, 2, 3, 4 and 5. This tie consists of a composite filling 1 contained within a metallic casing 2, which, preferably covers the two sides and top of the tie.

In the manufacture of the tie just above described a strip of sheet steel, of the proper length and width is employed, which is pressed, stamped or otherwise molded into shape to form a housing for a composite filling, seen in Figs. 4 and 5. The strip of sheet steel, which is seen in Fig. 1 is bent down on the dotted lines indicated as *a* extending longitudinally of the said sheet to form the top *b* and sides *c* of the casing for the said tie. At the time of bending the strip into the shape desired to form a casing for the composite filling of the tie, that portion which forms the top of the tie may be pressed or stamped at 3 to form transverse grooves, depressions or rail-seats, or said grooves or depressions may be formed by a separate operation. There is also provided in the top portion *b* of the said sheet or casing, a series of openings or perforations indicated as 4, which are preferably rectangular in shape and also a series of

perforations or openings 5, which are substantially circular in shape and which merge into the reduced rectangular openings or perforations 5^a. The openings or perforations 4 and 5 are disposed in pairs upon the opposite sides of the depressions, grooves or rail-seats 3, somewhat in the manner shown in Fig. 1. Such openings or perforations may be made at the time the sheet of steel is bent into the form shown in Fig. 5 and when the grooves or depressions 3 are formed or subsequent thereto, which ever is the most desirable. The metal strip when properly formed has the appearance of an inverted U. After the formation of the metallic casing in the manner above specified the same is filled with the composite filling indicated heretofore as 1. But prior to the filling of the said casing shields which are indicated as 6 are placed in the casing over the perforations or openings indicated at 4, 5 and 5^a. These shields are substantially of the shape shown in Fig. 4 of the drawings, provided with the channel way 7 and the curved portion 8, which together with the inturned portions 9 and 10 form suitable chambers between the portions 7 and 8 and the top of the said casing to adapt the insertion of bolts into the openings 5 for the securing of plates having portions which have a detachable connection with the top of the casing of the tie through the opening 4 in a manner to be described. The sides of the casing *c* may be connected and braced by means of the bolts 11 and nuts 12 which may be properly placed before filling the casing with the composite filling and which serve as a brace for the metallic casing and also a strengthening means for the composite filling, all of which it is believed will be understood.

In the application of a tie, such as above described to a railway bed, the rails which are here indicated as A are adapted to be seated in the grooves, depressions or rail-seats 3, somewhat in the manner seen in Figs. 2, 3 and 4. Bolts indicated as 13 are inserted through the openings or perforations indicated as 5 with the threaded ends of the said bolts projecting upwardly; the perforations 5 are large enough to adapt the heads of the bolts 13 to be passed through the casing when the same are forced toward the depressions 3 therein, into the rectangular openings 5^a which form a part of the openings 5 as shown. The bolts 13 are provided with squared portions adjacent to the heads thereof so that when the same are forced into the openings 5^a they are prevented from turning or becoming dislodged.

14 denotes suitable plates having beveled portions 15 adapted to conform to the taper of the base flanges of the rails with which they are to engage and the said plates are provided with perforations 16 and with

curved lips 17 which extend downwardly and rearwardly from the outer edges of the plates, in the manner seen in Fig. 9. After placing the rails on the tie and inserting the bolts 13 in the manner described, the lips 17 of the plates 14 are inserted through the openings 4 of the tie and the perforations 16 in the said plates caused to be passed over the upper threaded ends of the bolts 13 which will bring the beveled portions 15 of the plates in engagement with the base flanges of the rails, in manner seen in Figs. 2, 3 and 4, which are employed for securing the rails in the grooves, depressions or rail-seats of the tie, and for securely locking the said plates in such positions, nuts 18 are screwed onto the upper threaded ends of the bolts 13 for bringing the said plates in juxtaposition with the upper face of the tie and the base flanges of the rails. When in this position the lips 17 are disposed within the chamber formed by the curved and end portions 8 and 9 of the shield 6 and the heads of the bolts 13 are carried within the chamber formed by the portions 7 and 10 of the shield 6; and the extreme ends of the lips 17 are thrown up under and adjacent to the lower face of the top of the casing of the tie. It is intended that the length of the plates 14 from where the lips 17 extend therefrom to the outer edges of the beveled portions 15 shall be slightly longer than a radius extending from the point where the lips 17 merge into the plates 14 to the base of the rail web or where the same merges into the base flanges of the rail. By this construction in bringing the plates 14 down, the free ends will wedge against the web of the rails and firmly lock the same in the rail seats of the tie, all of which it is believed will be understood.

In Fig. 6 is shown a longitudinal sectional view of a portion of a tie which is adapted to be composed of a casing filled with a composite filling, but in this instance the casing is cast or molded from a suitable metal instead of being stamped or pressed from a sheet of steel as shown in Fig. 1. In this instance the depression in the tie for receiving the rail is substantially the same as shown in Fig. 1 and there is provided the series of perforations to correspond to the perforations 4, 5 and 5^a, which are best seen in Fig. 1. In casting or molding the casing it is preferable to provide the same with the end closure 19, the longitudinal strengthening rib 20, the short vertical ribs 21 and the ribs 22. It is not thought necessary to describe in detail the arrangement of the rail-seats or the perforations which are similar to those in Fig. 1 nor to refer to the same by reference numeral, as the view is simply made to illustrate that if it is thought advisable the casing for the composite filling may be cast instead of pressed or stamped, all of which it is believed will be understood.

Figs. 7 and 8 illustrate the application of the securing plates 14 to a tie which is made entirely of metal and preferably in the form of an I beam. The beam is provided with 5 depressions for the reception of the rail substantially like that shown in Fig. 1 and in the top of the beam and on each side of the depression and upon the opposite sides of the web thereof, the same is provided with 10 perforations (although not shown) which are similar to the perforations, 4, 5, and 5^a to adapt the carrying of the bolts 13 and the inserting of the lips 17 of the plates 14. The beam is indicated at 23 provided with the 15 web 24 and 25 indicates a transverse web extending from the base of the depression in the top of the tie to the lower flanges thereof, as seen in the figures. It is not thought necessary to refer to the rail-seat by numeral 20 nor to show or refer to by numeral the perforations which are similar to those referred to and indicated in Fig. 1, as the figures merely represent the application of the securing plates to a tie composed entirely of 25 metal.

The tie illustrated by the Figs. 1 to 5 has been constructed with a view to simplicity and durability, the movable and detachable parts all being interchangeable making it 30 very convenient when securing rails to the ties.

Having thus fully described my invention, what I claim and desire to secure by Letters Patent of the United States, is:—

35 1. In combination, a tie consisting of a metal casing the same provided with rail-seats and a series of perforations, a concrete filling for said casing, shields for the perforations in the casing disposed within said 40 casing, plates adapted to engage the base flanges of the rails for securing them in the rail seats of the casing, extensions of said plates adapted to be inserted through certain perforations of the casing to adapt the 45 plates to have a detachable and swingable connection therewith, and bolts passing through certain other of the perforations in the casing and the plates, and nuts for engaging said bolts.

50 2. A composite railway tie including a metallic main part comprising sides and a top, the top portion thereof provided with rail seats and a plurality of perforations upon opposite sides of said seats, a concrete 55 body in said main part, detachable plates for securing the rails in the seats aforesaid, lips bent downwardly and forwardly from said plates and adapted to be inserted through certain of said perforations and to

lie beneath and parallel with the top of said 60 main portion, and plates serving as shields between said concrete body and connecting means for said plates and lips thereof.

3. A composite railway tie including a metallic main part comprising sides and a 65 top, the top portion thereof provided with rail seats and a plurality of perforations upon opposite sides of said seats, a concrete body in said main part, detachable plates for securing the rails to the seats aforesaid, 70 lips bent downwardly and forwardly from said plates and adapted to be inserted through certain of said perforations and to lie beneath and parallel with the top of said main portion, and plates disposed in said 75 concrete body, each provided with horizontal depressed portions and concave portions, to provide shields for the connecting means between plates and said main portion and for the lips of said plates. 80

4. A railway tie including a metallic main part comprising sides and a top, the top portion thereof formed with depressions serving as rail-seats and also provided with a plurality of perforations upon opposite 85 sides of said depressions, a concrete body in said main part, transverse connecting means for the sides of said main part which also serve as a strengthening means for said concrete body, plates having engagement with 90 the webs of the rails and provided with spaced extensions adapted to extend down through certain of said perforations in the tie, and shields for said extensions in the tie.

5. As a new article of manufacture, a 95 railway tie including a metallic main part composed of sides and a top, the top formed with a pair of transverse depressions, and said top on the opposite sides of said depressions provided with two sets of per- 100 forations, one set of perforations being substantially rectangular in outline to receive the extensions of suitable rail securing plates, the other set of such perforations being substantially key-hole shaped openings 105 to receive the heads and body portions of bolts for securing the rail-securing plates on the tie, a concrete filling for the tie, and transverse securing and strengthening means for said side portions of the tie and concrete 110 filling.

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

JOSEPH WHITEHEAD.

Witnesses:

JOSEPH LEE

ADELBERT A. LUCKEY.