(No Model.) 2 Sheets—Sheet 1.

C. P. HAWLEY.

RAILROAD TIE.

No. 379,574. Patented Mar. 20, 1888.

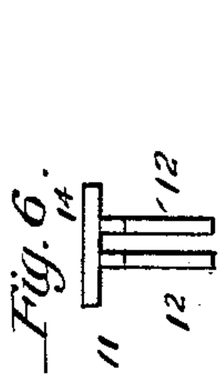

Fig. 6.

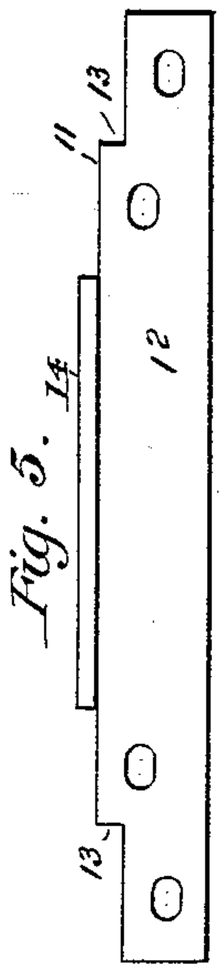

Fig. 5.

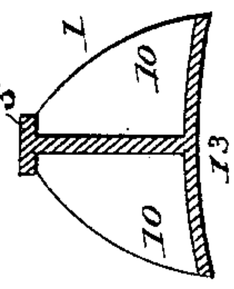

Fig. 4.

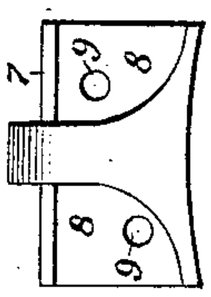

Fig. 3.

Fig. 1.

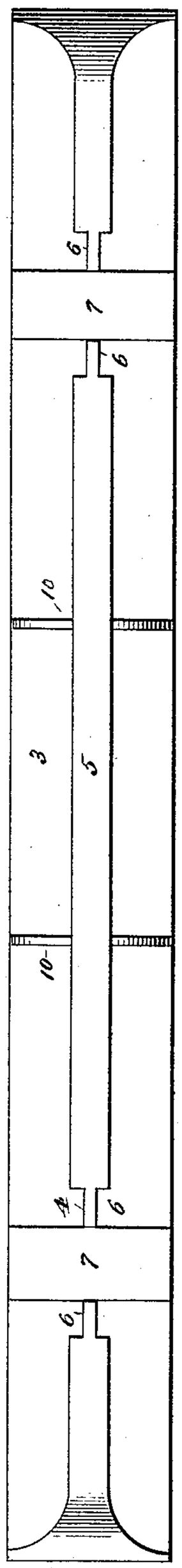

Fig. 2.

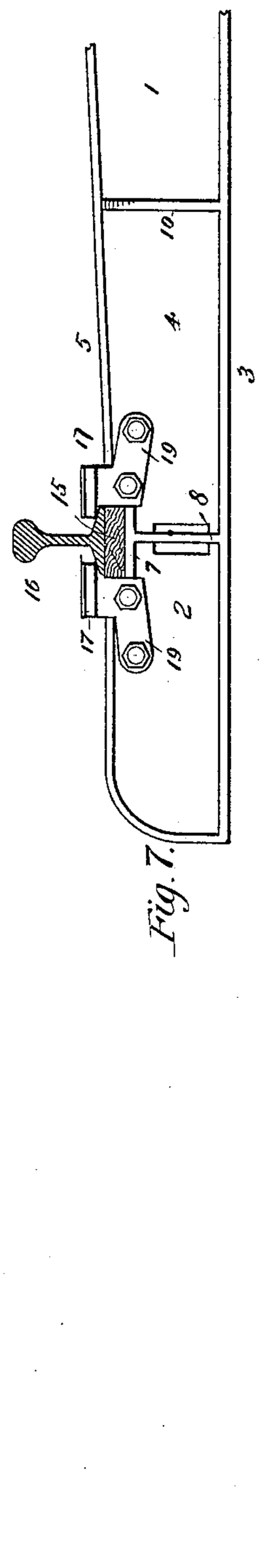

Fig. 7.

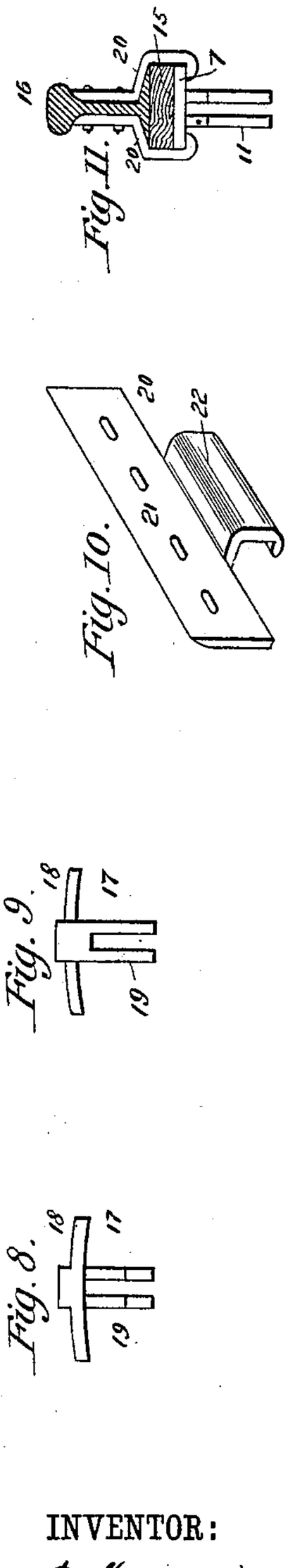

Fig. 11.

Fig. 10.

Fig. 9.

Fig. 8.

WITNESSES:

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C. Sedgwick.

INVENTOR:

C. P. Hawley.

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ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

C. P. HAWLEY.

RAILROAD TIE.

No. 379,574. Patented Mar. 20, 1888.

Fig. 13.

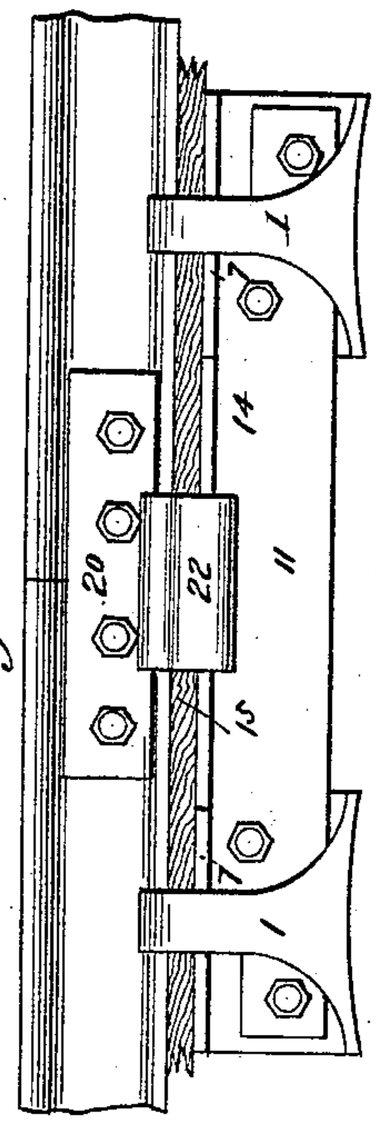


Fig. 16.

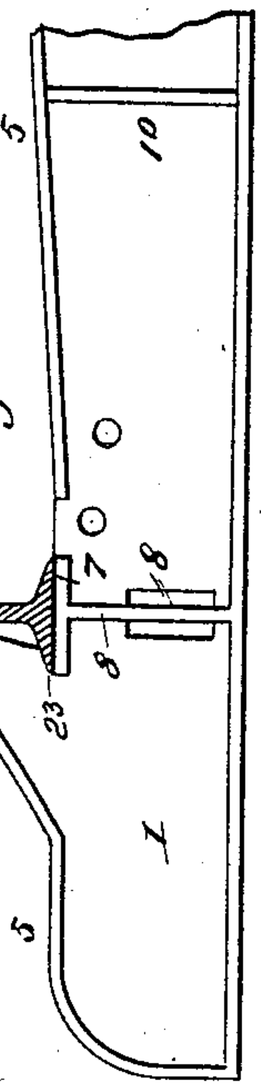


Fig. 17.

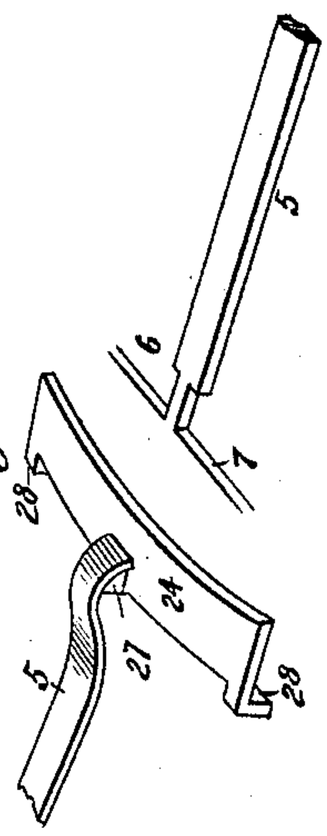


Fig. 20.

Fig. 12.

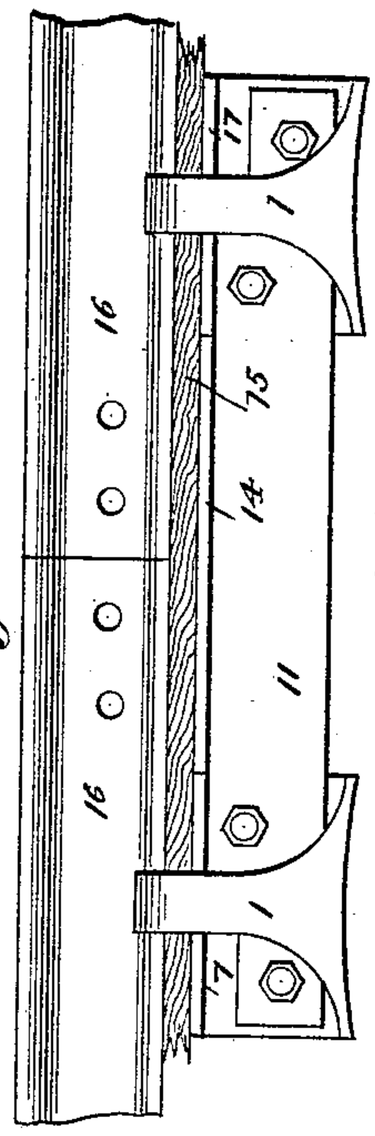


Fig. 14.

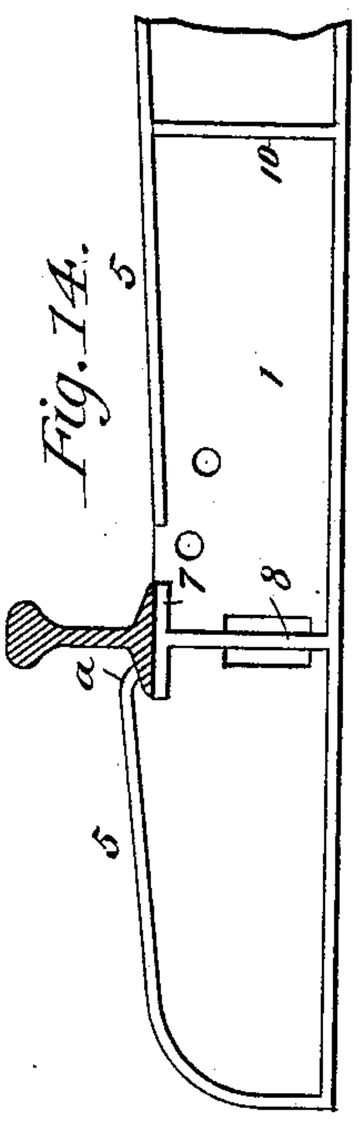


Fig. 15.

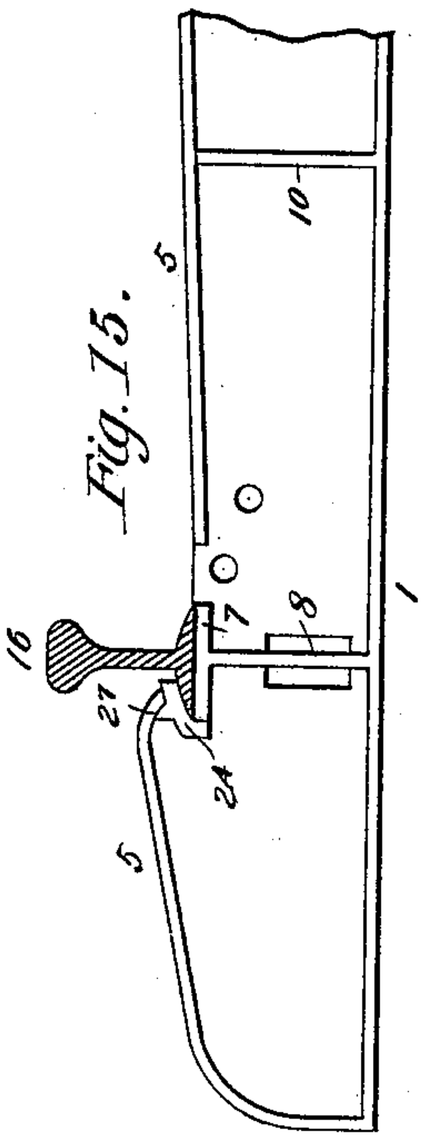
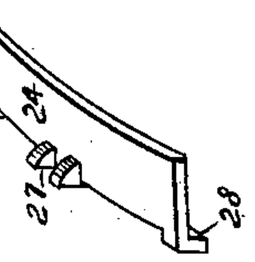


Fig. 19.

Fig. 18.



WITNESSES:

J. E. Clark.

C. Sedgwick.

INVENTOR:

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BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES P. HAWLEY, OF NEW YORK, N. Y.

RAILROAD-TIE.

SPECIFICATION forming part of Letters Patent No. 379,574, dated March 20, 1888.

Application filed June 25, 1887. Serial No. 242,485. (No model.)

To all whom it may concern:

Be it known that I, CHARLES P. HAWLEY, of the city, county, and State of New York, have invented a new and Improved Railroad-Tie, of which the following is a full, clear, and exact description.

My invention relates to an improvement in railroad-ties, and has for its object to provide a simple and effective tie, quickly and securely placed in position, and wherein a rail may be quickly and expeditiously removed and replaced, and wherein, further, the rail will be continuously supported the length of the track.

The invention consists in the construction and combination of the several parts, as will be hereinafter fully set forth, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the tie, and Fig. 2 is a plan view thereof. Fig. 3 is an end view. Fig. 4 is a transverse vertical section. Fig. 5 is a side elevation of the bridging rail-plate, and Fig. 6 is an end view of the same. Fig. 7 is a side elevation of the tie, illustrating the mode of fastening the rail; and Figs. 8 and 9 are end views of the rail-clamps. Fig. 10 is a perspective view of the fish-plate. Fig. 11 is an end view of the said fish-plates attached. Fig. 12 is an end view of the united ties and a side elevation of the rails at the joint, and Fig. 13 is a similar view illustrating the attachment of the fish-plate. Figs. 14, 15, and 16 are side elevations of the tie, illustrating modified forms of securing the rails. Figs. 17 and 18 are perspective views of the spring-plate employed in connection with the fastening shown in Fig. 15, and Figs. 19 and 20 are side elevations of the same.

In carrying out the invention, 1 represents a metal tie adapted for substitution for the ordinary wood ties now in use, consisting of an inverted-T-shaped body, 2, the base 3 of which is made more or less concavo-convex, the central vertical web, 4, being adapted to extend longitudinally from end to end, the ends being rounded downward, as shown in Fig. 1, and provided with a horizontally-flanged top, 5, as shown in section, Fig. 4, the said flange being recessed, as at 6, upon each side of the transverse plates 7, integral and flush with the top of said web, adapted to receive the rails, the flanged top 5 following the rounded ends of the vertical web 4 and curving and flaring to either side thereof until the entire width of the base 3 is embraced, forming a stay for the ends of the tie, as shown in Fig. 3. The transverse plates 7, which are of a length equal to width of the tie at the base, are supported by means of vertical braces 8, integral with the web and base of the tie, and likewise with the plates themselves, each brace 8 being provided with one or more apertures, 9, as shown in Fig. 3. Intervening the braces 8 a series of braces, 10, are provided the tie upon each side at suitable distances apart, which braces have curved outer edges and are adapted to strengthen the ties, as illustrated in Figs. 1 and 2.

The ties are connected by a bridge, 11, as illustrated in Figs. 12 and 13, consisting of two parallel and spaced plates, 12, having stepped ends 13, in which apertures are formed, the two plates being united by a horizontal rail-plate, 14, of a width equal to the width of the transverse plate 7, which plate 14, while covering the central portion of the bridge, does not extend to the ends, as shown in Fig. 5.

In connecting the ties the reduced ends of the plates 12 are passed through suitable apertures, 30, in the web, each side of the brace 8, and are bolted to the aforesaid braces by means of suitable bolts, as shown in Figs. 12 and 13, the ends of the rail-plates 14 being brought in contact with the ends of the transverse plates 7 and flush with the top thereof.

The transverse plates 7 are, as shown in Fig. 1, sunk below the flanged portion of the web. The recess thus produced is filled by beams of wood 15, which beams, resting upon the plates 7 and bridge 11, have their upper surface flush with the top of the tie, as shown in Fig. 7, and upon this beam the rails 16 are laid.

As a means of securing the rails in position and yet admitting of expansion and contraction, a spring-clamp, 17, is provided, consisting of a concavo-convex head, 18, of any suitable spring metal, provided with a slotted integral and angular shank, 19. The shanks 19, being entered over the recessed portion of the flanged web, are screwed to said web, as shown

in Fig. 7, the head 18 resting upon the upper face of the rail-base, holding the rail in a fixed position. By this means, while the rails may ride slightly under the action of the rolling-stock passing over them, they will be automatically returned to their normal position by the action of the spring-heads 18.

The fish-plates 20, provided for the rails, which are made to abut centrally upon the bridge 11, are constructed of the usual apertured plate, 21, having centrally integral with the lower edge an outwardly-extending more or less rectangular hook or clamp, 22, as illustrated in Fig. 10.

In attaching the fish-plates the hook or clamp 22 is made to engage the under surface of the rail-plate, as shown in Figs. 11 and 13, embracing the longitudinal edges of said plates, the wooden beams 15, and the base of the rails, the body of the fish-plates being secured in any approved manner to the web of the rails.

In securing the rails to the rail-plates one of the clamps 17 may be dispensed with and the flange portion of the web of the tie be carried upward and down to a bearing upon upper base surface of the rail, as shown at *a* in Fig. 14; or the said flange may be carried upward to a contact with the outer side face of the tread of the rail, and a recess, 23, be formed in the web to receive the base of the rail, as illustrated in Fig. 16.

In Fig. 15 substantially the same mode of fastening is employed as shown in Fig. 14. The recess in the web is, however, larger, and a spring-plate, 24, (shown in Figs. 17, 18, 19, and 20,) is made to intervene the flanges of the web, and the upper base surface of the rail adapted to bear upon the latter, the said spring-plate being provided with ears 27, engaging the said web under said flange, and lugs 28 adapted to engage the edge of the transverse rail-plate 7.

It will be observed that in the construction shown in Fig. 16 the rail is braced and supported in its weakest part while tightly held in position, and that in the construction illustrated in Fig. 15 the spring-plate will admit of the necessary expansion and contraction of the rail and automatically adapt itself to firmly retain the rail in position at all times.

It will be further observed that the rails, by means of the bridges connecting the ties, and the ties themselves, are supported at every point in their length, whereby a solid bed is provided and a smooth straight surface at all times presented to the wheels.

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

1. A metal railway-tie consisting of a substantially inverted-T-shaped body, a central longitudinal web having a flanged top provided with recesses to receive the rails, a transverse plate in said recesses, upon which the rails rest, central transverse braces integral with the web and base, and end braces integral with the web, base, and transverse plates, and means for securing the rails upon said plates, substantially as shown and described.

2. The combination, with metal railway-ties constructed substantially as shown and described, provided with recesses to receive the rails, transverse rail-plates in said recesses, and vertical transverse braces connected with said tie and plate, of a bridge adapted to connect the ties and carry the rails between said ties, and means for fastening the rails upon said transverse plates and joining said rails, substantially as herein shown and described.

3. The combination, with metal railway-ties constructed substantially as shown and described, provided with recesses to receive the rails, transverse rail-plates secured in said recesses, and vertical transverse braces integral with said ties and plates, of a bridge adapted to connect the ties and carry the rails between the ties, consisting of two parallel plates having reduced ends adapted to engage the said braces, and a rail-plate adapted to unite the aforesaid rail-plates of each tie, and means for securing the rails to said plates and joining the rails upon the bridge, substantially as herein shown and described.

4. The combination, with an inverted-T-shaped tie constructed substantially as herein shown and described, provided with recesses to receive the rails, transverse rail-carrying plates in said recesses, vertical transverse braces integral with the tie and plates, and a rail resting upon said plates, of clamps provided with a curved spring-head adapted to engage the rail, and a divided shank adapted to span the web of the tie and be secured thereto, substantially as shown and described, and for the purposes herein set forth.

CHARLES P. HAWLEY.

Witnesses:
LANSING VAN DEUSEN,
SANFORD VAN DEUSEN.