No. 706,587. Patented Aug. 12, 1902.

J. I. NEWBURG.

METALLIC SLEEPER OR TIE.

(Application filed Dec. 16, 1901.)

(No Model.)

Fig. 1.

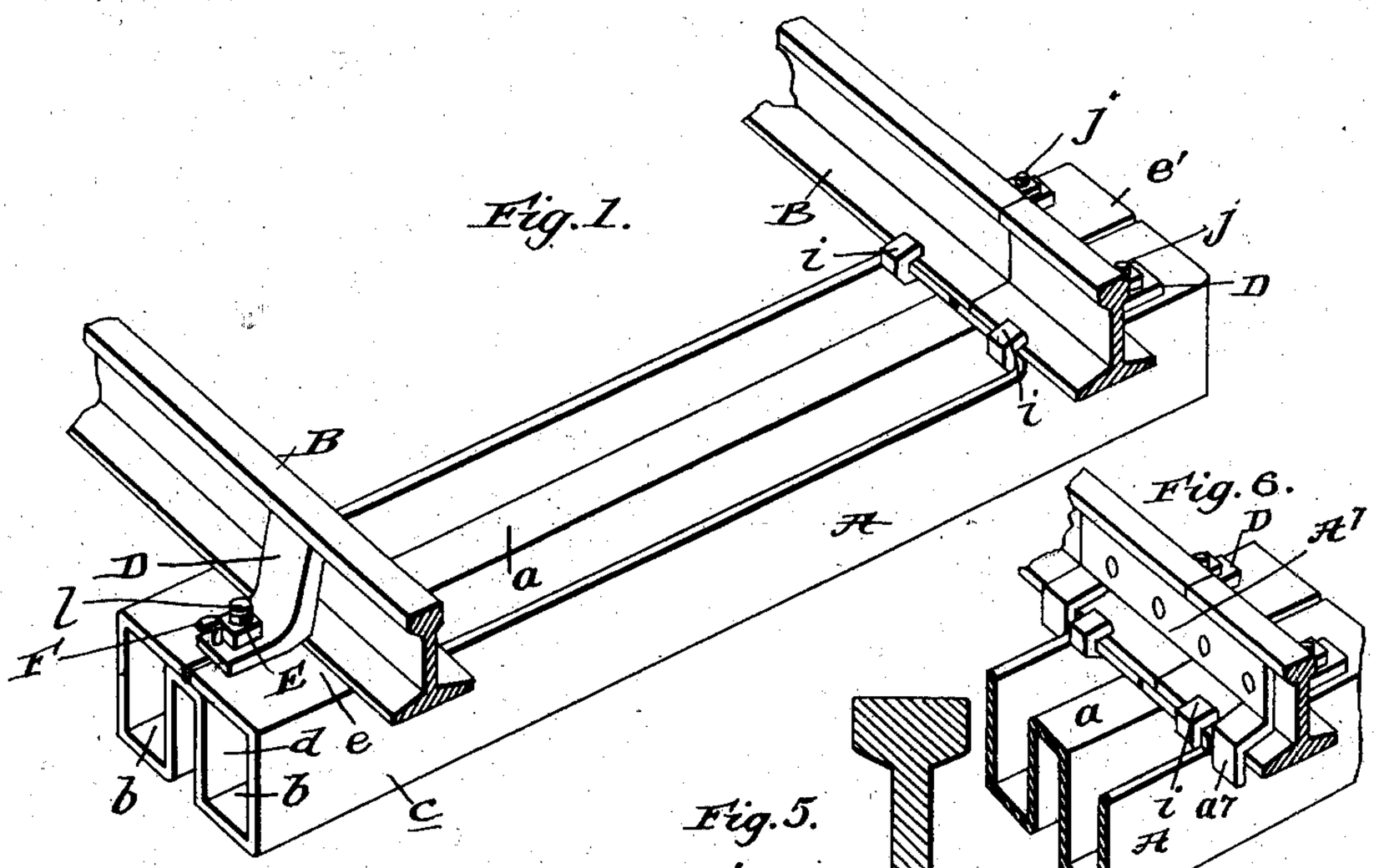


Fig. 6.

Fig. 5.

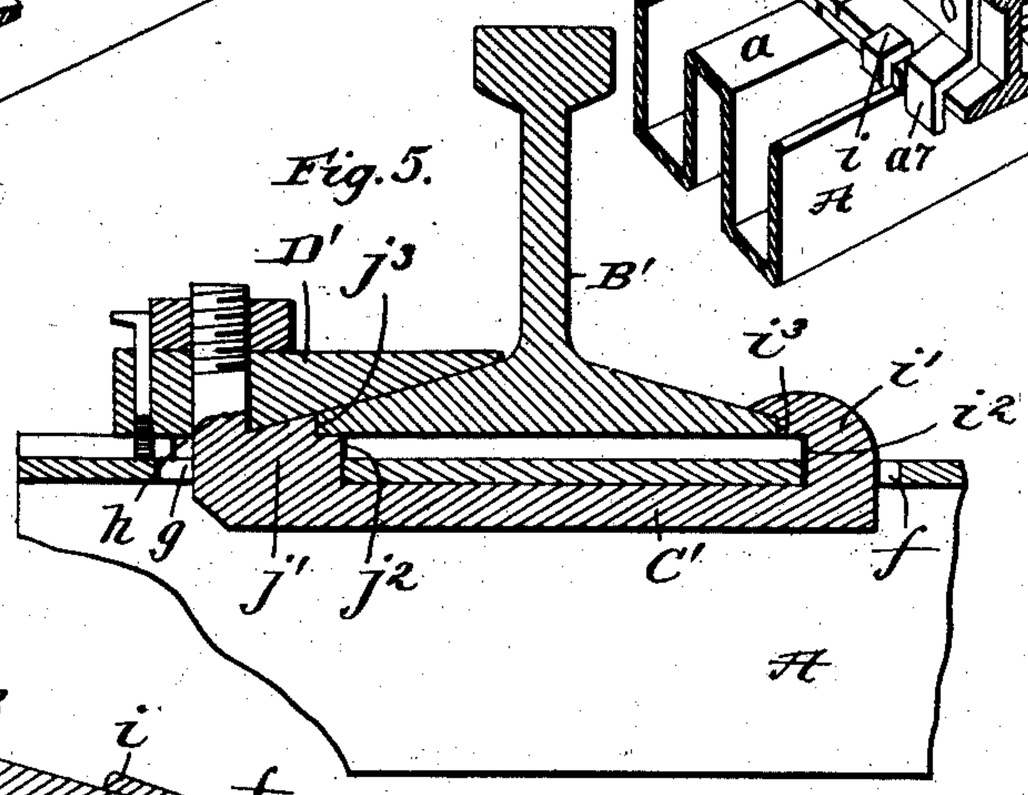


Fig. 2.

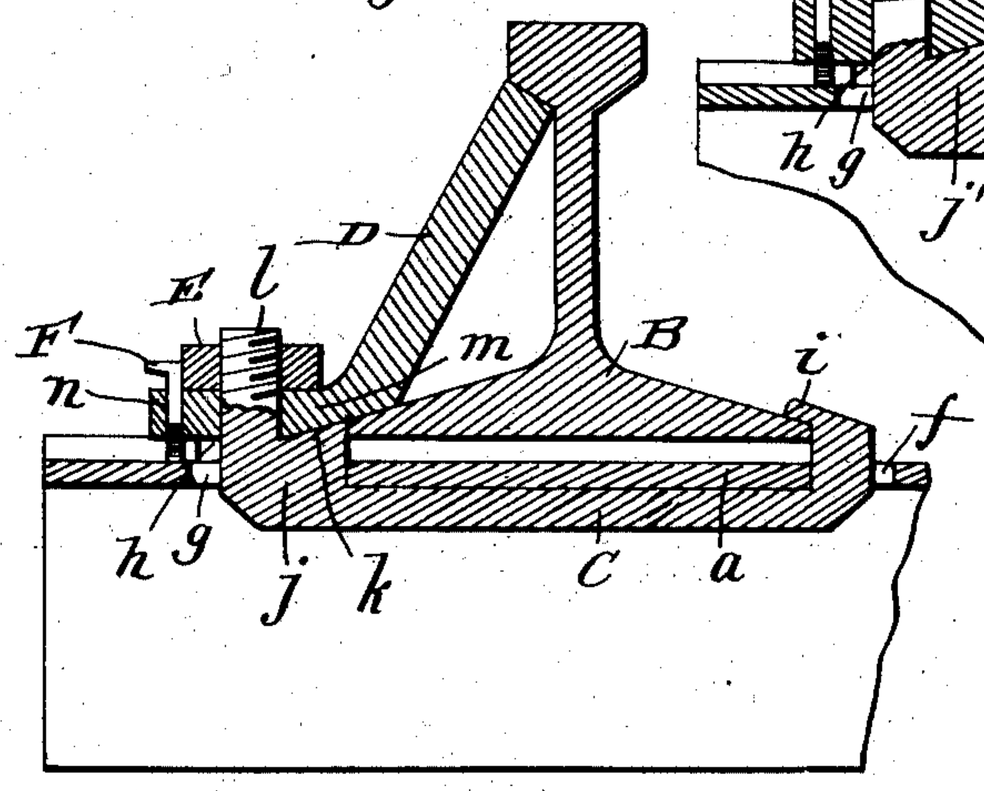


Fig. 3.

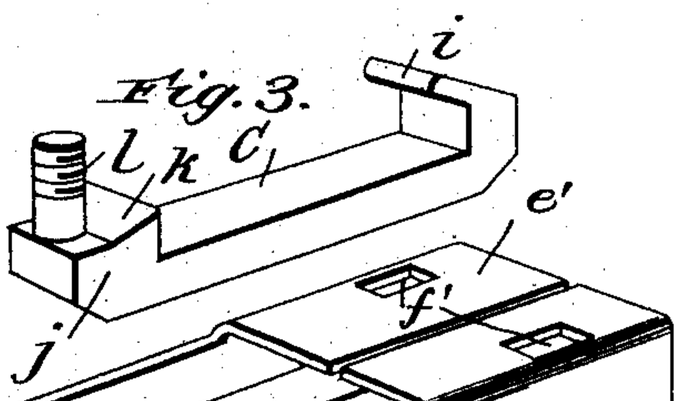
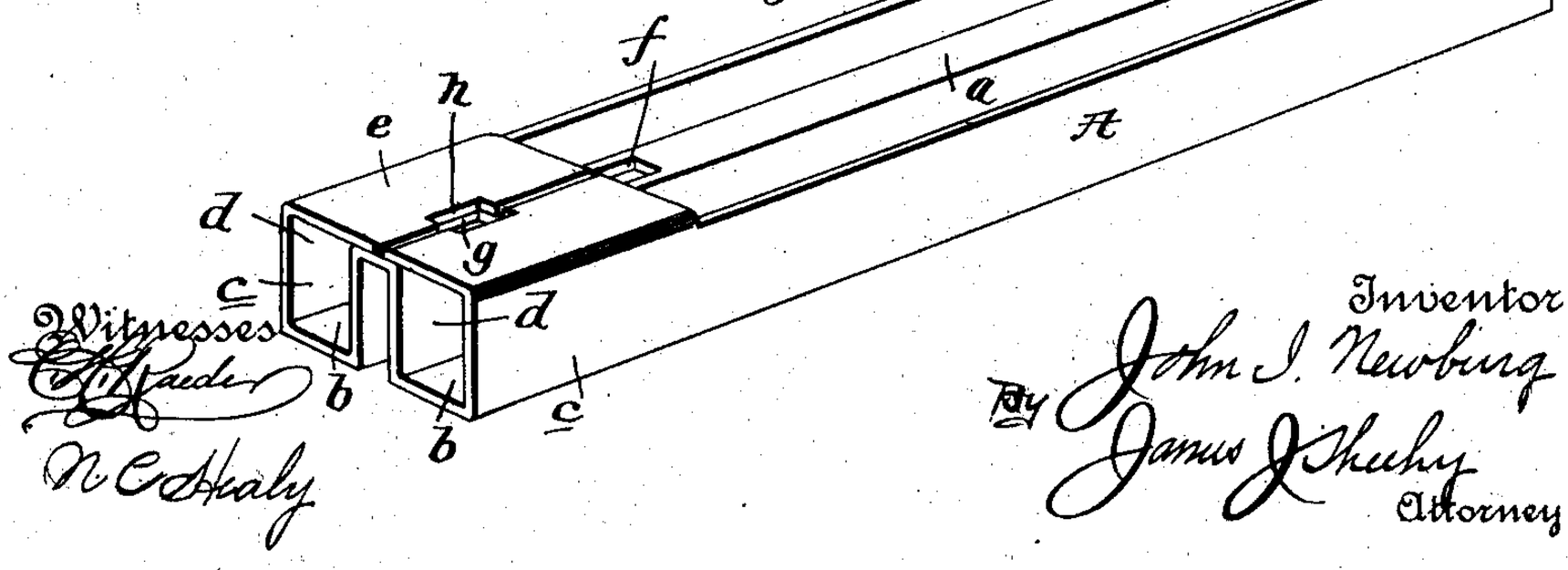


Fig. 4.



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JOHN ISRAEL NEWBURG, OF VICKSBURG, MISSISSIPPI.

METALLIC SLEEPER OR TIE.

SPECIFICATION forming part of Letters Patent No. 706,587, dated August 12, 1902.

Application filed December 16, 1901. Serial No. 86,107. (No model.)

To all whom it may concern:

Be it known that I, JOHN ISRAEL NEWBURG, a citizen of the United States, residing at Vicksburg, in the county of Warren and State of Mississippi, have invented new and useful Improvements in Metallic Sleepers or Ties, of which the following is a specification.

My invention relates to improvements in metallic sleepers or ties and means for fastening rails thereto; and it has for its objects, first, to provide a sleeper or tie of such construction that it is stiff and strong even when made of light sheet metal; second, to provide simple and inexpensive rail-fastenings for use in conjunction with straight and curved rails, respectively, said fastenings being susceptible of quick and easy application and adapted to effect strong and safe connections of the rails to the sleepers or ties, and, third, to provide a rail-fastening which, in addition to the advantages stated, is calculated to brace the head of a rail and reinforce the same against laterally-outward pressure.

The invention will be fully understood from the following description and claims when taken in conjunction with the annexed drawings, in which—

Figure 1 is a perspective view illustrating a sleeper or tie constructed in accordance with my invention and portions of straight rails secured thereon by my improved fastenings; Fig. 2, an enlarged detail section illustrative of the relative arrangement of the sleeper or tie, a rail, and the parts of one of the rail-fastenings; Fig. 3, a detail perspective view of the chair-bolt of the rail-fastening; Fig. 4, a perspective view of the sleeper or tie alone; Fig. 5, a view similar to Fig. 3, illustrating a modified means for fastening rails to the sleeper or tie at curves, where the gage of the track is ordinarily increased; and Fig. 6 a detail perspective showing an anti-creeping-plate.

Referring by letter to the said drawings, and more particularly to Figs. 1 to 4 thereof, A is my improved sleeper or tie, B B are rails of the usual construction, and C, D, and E are the chair-bolt, the rail holder and brace, and the nut, respectively, of the improved rail-fastening. The sleeper or tie is formed of a single piece of sheet metal of proper shape and size and is peculiar in that it comprises a longitudinal central portion *a* of inverted-U shape in cross-section, which extends throughout its length, bottom walls *b*, and side walls *c*, which also extend throughout its length, and serve, in conjunction with the portion *a*, to form channels *d*, adapted to receive ballast and also to drain water from the sleeper, and top walls *e e'*, which are of the proportional length illustrated and disposed at the ends of the sleeper, so as to expose the intermediate portions of the channels *d* and permit of the ready placing of ballast therein. The longitudinal central portion *a* lends rigidity and strength to the sleeper even when the same is formed of light sheet metal and also serves to support the meeting edges of the top walls *e e'*, which in turn are designed to support the rails, as shown in Fig. 1. Said portion *a* is provided in its top and at the inner ends of the walls *e* with an elongated aperture *f*, and it is also provided in its top portion, below the walls *e*, with an elongated aperture *g*, arranged coincident with a similar aperture *h*, formed by notches in the meeting edges of said walls. The chair-bolt C of the rail-fastening (shown in Fig. 2 and at the left of Fig. 1) is disposed longitudinally in the sleeper portion *a*, immediately below the top thereof, and is provided at its inner end with a hook-shaped head *i*, which extends upwardly through and abuts against the outer end wall of the aperture *f* and engages and holds one edge of the base of the rail B. At its outer end said chair-bolt is provided with an angular arm *j*, which extends upwardly through the coincident apertures *g h* of the sleeper and has its upper edge beveled in conformity with the upper side of the base of the rail, as indicated by *k*, and also has a reduced and threaded portion *l*. The beveled upper edge of the arm *j* and the upper side of the base of the rail form a rest for the correspondingly-beveled base *m* of the rail-holder and brace D, which base has an aperture receiving the threaded portion of the bolt and is secured thereon by a nut E. Said base is also provided with an aperture *n* to receive a pin F, the lower end of which is beveled or wedge-shaped, as best shown in Fig. 2, so as to enable it to enter

between and be securely held by the meeting edges of the sleeper-walls *e*. The pin F, secured in the manner described at the outer side of the nut E, obviously constitutes a nut-lock which is at once very simple and efficient.

It will be appreciated from the foregoing that when the parts of my improvements are assembled in the positions shown in Fig. 2 a strong and durable connection of the rail to the sleeper is effected and one which will not interfere with free expansion and contraction of the rail; also that the combined rail-holder and brace D, the upper end of which is disposed below and in engagement with the outer side of the head of the rail, is calculated to reinforce the same and enable it to withstand the great lateral pressure imposed on it by the flanges of car-wheels. It will be further appreciated that when the head of the rail B is subjected to laterally-outward pressure the head *i* of the chair-bolt, abutting against the outer end wall of the aperture *f* and also against the inner ends of the sleeper-walls *e*, will strongly hold the rail against outward movement. Inward lateral movement of the rail will obviously be prevented by the arm *j* of the chair-bolt abutting against the inner end walls of the apertures *g h* of the sleeper.

The rail-fastening, arranged as described with reference to the sleeper or tie, is designed for use when a rail rests at an intermediate point of its length on the sleeper or tie, as shown at the left of Fig. 1, and in order to adapt the sleeper or tie for connection through the medium of my improved fastenings with the meeting ends of two rails arranged thereon, as shown at the right of Fig. 1, I provide the sleeper-walls *e'* with openings *f'*, disposed at opposite sides of the longitudinal central portion *a*. Said apertures *f'* are designed to receive the arms *j* of chair-bolt C, which have their heads *i* arranged in engagement with the inner ends of the walls *e'* and the inner edges of the rail-bases and are provided with the same appurtenances as the chair-bolt C. (Shown in Fig. 2.)

When desirable, the sleeper or tie in lieu of having the walls *e* at one end and walls *e'* at its other end may have either walls *e* or walls *e'* at both of its ends, or if it is desired to adapt the sleeper or tie for use either beneath an intermediate point of a rail or beneath the meeting ends of two rails it may be provided with walls *e* at its opposite ends, and said walls in addition to apertures *h*, arranged coincident with apertures *g* in the portion *a*, may have apertures *f'* without departing from the scope of my invention.

The rail-fastening means shown in Figs. 1 to 4 are designed more particularly for fastening straight rails to the sleeper or tie, while the means shown in Fig. 5 is designed to fasten a rail to a similar sleeper or tie A at a curve, where the gage of the track is ordinarily slightly increased. The chair-bolt C' of the latter means is similar to that shown in Fig. 2, with the exceptions that its hook-shaped head *i'* is stepped—*i. e.*, provided with two abutments i^2 i^3 to engage the inner ends of the sleeper-walls *e* and outer end wall of the opening *f* and the inner edge of the rail-base, respectively—and the inner side of its arm *j'* is stepped or provided with two abutments j^2 j^3 to engage the outer ends of the sleeper portions *a e* and the outer edge of the rail-base, respectively. By virtue of the abutments which engage the opposite edges of the rail-base being disposed in planes farther outward than the planes of the abutments which engage the sleeper or tie it will be readily observed that the curved rail B' will be held nearer the end of the sleeper or tie than the rail B in Fig. 2, and the gage of the track at the curve will be increased, as is desirable, and this without entailing alteration of the sleeper or tie A. The rail-holder D' (shown in Fig. 5) simply rests over the outer portion of the rail-base. It might, however, be extended up to the head of the rail in the same manner and for the same purpose as the combined holder and brace D, if desired, without departing from the scope of my invention.

With a view of holding the meeting ends of the rails on the sleeper or tie and preventing creeping of the rails I provide the plate A^7. (Shown in Fig. 6.) This plate is bolted or otherwise connected to the rails and has one or more depending portions a^7 extending below the plane of the upper side of the sleeper or tie and arranged to engage the same, and hence it is enabled to securely hold the joint—*i. e.*, the meeting ends—of the rails together and against movement off the sleeper or tie and the rails against creeping or casual endwise movement.

I have entered into a detailed description of the construction and relative arrangement of parts embraced in the present and preferred embodiment of my invention in order to impart a full, clear, and exact understanding of the same. I do not desire, however, to be understood as confining myself to such specific construction and arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my claims.

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

1. A sleeper or tie formed of sheet metal and comprising a longitudinal central portion of inverted-U shape in cross-section, bottom walls and side walls serving in conjunction with the longitudinal central portion to form channels, and a top wall supported by the longitudinal central portion.

2. A sleeper or tie formed of sheet metal, and comprising a longitudinal central portion of inverted-U shape in cross-section, bottom walls and side walls serving in conjunction

with the longitudinal central portion to form channels, and top walls arranged at opposite ends of the sleeper or tie so as to expose the portions of the channels between them; said top walls having their meeting edges arranged on the longitudinal central portion, and being provided with openings to receive rail-fastening devices.

3. The combination of a sleeper or tie having a top wall, a rail arranged on said top wall, a chair-bolt disposed below the top wall and having an upwardly-extending, hook-shaped head at one end engaging one edge of the rail-base and one edge of the top wall, and an arm at its opposite end extending above the top wall at the opposite side of the rail-base with reference to the hook, and a combined rail holder and brace secured on the arm of the bolt and having its upper portion arranged against the under side of the head of the rail so as to support the same.

4. The combination of a sleeper or tie having a top wall provided with an opening, a rail arranged on said top wall, a chair-bolt disposed below the top wall, and having an upwardly-extending hook-shaped head at one end engaging one edge of the rail-base, and one edge of the top wall, and an arm at its opposite end extending upwardly through the opening in the top wall of the sleeper, and provided with a beveled upper edge and the reduced and threaded portion, a rail-holder resting over and beveled in conformity to the rail-base and the edge of the arm of the bolt, and having an aperture receiving the threaded portion of the bolt, and a nut securing the holder on the bolt.

5. The combination with a sheet-metal tie comprising a longitudinal central portion of inverted-U shape in cross-section having apertures *f g* in its top, bottom and side walls serving in conjunction with said longitudinal central portion to form channels, and top walls having their meeting edges arranged on the longitudinal central portion and provided with notches forming an aperture *h* coincident with the aperture *g;* of a rail arranged on the top walls of said sleeper, a chair-bolt arranged in the longitudinal central portion of the sleeper, and having an upwardly-extending hook-shaped head at one end extending through the aperture *f* and engaging the inner ends of the top walls of the sleeper, and one edge of the rail-base, and an arm at its opposite end extending through the apertures *g h* of the sleeper, a rail-holder arranged on said arm and resting over the rail-base, and means for securing said brace on the arm of the bolt.

6. The combination with a sheet-metal tie comprising a longitudinal central portion of inverted-U shape in cross-section having apertures *f g* in its top, bottom and side walls serving in conjunction with said longitudinal central portion to form channels, and top walls having their meeting edges arranged on the longitudinal central portion and provided with notches forming an aperture *h* coincident with the aperture *g;* of a rail arranged on the top walls of said sleeper, a chair-bolt arranged in the longitudinal central portion of the sleeper, and having an upwardly-extending hook-shaped head at one end extending through the aperture *f* and engaging the inner ends of the top walls of the sleeper, and one edge of the rail-base, and an arm at its opposite end extending through the apertures *g h* of the sleeper, and provided with a threaded portion, a rail-holder arranged on the threaded portion of the bolt, and provided with an aperture *n*, a nut on the threaded portion of the bolt above the holder, and a pin arranged at the side of the nut, and having the beveled end inserted between the meeting edges of the top wall of the sleeper.

7. A rail-fastening means comprising a chair-bolt having an upwardly-extending hook-shaped head at one end, and an upwardly-extending arm at its other end provided with a beveled upper edge and a reduced and threaded portion, a rail-holder resting over and beveled in conformity with the edge of the arm of the bolt, and a nut securing the holder in the bolt.

8. A rail-fastening means comprising a chair-bolt having an upwardly-extending hook-shaped head at one end provided at its inner side with a plurality of abutments, and also having an upwardly-extending arm at its other end provided at its inner side with a plurality of abutments, and a rail-holder secured on said arm of the bolt.

9. The combination of a sleeper or tie having a top wall provided with an opening, a rail arranged on said top wall, a chair-bolt disposed below the top wall and having an upwardly-extending hook-shaped head at one end provided with an abutment i^3 engaging one edge of the rail-base, and an abutment i^2 engaging one edge of the top wall, and also having an arm at its opposite end extending upwardly through the opening in the top wall of the sleeper and provided with an abutment j^2 engaging one edge of said wall, and an abutment j^3 engaging one edge of the rail-base, and a rail-holder resting over the rail-base and secured on said arm of the chair-bolt.

10. The combination of a sleeper or tie formed of sheet metal, and comprising a longitudinal central portion of inverted-U shape in cross-section, bottom walls and side walls serving in conjunction with the longitudinal central portion to form channels, and top walls arranged at opposite ends of the sleeper or tie so as to expose the portions of the channels between them; the top walls having their meeting edges arranged on the longitudinal central portion, and those at one end of the sleeper or tie being provided at either side of the longitudinal central portion with apertures *f'*, the meeting ends of two rails arranged on the said apertured top walls of the

sleeper or tie, chair-bolts connecting said rails and top walls, and a plate bolted to and connecting said meeting ends of the rails and having a depending end portion or portions extending below the plane of the upper side of the sleeper or tie, and arranged to engage the same.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOHN ISRAEL NEWBURG.

Witnesses:
D. J. THLENKER,
GUSTAV SIVA.