G. L. MANSFIELD.

COMBINED GUARD RAIL CLAMP AND TIE PLATE.

APPLICATION FILED APR. 4, 1908.

919,741.

Patented Apr. 27, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

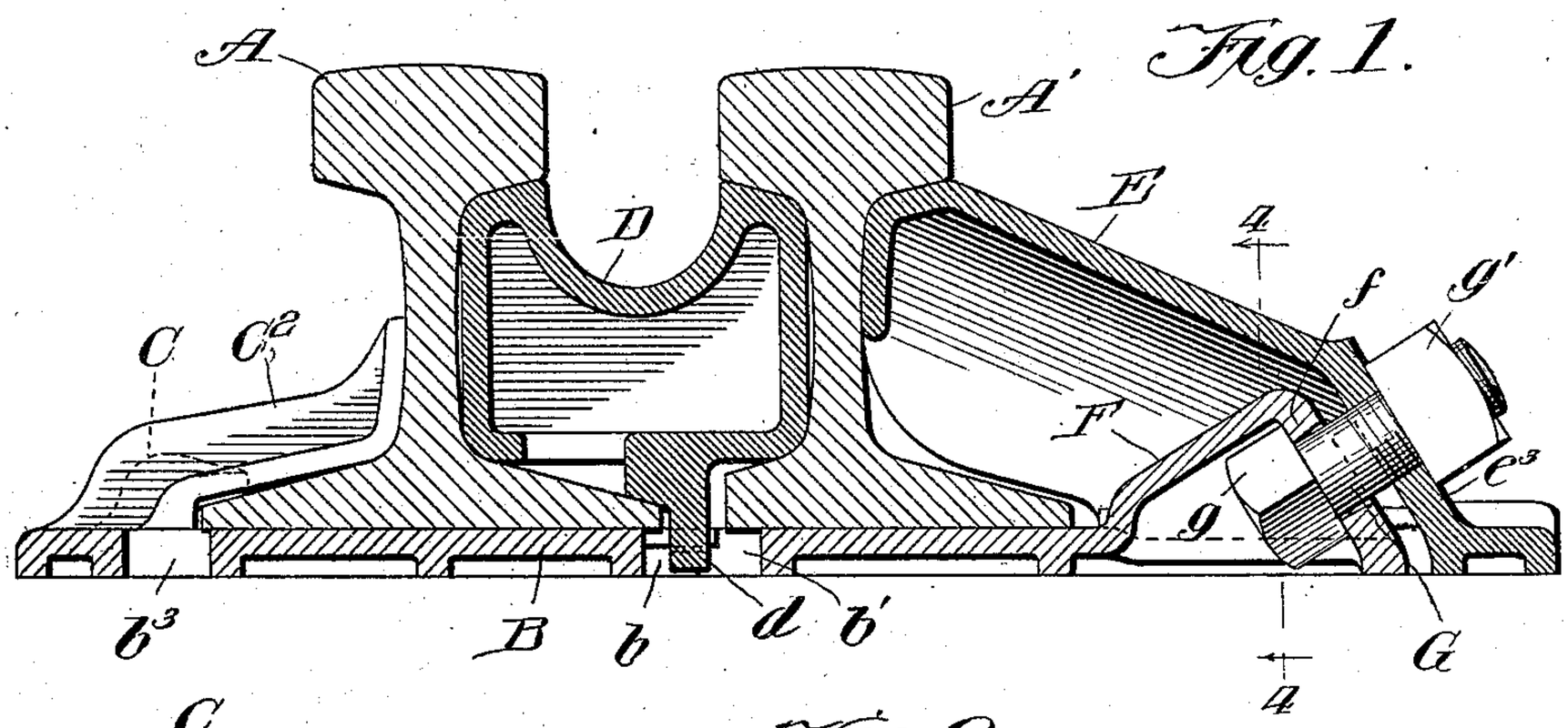


Fig. 2.

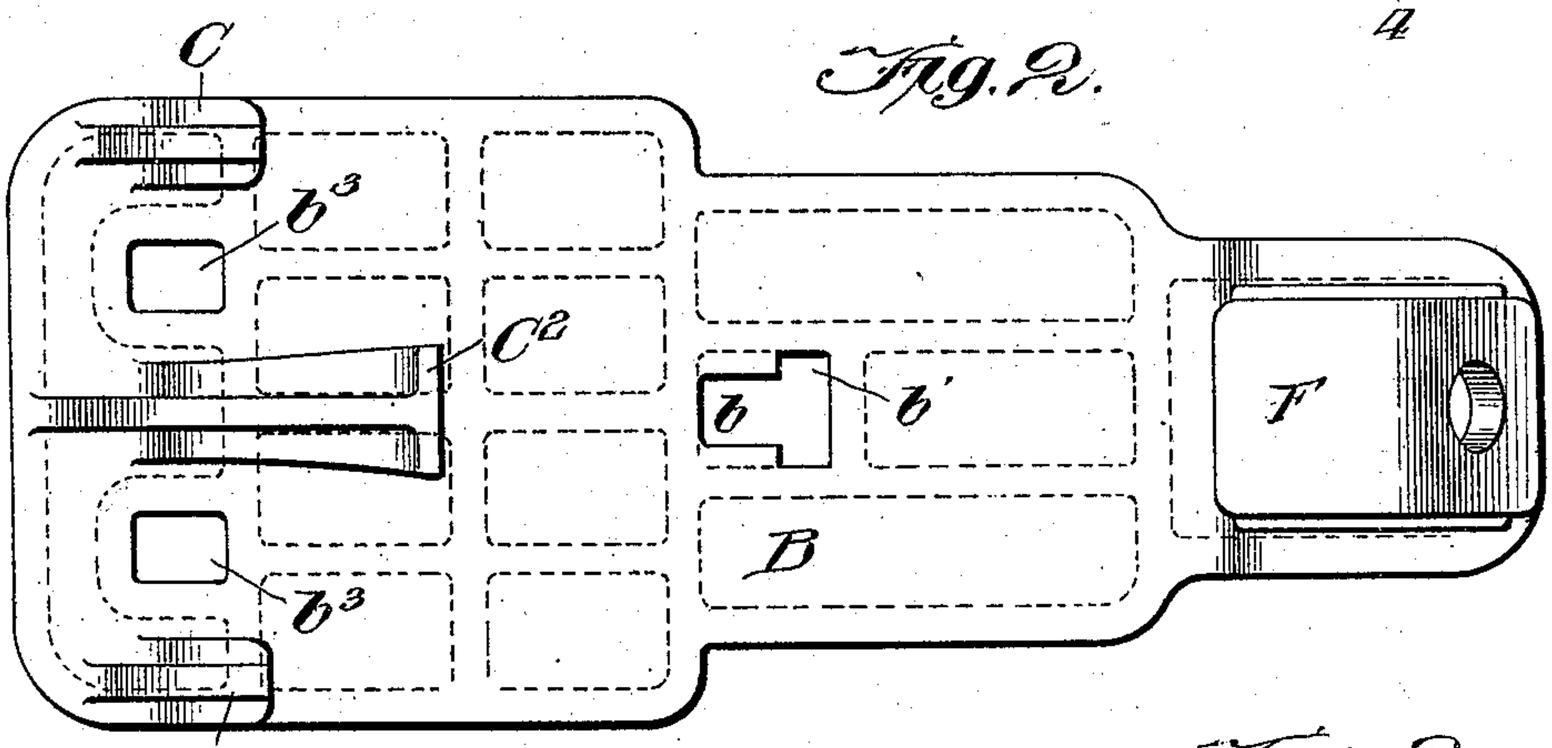


Fig. 4.

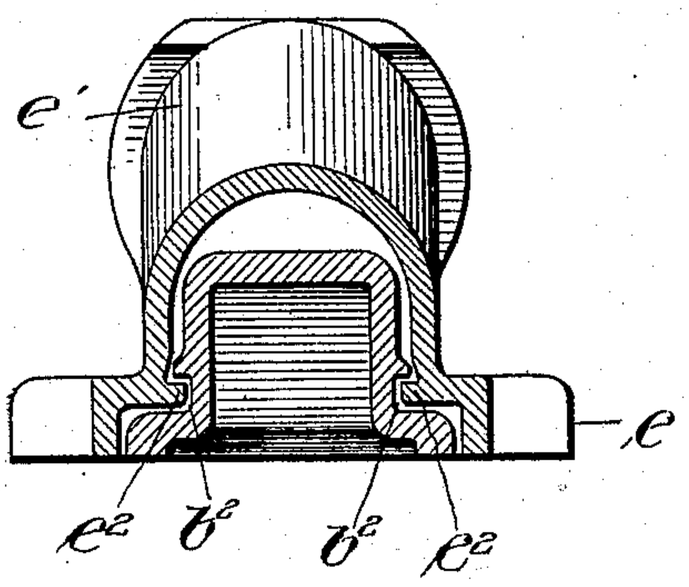
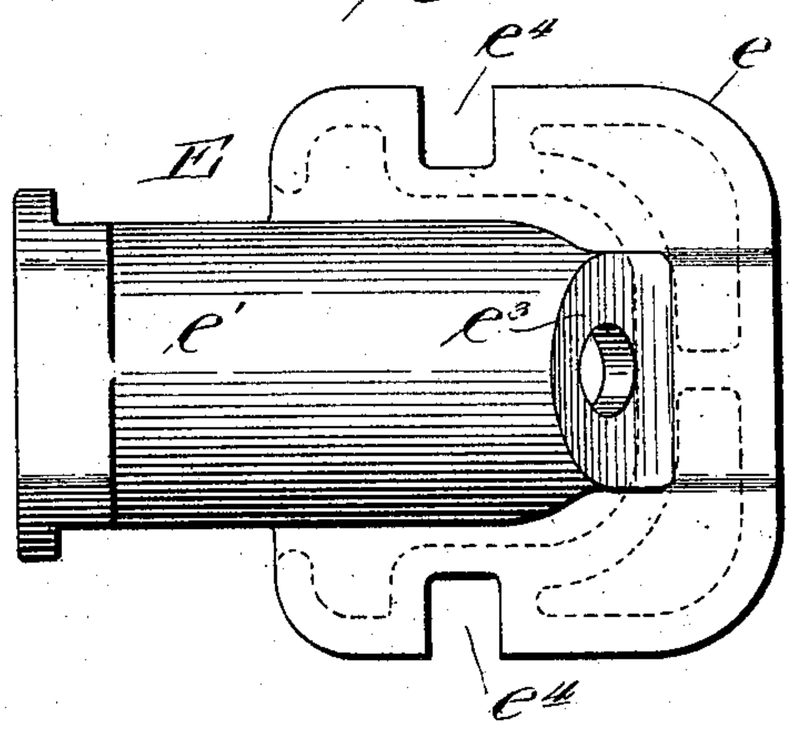


Fig. 3.



Witnesses:
Harry S. Gaither
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2 SHEETS—SHEET 2.

Fig. 5.

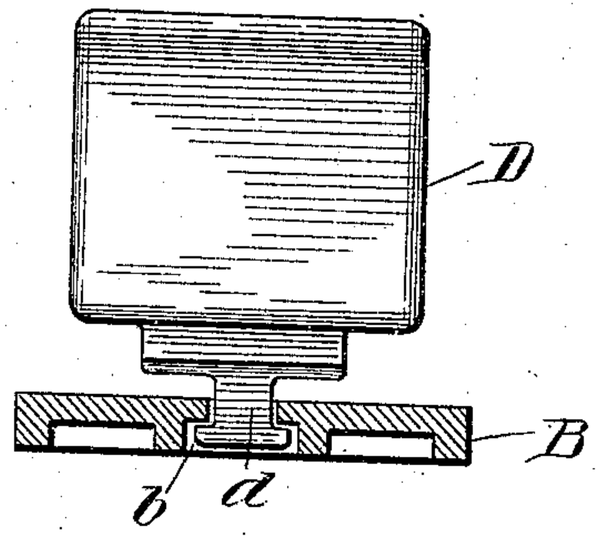


Fig. 6.

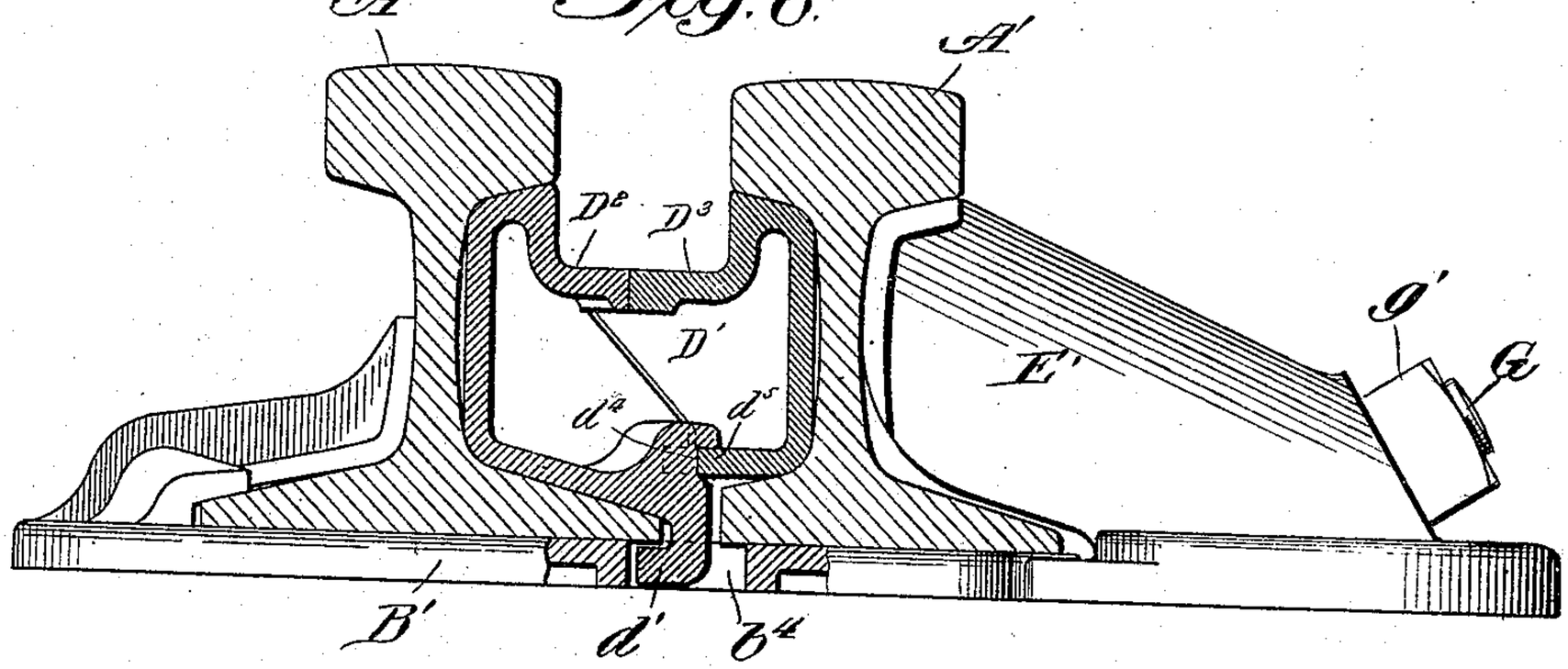
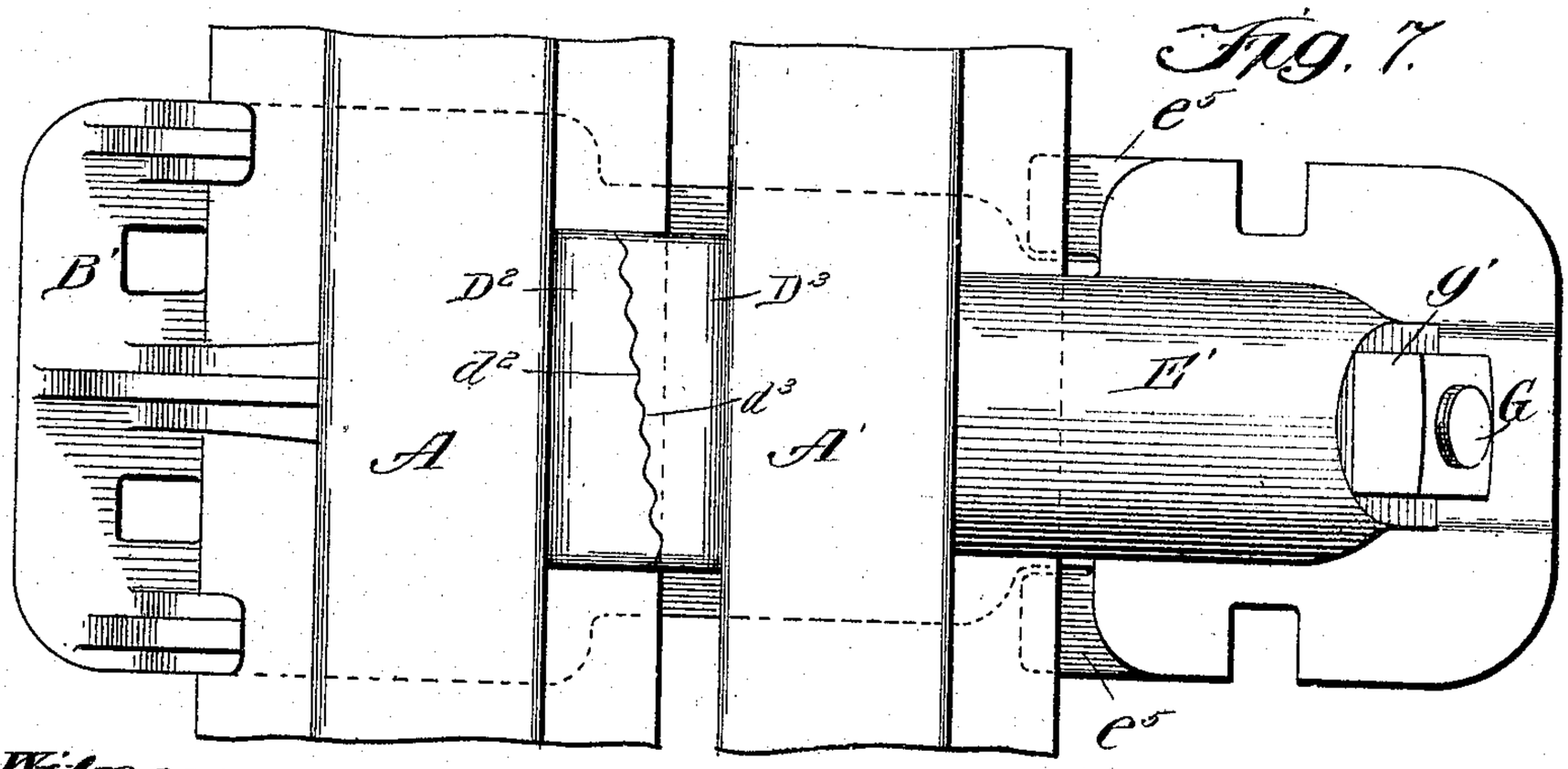


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE L. MANSFIELD, OF CHICAGO, ILLINOIS.

COMBINED GUARD-RAIL CLAMP AND TIE-PLATE.

No. 919,741. Specification of Letters Patent. Patented April 27, 1909.

Application filed April 4, 1908. Serial No. 425,112.

To all whom it may concern:

Be it known that I, GEORGE L. MANSFIELD, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented a certain new and useful Improvement in a Combined Guard-Rail Clamp and Tie-Plate, and declare the following to be a full, clear, and exact description of the same, such as will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to railway construction and more particularly to devices for securing guard-rails adjacent the traffic rails, and has for its object to simplify and improve such devices.

As subsidiary to its main object my invention has as further objects the provision of means for firmly tying a guard-rail and a traffic rail together without making it necessary to drill holes in or otherwise perforate the rails; which will positively lock the rails together into one rigid whole; whereby compensation for wear may be conveniently and effectively made; and whereby a support, of the nature of a tie-plate, is provided between the bases of the rails and the tie.

The various features of novelty whereby my invention is characterized will be hereinafter pointed out with particularity in the claims, but for a full understanding of my invention and of its various objects and advantages reference may be had to the following detailed description taken in connection with the accompanying drawing, wherein:

Figure 1 is a transverse section through a traffic rail and a guard rail which are united and supported in accordance with a preferred embodiment of my invention; Fig. 2 is a top plan view of the base member; Fig. 3 is a top plan view of a combined adjustable clamp member and brace; Fig. 4 is a section taken on line 4—4 of Fig. 1, the bolt and the rails being omitted; Fig. 5 is a side elevation of a combined spacing and clamping block and a cross section of the base member showing the manner of locking the block to the base member; Fig. 6 is a transverse section through a pair of rails showing in side elevation a slightly modified form of the present invention, parts being broken away to more clearly show other parts which would otherwise be hidden; and Fig. 7 is a plan view of the arrangement shown in Fig. 6.

Referring to the drawing, A and A′ are a pair of rails, as for example, a traffic rail and a guard rail, respectively, which it is desired to tie together and support. In accordance with my invention as illustrated in Figs. 1 to 5 I provide an elongated base plate B which is adapted to rest upon a tie and support the bases of the rails upon its upper surface. At one end of the base member is a stationary jaw which is preferably formed integral with the base plate and is adapted to overlie the base flange of the rail A on the outer side thereof. This jaw may be variously formed as, for example, it may consist of a pair of short ears C and C′ adjacent the side edges of the base and an intermediate member C^2. The members C and C′ are adapted to overlie the base of the rail for a short distance only, while the member C^2 preferably extends to the web of the rail so as to act as a strut or brace for preventing tilting of the rail.

D is a block, preferably hollow as shown, which acts as a spacing device, the block lying between the two rails and fitting between the heads and bases thereof. On the under side of the block is a hook *d* which is adapted to be engaged with a part of the base plate so that the block not only serves as a spacing device but also holds the rails down upon the base member. The hook may take various forms as for example it may be T-shaped as shown and engage with the base plate through a key-hole slot therein. The slot is preferably so located that when the parts are all in their normal operative positions the wide end *b′* thereof through which the T-shaped hook is inserted is wholly or partially covered by the base of the rail A′. The block is of course locked to the base plate before the rail A′ is placed in position and thereafter it cannot be removed, accidentally or otherwise, without first shifting the guard-rail laterally.

At the end of the base member opposite to that at which the stationary clamping jaw is situated is arranged an adjustable jaw for engaging the outer side of the guard rail and forcing it laterally toward the other rail until the two rails and the spacing block are clamped firmly together. The adjustable jaw may conveniently consist of a member E in the form of a rail brace, that is having a base flange *e* and an upwardly extending strut or column *e′* which is adapted to fit under the head and against the web

of the rail A′ on the outer side thereof. The member E may also be provided with inwardly projecting ribs or shoulders e^2 adapted to enter into grooves b^2 in the base member B so as to lock the two members against relative movements in the vertical direction. The brace member is preferably made hollow so as to provide room within the interior thereof for an upward projection F on the base plate. This projection is also hollow so as to provide room therein for the head g of a bolt G, the bolt passing through the outer wall f of the projection and a parallel wall e^3 on the brace member. g' is a nut on the outer end of the bolt. It will be seen that when the bolt is interted and the nut tightened the two rails will be rigidly locked together and braced without making it necessary to perforate the rails or either of them or to use more than a single bolt or equivalent fastening means. The bolt is preferably inclined so that when the nut is tightened a downward holding force upon the brace member as well as a horizontal holding force is provided.

In placing the device in position the base member is adapted to rest directly upon a tie and may be fastened thereto by any suitable fastening means such as spikes passing through openings b^3 provided at one end and similar fastening means passing through openings e^4 in the base flange of the member E.

While I have illustrated the device as being provided with fixed and adjustable jaws, it will of course be evident that both jaws may be made adjustable if desired, particularly where the device is to be used upon a curve in a track and the jaw engaging the traffic rail can take the place of the usual rail brace. In that case it will be well to make both ends of the device alike, that is, duplicate, the arrangement shown at the right hand side of Fig. 1, thereby permitting the combined jaws and braces and the fastening bolts to be interchanged.

In Figs. 6 and 7 I have illustrated a somewhat different form the only variation being, however, that the spacing block and the combined bracing and clamping jaw do not interlock with the base plate but directly with the rails. Thus B′ is the base plate which, instead of having a key-hole slot, is provided with a plain slot b^4 of sufficient size to receive a hook d' depending from the spacing block D′ and underlying the edge of the base of the rail A. The two rails are preferably arranged close enough together that the hook cannot be withdrawn while the rails occupy their normal positions. The combined brace and clamping jaw E′, is provided with a pair of lugs e^5 which project beneath the base of the rail A′. Otherwise the two constructions may be the same.

If desired in either modification, the spacing block may be made adjustable so as to be adaptable to situations requiring different spacings between the rails. To this end the spacing block may conveniently be divided longitudinally into two wedge-shaped parts, D², and D³, having corrugated or toothed engaging faces as at d^2, and d^3. By shifting the two members relatively to each other in the longitudinal direction, the effective width of the block can be altered. When the parts are all assembled the two members of the spacing block are locked in their adjusted positions by means of the toothed engaging faces. The two members of the spacing block are preferably provided with interlocking shoulders to prevent displacement in the vertical direction. Then the member D² may have a socket d^4 in the side thereof, adapted to receive a portion d^5 of the member D³.

While I have illustrated and described with particularity preferred embodiments of my invention I do not desire to be limited to the particular details of construction and arrangement thus illustrated and described, for in its broader aspects my invention may take various other forms than those illustrated and described as will be evident from the terms employed in the definitions of my invention constituting the appended claims.

Having now fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a device of the character described a single-piece base plate having a flat under surface for engaging with a tie and an upper surface extending entirely across and engaging with the bases of a pair of rails, clamping devices projecting upwardly from the ends of said base plate for clamping the rails together, one of said devices being movable, a guide on said base plate coöperating with said movable device and permitting it to be adjusted toward and from the other device, and means independent of the tie and lying wholly above the under surface of the base plate for forcing said movable device along said guide and holding it upon the base plate in any desired position, said base plate being provided with perforations to receive means for fastening the same to a tie.

2. In a device of the character described a flat integral plate having an under surface arranged to rest upon a supporting tie and an upper surface for extending across and engaging with the bases of a pair of rails, a pair of relatively adjustable clamping jaws projecting upwardly from said base plate for clamping rails in position, one of said jaws having shoulders interlocking with shoulders on the base plate to prevent displacement in the vertical direction said shoulders lying above the under surface of the base plate, and means lying wholly

above the under surface of the base plate for securing the latter jaw thereto.

3. In a device of the character described, a flat base plate having an under surface for engaging with a supporting tie and an upper surface for engaging with the bases of a pair of rails, a clamping jaw projecting upwardly from one end of said base plate for engaging with one of the rails, a spacing block arranged between the rails, an upwardly extending projection at the opposite end of the base plate, an adjustable rail-engaging jaw arranged at the latter end of the base plate, and means passing through said projection and said adjustable jaw for securing the jaw in place.

4. In a device of the character described, a flat base plate having an under surface for engaging with a supporting tie and an upper surface for engaging with the bases of a pair of rails, a clamping jaw projecting upwardly from one end of said base plate for engaging with one of the rails, a spacing block arranged between the rails, an upwardly extending projection at the opposite end of the base plate, an adjustable rail-engaging jaw arranged at the latter end of the base plate, and means passing through said projection and said adjustable jaw for securing the jaw in place, said base plate having downwardly facing shoulders arranged above the under surface thereof, and said adjustable jaw having shoulders arranged to underlie the shoulders on the base plate.

5. In a device of the character described, a base plate for engaging the bases of a pair of rails, a jaw carried upon one end of said base plate for engaging with one of the rails, an adjustable jaw arranged at the opposite end of the base plate for engaging with the other rail and a bolt forming an acute angle with the plane of said base plate for securing the adjustable jaw to the base plate.

6. In a device of the character described, a base plate for engaging with the bases of a pair of rails, a jaw at one end of said base plate for engaging with one of the rails, an upwardly extending projection at the opposite end of the base plate, said base plate having downwardly facing shoulders at said latter end at a point above the under-surface thereof, an adjustable jaw for engaging with the second rail, said adjustable jaw having shoulders underlying the shoulders on the base plate, and a bolt passing through said projection and said adjustable jaw for securing the jaw in place.

7. In a device of the character described, a base plate for engaging with the bases of a pair of rails, a detachable hollow jaw overlying one end of said base plate, a projection extending upwardly from said base plate at a point within said jaw, and a bolt passing through said projection and the rear wall of the jaw for securing the jaw in place.

8. In a device of the character described, a base plate for engaging with the base of a pair of rails, a detachable hollow jaw overlying one end of said base plate, a projection extending upwardly from said base plate at a point within said jaw, and a bolt passing through said projection and the rear wall of the jaw for securing the jaw in place, said base plate and said jaw having engaging shoulders to prevent relative displacement in the vertical direction.

9. In a device of the character described, a base plate for engaging with the bases of a pair of rails, said base plate having fixed thereto at one end a jaw for engaging with the outer side of one of the rails, a spacing block adapted to be arranged between the rails, a movable jaw carried by the base plate for engaging with the outer side of the second rail and having a base flange lying in the plane of the base plate, means for forcing said movable jaw toward said fixed jaw, said flange and said base-plate having perforations for receiving means for fastening the same to a tie.

10. In a device of the character described, a base plate for engaging with the bases of a pair of rails, said base plate having at one end a jaw for engaging with the outer side of one of the rails, a spacing block adapted to be arranged between the rails, and an adjustable jaw carried by the base plate for engaging with the outer side of the second rail, said adjustable jaw having a base flange lying in the plane of the base plate, said base plate and said flange being provided with perforations for the reception of means for fastening the device to a supporting structure, longitudinal guides on said base plate for said adjustable jaw and means for forcing said adjustable jaw along said guides.

11. In a device of the character described, a base plate for engaging with the bases of a pair of rails, a jaw fixed to one end of the base plate and adapted to engage with the outer side of one of the rails, a raised pocket at the opposite end of said base plate, a detachable jaw telescoped upon said pocket and shaped to fit against the outer side of the second rail, and adjustable means for fastening said jaw and said base plate together including a member lying within said pocket.

12. In a device of the character described, a base plate for engaging with the bases of a pair of rails, a jaw fixed to one end of the base plate and adapted to engage with the outer side of one of the rails, a raised pocket at the opposite end of said base plate, a detachable jaw telescoped upon said pocket and shaped to fit against the outer side of the

second rail, and a bolt having its head lying within said pocket for fastening the jaw and the base plate together.

13. In a device of the character described, a base plate for engaging with the bases of a pair of rails, a jaw fixed to one end of the base plate and adapted to engage with the outer side of one of the rails, a raised pocket at the opposite end of said base plate, a detachable jaw telescoped upon said pocket and shaped to fit against the outer side of the second rail, and a bolt having its head lying within said pocket for fastening the jaw and the base plate together, said bolt lying at an acute angle with respect to the base plate.

14. In combination, a single-piece base plate having a flat under surface for engaging with a tie, a pair of rails resting upon said base plate, a jaw at one end of the base plate engaging with one of the rails, the base plate projecting beyond the other rail at the other end, a movable jaw recessed on its under side for receiving the projecting end of the base plate, and means independent of the tie for adjustably securing said latter jaw to the base plate and forcing it against the adjacent rail, said base plate and the latter jaw having holes for receiving means to fasten them to the ties.

15. In a device of the character described a base plate having a flat under surface for engaging with a tie and an upper surface extending across and engaging with the bases of a pair of rails, a pair of relatively adjustable rail-clamping jaws carried by said base plate, said base plate being provided at one end with holes for receiving fastening means, the jaw at the opposite end of the plate overlying the base plate and having base flanges lying in the plane of the base plate, and said flanges having holes for receiving means to fasten the jaw and the base plate to the tie.

16. In combination, a single-piece base plate having a flat under surface for engaging with a tie, a pair of rails resting upon said base plate, a jaw at one end of said base plate in engagement with the outer side of one of said rails, the other end of said base plate projecting beyond the other rail, a recessed movable jaw overlying the latter end of said base plate and engaging with the side of the adjacent rail, and means lying wholly above the under surface of the base plate for adjusting the latter jaw transversely of the rail.

17. In a device of the character described, a single-piece base plate having a flat under surface for extending wholly across and engaging with the bases of a pair of rails, a pair of relatively adjustable clamping jaws carried by said base plate and lying wholly above its under surface, means for holding one of said jaws against displacement longitudinally of the rail, and means independent of the ties and lying wholly above the under surface of said base plate for adjusting said latter jaw relatively to the other jaw and transversely of the rails and holding it in any desired position with the rails clamped between it and the coöperating jaws.

In testimony whereof, I sign this specification in the presence of two witnesses.

GEORGE L. MANSFIELD.

Witnesses:
WM. F. FREUDENREICH,
HARRY S. GAITHER.