M. M. GOBLE.

RAIL SUPPORT AND TIE.

APPLICATION FILED MAY 16, 1911.

1,031,177.

Patented July 2, 1912.

3 SHEETS-SHEET 1.

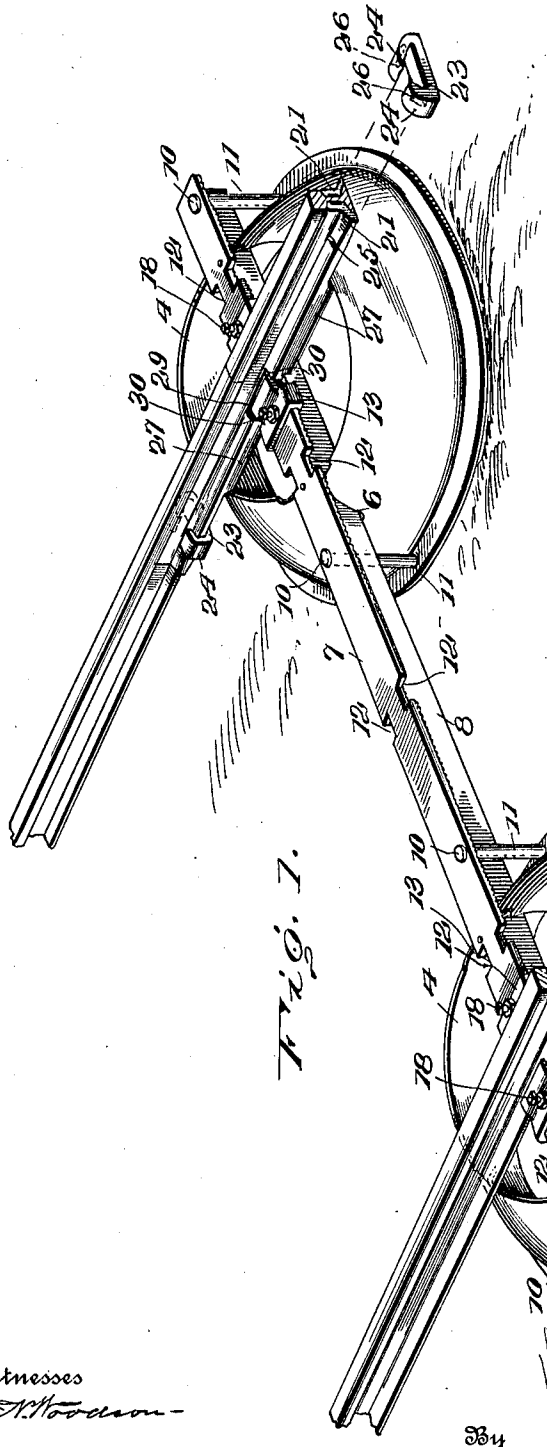

Fig. 1.

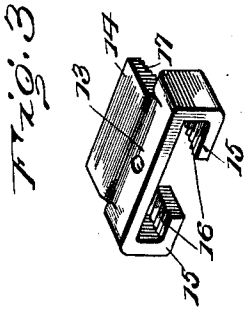

Fig. 3.

Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

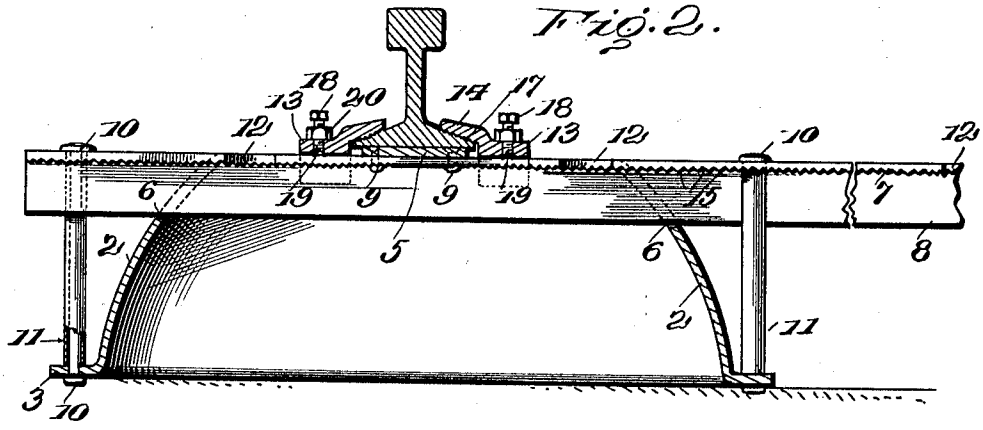


Fig. 2a.

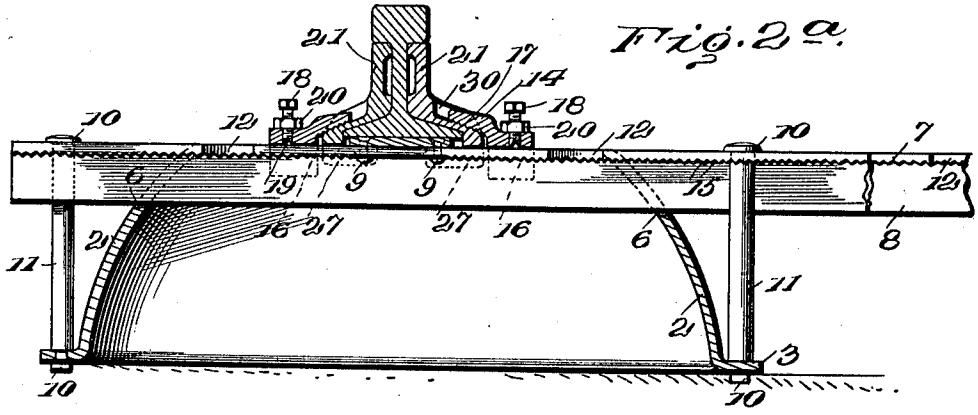
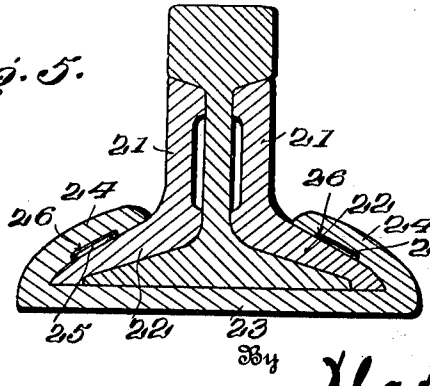


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 7.

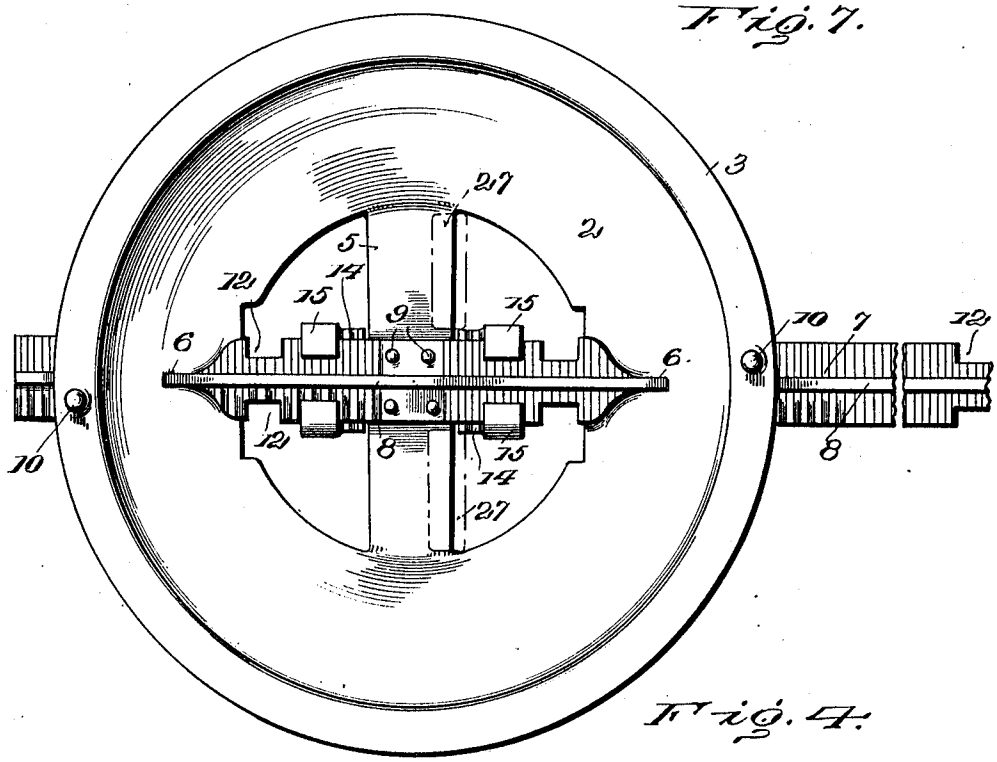


Fig. 4.

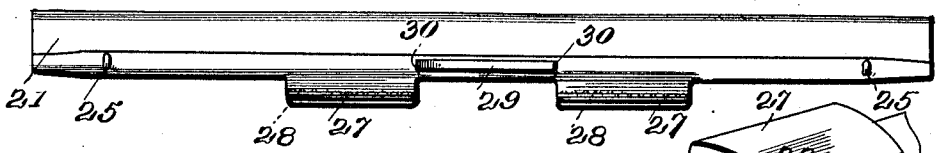
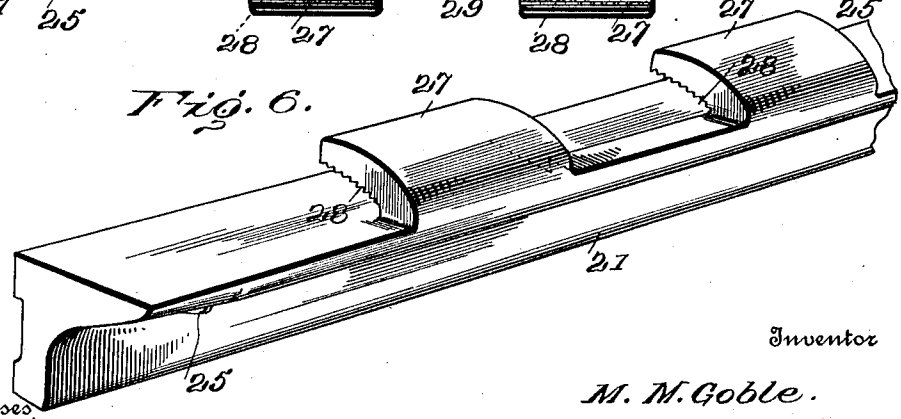


Fig. 6.



Witnesses

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UNITED STATES PATENT OFFICE.

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RAIL SUPPORT AND TIE.

1,031,177. Specification of Letters Patent. Patented July 2, 1912.

Application filed May 16, 1911. Serial No. 627,604.

To all whom it may concern:

Be it known that I, MILTON M. GOBLE, citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Rail Supports and Ties, of which the following is a specification.

My invention relates to rail bed construction for railroads, and particularly to the supporting members upon which the rails are immediately held and to which they are attached.

The primary object of the invention is the provision of a very simple and effective rail support of relatively light weight which, while so formed as to give as much resiliency as the ordinary wooden tie, maintains a true gage and insures even wear on the rails and complete permanency of alinement.

A further object is the provision of a rail support so formed as to very greatly reduce the danger of washouts and also eliminate all danger of the rails spreading.

A further object is to produce a track supporting construction providing a broad and secure bearing under each rail, thus insuring a degree of permanency and stability not found in ordinary ties.

A further object is to provide a supporting construction for rails so formed as to retain a certain amount of ballast immediately beneath the rail, permitting the ballast to be easily re-tamped whenever desired, the form of the device being such that the ballast may be tamped around it holding it in place.

A still further object is to provide in connection with the spaced rail supports above referred to a tie peculiarly adapted to these rail supports and so connected thereto that it cannot shift laterally, and provides a firm support for the rail, this tie being provided with rail clamping members easily adjustable holding the rails upon the tie, preventing any lateral movement of the rails and practically locking the rails to the tie and to the supports beneath.

A further object in this connection is to provide rail clamping means peculiarly adapted to the tie above referred to and engaging two adjacent rails at the joint thereof, thus doing away with the necessity of using fish plates, these rail engaging clamps being so formed as to eliminate the necessity of using bolts.

My invention is illustrated in the accompanying drawings wherein:—

Figure 1 is a perspective view of a portion of a railroad track with my improved rail supports and tie. Fig. 2 is an enlarged transverse section of one of the supports, being taken at right angles to the track, and the tie-bar being shown in elevation. Fig. 2^a is a like view of Fig. 2, but showing splice bars in section and engaging the rail. Fig. 3 is a perspective detail view of one of the rail clamps. Fig. 4 is a face view of one of the splice bars shown in the right hand side of Fig. 1. Fig. 5 is an enlarged cross section of the rail with splice bars thereon and means for clamping the splice bars upon the rail. Fig. 6 is a perspective view of one of the splice bars, the splice bar being overturned to show its under side. Fig. 7 is an under side plan view of one of the rail supporting members together with a portion of the tie-bar.

Referring to these drawings it will be seen that I provide a support for each rail, the supports being spaced from each other any desired distance, being to this extent independent so that there is no waste material between the supports. These supports are designated 2. Both supports are of the same character. Each support consists of a sheet of metal cast or stamped out so as to have a concavo-convex form. In other words, the top of the support is flat and the sides round downward and outward divergently so that the shape of the support may be compared to an inverted pan. The lower edge of the support is outwardly flared as at 3. The upper face of the support is cut away as at 4 to provide tamping openings by which ballast may be tamped into the interior of the support. Preferably there is a cross piece 5 formed integral with the metal of the support and extending diametrically across the opening 4. At opposite points upon the sides of the support and in a plane extending transversely across the crossing web 5, the sides of the support are downwardly slotted as at 6. There are two of these supports, one beneath each rail, as previously stated, these supports being separated from each other by an intervening space. Extending across this space and resting upon the supports 2 is a tie bar 7 of T-iron. The downwardly extending medium flange 8 of this T-iron or T-bar extends down into the slots 6 so that the up-

per flange of the T-iron rests upon the upper edges of the wall of the support 2, as illustrated in Fig. 1. This T-bar 7 may be of any desired length, and while it is shown as extending across the two supports 2, it is to be understood that it might be extended to cross any number of supports depending upon the number of tracks to be supported. The T-bar 7 extends beneath the web 5, as illustrated in Fig. 2ª, and the web is riveted to this tie-bar at four points, as at 9, (see Fig. 7) so that practically the tie-bar and support are in one piece. It will be seen that the slots 6 also act to hold the tie-bar from any lateral movement relative to the supports 2, and that it is held from any longitudinal movement with relation to the supports by means of the rivets or bolts 9. Thus the supports and tie-bar form a rigid construction which must move in unison or not at all. It will also be noted that the upper face of the web 5 is relatively flat along its whole extent so as to give a secure support to the rails carried thereby, and that the middle of this web is supported by means of the tie-bar. Thus the rail is supported for the whole width of the opening 4 by means of the web 5. It is also supported by resting upon the downwardly and outwardly flared walls of the member 2, and it is also supported between its walls by the transversely extending T-shaped tie-bar 7. The tie-bar 7 is not only riveted or bolted to the supporting casing 2 at the middle of the web 5, but may be also attached at other parts of the web. As shown, the tie-bar is provided with rivets 10 which extend downward through the flange of the tie-bar and engage the annular flange 3, these rivets being surrounded by spacing sleeves 11. Thus the tie-bar and supporting casings 2 are rigidly held together. The tie-bar 7 and the web 5 cross the opening 4 at right angles, and thus four sector shaped spaces are left on each side of the rail and on each side of the tie-bar through which material may be filled in to the hollow interior of the casing 2, and by which the material as ballast may be tamped in place. Concrete may also be filled in to the hollow interior of the casing 2 if desired. The ballast is also intended to be filled in around the exterior of the members 2 to a height flush with the upper face of the tie-bar 7 or above the same. It will be seen that the downwardly and outwardly flared walls of the supporting casings 2 projecting beneath this ballast as they would do afford a means whereby the ballast will positively hold down the supporting members in position. Furthermore, this cup-shape or bowl-shape given to the supporting members has a certain amount of sucking action which would materially resist displacement of the supporting members 2. The tie-bar 7 is preferably provided at a plurality of points with notches 12 whereby rail clamps may be placed upon the tie-bar for the support of main or auxiliary rails as will now be described.

It is one of the objects of my invention to do away with the necessity of spiking the rails to the tie or the necessity of using bolts for the purpose of holding rails in place, thus saving the cost of the bolts and also preventing weakening of the rails. To this end I have provided rail clamping members disposed upon the tie bar 7, and so constructed that they may be shifted along the tie bar either into engagement with the base flange of the rail or out of engagement therewith, these clamping members being so formed that they will secure a very rigid grip both upon the tie bar and upon the rail itself.

In Fig. 3, 13 designates the rail clamp. This is formed of a steel body having an outwardly projecting lip 14 adapted to engage over the base flange of the rail, where the clamp is used along the middle of the rail. The body 13 has downwardly and inwardly extending jaws 15 which extend over the opposite edges of the tie-bar 7 and engage beneath the upper flange of the tie-bar. Preferably the inner face of the upper flange of the tie-bar is transversely corrugated, and the faces of the jaws 15 are also transversely corrugated as at 16 to engage with the corrugations of jaws 15. Preferably also the under face of the lip 14 is formed with transverse corrugations, or teeth, 17 which will bite into the base of the rail when in place so as to prevent any movement of the rail relative to the clamp. Each clamp is held in place upon the tie-bar 7 by means of a set-screw 18 having also a concave end 19 and a head at its upper end. This set-screw passes down through the body of the clamp 13 and engages the upper face of the tie-bar and when turned bites into this upper face. The set-screw is preferably provided with a lock nut 20 which when set holds the set-screw in place and prevents any displacement thereof. There are two clamps for each rail, the clamps being opposed to each other as illustrated in Fig. 1. The rail A rests upon the transverse web 5 and the clamps are forced toward each other, the lips 14 extending over the base flange of the rail. When the clamps are brought home they will hold the rail rigidly in place and cause the teeth on the other side to prevent any longitudinal movement of the rail, and they also prevent any tipping of the rail which is one of the chief objections to the use of spikes. Where spikes are used, driven into a wooden tie for instance, the passing of a train will cause the rails to tip slightly. In time this tipping action will wear the spikes loose and finally the rail will tip so much as to spread beyond standard

gage and the train will be derailed. This is entirely obviated by my construction. The clamp is held firmly and rigidly to the T-bar and in turn engages rigidly and firmly with the base of the rail.

In addition to the rail clamps 13 just described, I preferably use the splice bars 21. These splice bars are placed on each side of the rail and are particularly necessary at the joints of two adjacent rails. The splice bars are formed with a body portion fitting against the edge of the rail and with a downwardly inclined flange portion 22 which extends down over the base of the rail. There are two of these splice bars, one on each side of the rail, and they are held in proper engagement with each other by means of the clamps 23. These clamps each consist of a transversely extending body which extends beneath the web 5 of the support 2 and upwardly extending clamping jaws 24 which extend upward and inward. The clamps are of such size that they may slip on over the opposite ends of the splice bars 21 and be forced in place so as to jam the splice bars tightly against the web and base of the rail as illustrated in Fig. 5. Preferably, and in order to prevent the clamps 23 from being readily detached from their engagement with the splice bars I provide the splice bars and jaws 24 with co-acting ribs and recesses. As illustrated the flange 22 of each splice bar at each end is formed with a downwardly extending rib 25, and the inner face of each jaw 24 at its opposite ends is formed with the upwardly extending grooves or recesses 26. When the clamps 23 are forced over the splice bars these will yield until the tongues or ribs 25 spring into the grooves 26. Preferably, the ends of the splice bars are slightly tapered and thinned down so as to permit of easy insertion of the clamps and secure the wedge action of the clamps upon the splice bars. Each splice bar is provided at one or more points along its length, preferably at two spaced points, with the downwardly and inwardly projecting lugs or tongues 27 which extend nearly parallel with the under face of the splice bar and which engage beneath the web 5 of the support 2. Preferably, the inner faces of the lugs 27 are longitudinally toothed or corrugated as at 28 so as to have a firm interlocking engagement with the under side of the web 5, the under side of this web being also formed, as previously stated, with transversely extending corrugations. Between the lugs 27 the flange 22 of each splice bar is formed with a recess 29 in which the lip 14 formed on the clamp 13 may engage. This recess provides oppositely disposed shoulders 30 at its ends each engaging with the lip 14 for preventing any longitudinal movement of the splice bars relative to the clamps 13, and as these splice bars are forced into very tight engagement with the rail there is no chance for the rail to move longitudinally except that a sufficient play is provided to permit the proper expansion of the rail.

The notches 12 in the tie-bar 7 permit the clamping members 13 being easily placed in position on or removed from the tie-bar 7, and also permit additional rail clamping members 13 being placed upon the tie-bar for the purpose of gripping guard rails and other auxiliary rails.

The advantages of my invention are as follows:—It will be seen that I furnish a separate bearing surface under each rail. As the concavo-convex supports 2 are preferably thirty inches in diameter I secure a total bearing surface under each rail equal to two ordinary ties. A pair of the supporting members described do the work of three ordinary ties. A device constructed according to my invention weighs much less than a metal or concrete tie and weighs twenty-five pounds less than the average oak tie. It is practically washout proof for the reason that ballast is contained within the casing 2 and that water can not wash the ballast out from said casing. While it provides a separate support or bearing for each rail, these supports are so anchored to each other as to eliminate all danger of rail spreading. The cup-like construction of the rail supports gives as much resiliency as the wood tie but maintains a true gage and insures even wear on the rails. The cup-like supporting members 2 are preferably made of heavy pressed steel. It may be said that a support constructed as described and formed of sheet steel one-eighth inch thick has withstood a pressure of 200,000 pounds, and could in all probability even withstand a greater pressure. Preferably the supports 2 are thirty inches in diameter at the bottom and sixteen inches across the top while the depth of the supports is about seven inches. The two supports furnish separate bearings for each rail, overcome the tendency to sag at the ends of the tie and prevent center-binding, rail spreading or an accidental turning over of the rail. There are no bolts or burs to work loose and no spikes to be drawn by the loosening of the rail. It may be noted further that a rail has a sixteen inch bearing upon the support and thus a much greater bearing is furnished than is provided with the ordinary tie. By using intermediate clamps 13 upon the tie-bar 7 provision may be made for the application of steel supporting brackets whereby excessive lateral strains may be divided or braces at points where there is a sharp curve in the track. In the practical form of my invention there is seven inches of space for lateral adjustment of each rail and this gives fourteen inches for varying gages of track.

Having thus described my invention, what I claim as new is:—

1. A support for railway rails comprising a hollow casing of relatively thin material having downwardly extending sides, said casing being open at its top and having a rail supporting web extending diametrically across the open top of the casing, and a tie bar extending across the open top of the casing at right angles to the web and extending beneath the same.

2. A support for railway rails comprising a hollow casing of relatively thin material having downwardly extending sides, said casing being open at its top, the open top being formed with a web extending diametrically across the same in the direction of the rail, and a tie-bar extending across the open top of the casing and beneath said web, said tie-bar being T-shaped in cross section.

3. A support for railway rails comprising a hollow annular casing of relatively thin metal having downwardly and outwardly flared sides, said casing being open at its top, the upper portion of the casing being slotted at diametrically opposite points, and a tie-bar T-shaped in cross section supported on said casing and attached thereto, said tie-bar having its web extending into said walls, the flanges of the tie-bar resting upon the upper edge of the casing.

4. A support for railway rails comprising a hollow annular casing having downwardly and outwardly flared sides, the upper end of the casing being open and formed with a rail supporting web extending diametrically across the opening, a tie-bar supported upon the upper end of the casing and crossing said opening at right angles to the web, and means for engaging the tie-bar with the casing.

5. A support for a railway rail comprising a hollow casing of relatively thin material having a downwardly extending side wall, said casing being open at its top and having a rail supporting web extending diametrically across the open top of the casing.

6. A support for a railway rail comprising a hollow casing of relatively thin material having a downwardly extending side wall, said casing being open at its top and having a rail supporting web extending diametrically across the open top of the casing, a member extending across the open top of the casing at an angle to the web, and adjustable rail clamping devices mounted upon said member.

7. A support for a railway rail comprising a hollow casing open at its top, a transversely extending member supported on the upper end of the casing, and opposed rail engaging members adjustably mounted on the member.

8. A support for a railway rail comprising a hollow casing open at its top, a transversely extending member supported on the upper end of the casing, a web extending diametrically across the casing and crossing said member at an angle, splice bars disposed on each side of the rail, rail engaging clamps mounted on the member and engaging said splice bars to hold the rail in place, and means embracing the base of the rail and engaging said splice bars.

9. A support for railway rails comprising a hollow casing of relatively thin material, having a downwardly extending side wall, said casing being open at its top and having a rail supporting web extending diametrically across the open top of the casing in the direction of the rail supported on the casing, and a transversely extending tie-bar T-shaped in cross section extending across the open top of the casing at right angles to the web, means for attaching the bar to the casing, and rail engaging clamps on the bar.

10. A support for railway rails comprising a hollow casing open at its top, a transversely extending bar supported on the upper end of the casing, and opposed rail engaging members slidably mounted on the bar.

11. A support for railway rails comprising a hollow casing open at its top, a transversely extending bar T-shaped in cross section supported on the open top of the casing, and rail engaging clamps slidably mounted upon said bar.

12. A support for railway rails comprising a hollow casing open at its top, said casing at its upper end being vertically slotted at diametrically opposite points, and a transversely extending bar T-shaped in cross section, the web of said bar being inserted in said slots, and shiftable rail clamping members mounted on the bar.

13. In combination with oppositely disposed rail supports, a tie-bar T-shaped in cross section, the web of the tie-bar extending vertically downward, the lateral flanges of the tie-bar being notched at a plurality of points, and rail clamps having re-turned end flanges embracing the flanges of the tie-bar and shiftable therealong.

14. In combination with oppositely disposed rail supports, a tie-bar T-shaped in cross section, the web of the tie-bar extending vertically downward, and lateral flanges of the tie-bar being notched, the under faces of said flanges being corrugated, rail clamps having re-turned end flanges embracing the flanges of the tie-bar and shiftable therealong, the inside faces of said re-turned flanges on the clamps being corrugated to

co-act with the corrugated faces of the flanges on the tie-bar, and clamp screws on the said clamping members.

15. The combination with a hollow casing forming a rail support, said casing being open at its top and having a diametrically extending web, the under face of the web being corrugated, of a tie-bar supported on the casing and extending transversely to the web, the under face of said tie-bar being corrugated, rails extending longitudinally of the web and supported thereon, the joint of the rails being disposed at the junction of the tie-bar and web, splice bars fitting said rails and having outwardly and downwardly extending flanges extending over the bases of the rails, downwardly and inwardly extending tongues formed on each splice bar and extending beneath the web on the support, means for clamping said splice bars to the rails, and adjustable clamps mounted upon the tie-bar and engaging over the flanges of the splice bars.

16. The combination with a rail, of a support therefor having an open upper end, the upper end of the support being provided with a diametrically extending rail supporting web upon which said rail rests, a tie-bar extending transversely of the rail across the upper end of the support, oppositely disposed splice bars on each side of the rail having downwardly and outwardly extending base flanges, each base flange being formed with a recess at its middle, means for clamping the splice bars to the rail, and clamping members disposed upon the tie-bar and having projecting lips, said clamping members being adjustable along the tie-bar, the lips on the clamping members being normally disposed within the recesses on the splice bars.

17. The combination with a railway rail, of splice bars located on either side of the rail, and having lateral downwardly extending flanges extending over the base of the rail, clamping members for wedging engagement with the extremities of the splice bars and forcing them against the rail, a tie-bar extending beneath the rail, and adjustable clamping members disposed on the tie-bar and embracing the same, said clamping members having lips extending over the flanges of the splice bars.

18. The combination with a rail support comprising a hollow casing having downwardly extending side walls, the upper end of the casing being open and provided with a rail supporting web, of a transversely extending tie-bar attached to said casing and supported on the upper end thereof, said tie-bar being T-shaped in cross section, the horizontal flanges of the tie-bar being corrugated on their-under faces, oppositely disposed splice bars having base flanges fitting over the base flanges of the rail, each splice bar being provided with spaced inwardly extending members, their under faces engaging beneath the base of the rail, the members having a length equal to the distance from the edge of the tie-bar to the adjacent edge of the support, and clamping members disposed on the tie-bar and having inwardly turned end flanges corrugated on their inner faces and engaging the horizontal flanges of the tie-bar, each clamping member having a lip engaging a recess disposed midway upon the adjacent splice bar, and clamping screws passing through the clamping members and engaging the tie-bar.

19. A support for railway rails comprising a hollow casing of relatively thin material open at its top, and having rail supporting members extending at right angles to each other and diametrically crossing the open top of the casing, said members defining tamping openings extending from said members to the circumference of the top of the casing.

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

MILTON M. GOBLE. [L. S.]

Witnesses:
FREDERIC B. WRIGHT,
W. N. WOODSON.