J. G. MUELLER.

RAIL BRACE.

APPLICATION FILED APR. 23, 1914.

1,114,175. Patented Oct. 20, 1914.

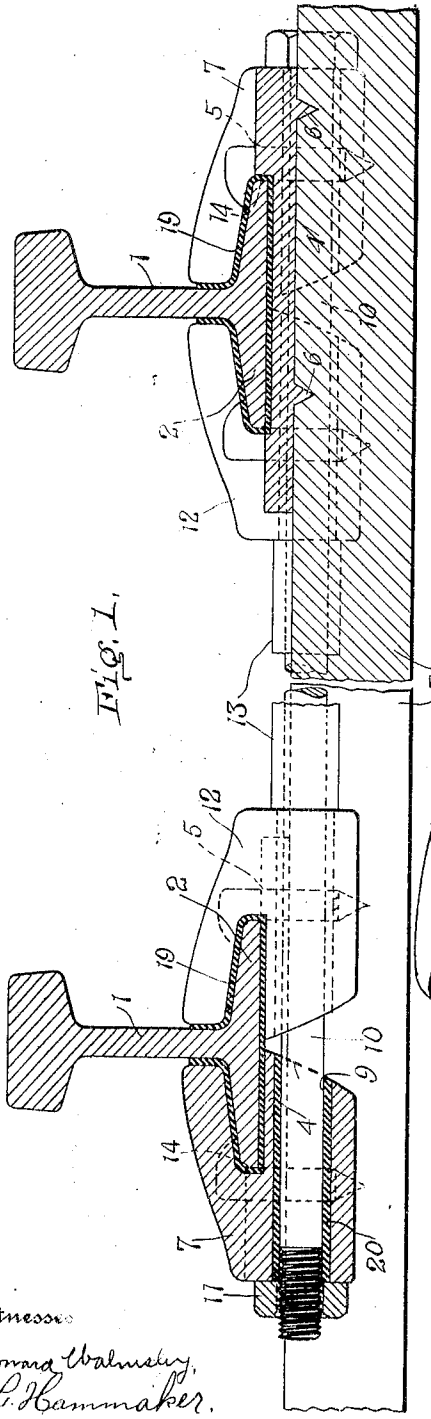


Fig. 1.

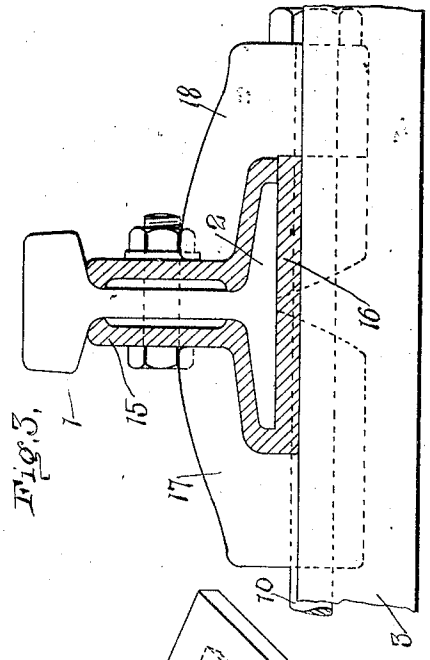


Fig. 3.

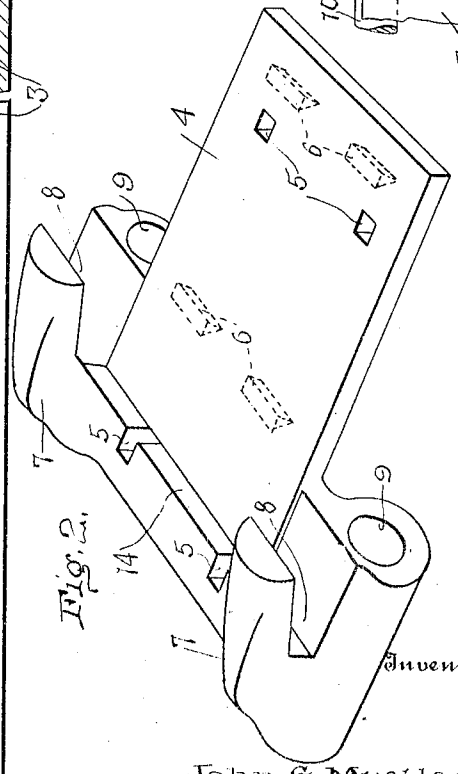


Fig. 2.

Witnesses:
G. Howard Walmsley,
H. L. Hammaker.

Inventor
John G. Mueller,
By Toulmin Redd Toulmin
Attorneys

UNITED STATES PATENT OFFICE.

JOHN G. MUELLER, OF DAYTON, OHIO.

RAIL-BRACE.

1,114,175. Specification of Letters Patent. **Patented Oct. 20, 1914.**

Application filed April 23, 1914. Serial No. 834,007.

To all whom it may concern:

Be it known that I, JOHN G. MUELLER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Rail-Braces, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to rail braces such as are employed in connection with railroad tracks.

The object of the invention is to provide a brace which will effectually prevent any movement of the rails relatively one to the other or any movement of the two rails relatively to the ties and to combine with such a brace means for preventing the rails cutting into the ties along one edge in such a manner as to cause the rails to tilt.

To this end it is a further object of the invention to provide a combined tie plate and clamping device which is adapted to be secured both to the tie and to the rail, and to provide means for connecting together the combined devices which are secured to the two rails, thereby providing a rigid structure which will firmly brace the rails and prevent any movement thereof.

It is also an object of the invention to insulate the rail braces from the rails in such a manner as to prevent interference with the signal circuits.

In the accompanying drawings, Figure 1 is a sectional view taken transversely of the rails; Fig. 2 is a perspective view of the combined tie plate and clamping device; and Fig. 3 is a transverse, sectional view of a modified form of the invention.

In these drawings I have illustrated one embodiment of my invention and have shown the same as applied to a track comprising the usual rails 1 provided at their lower sides with bases or flanges 2 and mounted on ties 3. The braces are applied at intervals along the track, the length of the intervals being determined by the circumstances surrounding each installation. The number of braces used in a given length of track is immaterial as each brace stands alone and completely embodies the invention. As shown in the drawings, a combined tie plate and clamping device applied to each end of the tie 3 and the body portion or tie plate proper, which is indicated at 4, of each device is arranged beneath its rail and between the same and the tie. These tie plates are rigidly secured to the ties in any suitable manner. In the present instance they are provided with spike holes, as shown at 5, and are further provided on their lower surface with tapered lugs or pronge 6 which will bite into the tie and prevent creeping of the plate. Secured to the outer end of each plate is a clamping member which, in the present instance, is shown at 7 as formed integral with the plate. Each plate may have a single clamping member or it may have two clamping members, one on each side of the same, as shown in Fig. 2. Each clamping member is arranged at one side of the body of the tie plate 4 and is provided with a recess 8 shaped to receive the adjacent portion of the base or flange 2 of the rail and to exert a clamping action thereon. The lower portion of each clamping member is provided with a longitudinal aperture 9 through which extends a rod 10 forming a part of the rail brace. This rod extends lengthwise of the tie and extends through the apertured clamping lugs of the two plates and is provided at one or both ends with nuts 11 by means of which the clamping members may be drawn tightly against the flanges of the rail. There is also provided a second clamping member to cooperate with each clamping plate, as shown at 12. This clamping member is similar to the clamping lug 7 but is disconnected from the plate 4 and is free to move lengthwise of the rod 10 on which it is mounted. Suitable means are provided, however, for locking this clamping member against movement on the rod and this means, in the present instance, is shown as comprising a hollow sleeve 13 mounted on the rod 10 between the two clamping members 12 and of such a length as to properly space the rails when it is in engagement with the respective clamping members.

To assemble the device the combined tie and clamping plates are placed beneath the rails with the clamping members 7 in engagement with the outer flanges of the rails. The inner clamping members 12 are then placed in position to receive the rod as it is passed crosswise of the track. After the device is assembled the nut 11 is tightened down to firmly draw the parts into their locking positions and to hold them against movement. It will be obvious that with this arrangement the rails are not only rig-

idly held against movement relatively one to the other but the two rails are secured to the tie plate in such a manner that they are effectually held against movement relatively to the tie. Consequently, the whole track becomes one rigid structure, the several parts of which are incapable of relative movement. Further, the tie plate prevents the edge of the rail from "chewing" the tie and forming a recess along the edge of the rail which eventually permits the rail to tilt.

To further secure the combined clamping plate and tie plate to the rail I may provide the same along the outer edge of the rail with a shoulder 14 against which the edge of the outer flange of the rail bears. To prevent the brace rods from electrically connecting the two rails and thus interfering with the signal circuits I have shown the clamping members as insulated from the rails and from the connecting rod 10, as shown at 19 and 20. To reinforce the rod 10 beneath the rail the apertured lugs forming parts of the clamping members may be extended inward to points near the center of the rail.

It is sometimes desirable to brace the rails at the joints and to enable this to be done and the rails to be rigidly tied together, as above described, I combine the clamping device with the fish plate. In Fig. 3 of the drawings I have shown one method by which this can be accomplished. As here shown the fish plate 15 is of an ordinary construction and has rigidly secured thereto and preferably formed integral therewith a plate 16 which extends beneath the rail and bridges the joint in the same manner that the fish plate bridges the joint. A clamping member 17 is rigidly secured to the seat formed by the fish plate and the base plate 16 and extends below the plate 16 to receive the transverse rod, which rod also has mounted thereon a second clamping member 18. The assembling and clamping operation is similar to that above described. In both forms of the device the plate which extends beneath the rail is combined with the clamp and the term "tie plate" as herein employed is intended to include such a plate whether it is used merely as a tie plate or whether it is combined with a fish plate to form a seat. When used in the form of a seat it will ordinarily rest upon a tie but there may be instances where the seat will lie between ties and will be unsupported. Further, it will be apparent that the device can be secured to the fish plate in the manner here shown without the use of the base plate or tie plate, in which instance the clamping member may occupy exactly the same relation to the fish plate as it does in Fig. 3, the structure being changed only by the omission of the base plate. When a single clamping member is used it is usually arranged about midway the length of the fish plate, that is, close to the joint of the rail, but this is not essential and, if desired, two clamping members may be used, one at each end of the fish plate.

While I have shown and described one embodiment of my invention and certain modifications thereof, it will be understood that these have been chosen for the purposes of illustration only, and that I do not desire to be limited to the details of construction shown and described, for obvious modifications will occur to a person skilled in the art.

Having thus 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, the combination, with a tie plate, and a clamping member secured to one of the lateral edges of said tie plate and arranged to engage one edge of a rail, of a second clamping member arranged adjacent to said edge of said tie plate to engage the other edge of the rail and movable relatively to said tie plate, and means to hold said clamping members in clamping engagement with said rail.

2. In a device of the character described, the combination, with a tie plate, and clamping members secured to the respective lateral edges of said tie plate near one end thereof and arranged to engage the edge of the rail, of other clamping members arranged adjacent to said edges of said tie plate to engage the other edge of said rail and movable relatively to said tie plate, and means to hold said clamping members in clamping engagement with the rail.

3. In a device of the character described, the combination, with a tie plate adapted to be interposed between a rail and a tie, a clamping member rigidly secured to said tie plate, projecting beyond the lateral edge thereof and adapted to engage the adjacent flange of said rail, said clamping member having an aperture arranged beneath said rail along the side of said tie, and a rod extending through said aperture, of a second clamping member mounted on said rod, and means to hold one of said clamping members against movement relatively to said rod and to exert pressure on the other clamping member to firmly clamp the rail between two members and secure the rail to said tie-plate.

4. A rail brace comprising two tie plates adapted to be secured to the opposite ends of the same tie and to support the two rails of a track, clamping members rigidly secured to the lateral edges of said tie plates and arranged to engage the outer flanges of the respective rails, other clamping members arranged adjacent to the respective tie plates to engage the inner edges of said rail.

a connecting rod, and means carried by said rod to exert clamping pressure upon the several clamping members.

5. In a device of the character described, the combination, with two tie plates interposed between the two rails of a track and a tie, each tie plate having a clamping member rigidly secured thereto at one lateral edge thereof and adapted to engage the outer flanges of the respective rails, each of said clamping members having apertures therein beneath said rail and alongside of the tie on which the plate rests, and a rod adapted to extend through the apertures of both clamping members, of a second clamping member mounted on said rod adjacent to the edge of each tie plate to engage the inner flanges of the respective rails, a spacing member mounted on said rod and engaging the inner ends of said second clamping members, and means carried by said rod to exert pressure on the outer end of the first-mentioned clamping member.

6. In a device of the character described, the combination, with two tie plates, each adapted to extend beneath the full width of a rail, means to rigidly secure said plates to the opposite ends of a tie beneath the respective rails of a track, a clamping member formed integral with each clamping plate, projecting beyond one edge thereof and adapted to engage the adjacent edge of the corresponding rail, each clamping member having a portion arranged beneath said rail and provided with an aperture, a rod extending through the apertures of the two clamping members and arranged along side of said tie and beneath the upper surface thereof, of other clamping members mounted on said rod to engage the inner edges of the respective rails, and means to force said clamping members into clamping engagement with the respective rails.

7. A combined clamping and tie plate comprising a body portion adapted to project beneath the full width of a rail, and a clamping member formed integral with one end of said plate, projecting beyond the lateral edge thereof and adapted to engage the flange of said rail, said clamping member also having a portion extending below said rail and provided with an opening arranged transversely to said rail to receive a connecting member.

8. A combined clamping and tie plate comprising a body portion adapted to extend beneath the full width of a rail and to be rigidly secured to a tie, clamping members formed integral with one end of said body portion, projecting beyond the opposite lateral edges thereof, arranged to engage the outer flange of a rail and having portions arranged below the upper surface of said body portion and provided with apertures extending transversely to the rail.

9. A combined clamping and tie plate comprising a body portion adapted to extend beneath the full width of a rail and having a transverse shoulder at one end thereof to engage the edge of the flange of said rail, a clamping member formed integral with one end of said body portion and projecting beyond the lateral edge thereof, at one end of said shoulder, and adapted to engage the flange of said rail.

10. In a device of the character described, the combination, with a tie plate adapted to extend beneath the full width of a rail, a clamping member rigidly secured to one end of said tie plate and projecting beyond one of the lateral edges thereof and arranged to engage the adjacent flange of a rail, a second clamping member arranged adjacent to said lateral edge of said tie plate and adapted to engage the opposite flange of said rail, each of said clamping members having an apertured lug depending beneath the upper surface of said tie plate, said lugs extending inward to points near the center of said rail, and a clamping rod extending through said apertured lugs.

11. In a rail brace, the combination, with a rail seat comprising a plate adapted to extend beneath the full width of a rail, and a fish plate rigidly secured to the first-mentioned plate, of clamping members arranged to engage the opposite flanges of said rail, one of said clamping members being rigidly connected with said rail seat and the other of said clamping members being free to move relatively to said rail seat, and means to cause said clamping members to exert clamping action on said rail.

12. A combined clamping and tie plate comprising a body portion adapted to project beneath the full width of a rail, and a clamping member permanently secured to said plate at one end thereof, projecting beyond the lateral edge of said plate and adapted to engage the flange of said rail, said clamping member also having a portion extending below said rail and provided with an opening arranged transversely to said rail to receive a connecting member.

13. A combined clamping and tie plate comprising a body portion adapted to extend beneath the full width of a rail and to be rigidly secured to a tie, clamping members rigidly secured to said body portion near one end thereof and projecting beyond the opposite lateral edges of said plate, both clamping members being arranged to engage one flange of the rail and both having portions arranged below the upper surface of said body portion and provided with apertures extending transversely to said rail.

14. A combined clamping and tie plate comprising a body portion adapted to extend beneath the full width of a rail, and having a transverse shoulder at one end

thereof to engage the edge of the flange of said rail, a clamping member secured to said end of said body portion, projecting beyond the lateral edge thereof at one end of said shoulder and adapted to engage the flange of said rail.

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

JOHN G. MUELLER.

Witnesses:
F. W. SCHAEFER.
H. L. HAMMAKER.