F. M. JOHNSTON.

RAILWAY RAIL CLAMP FOR METALLIC TIES.

APPLICATION FILED APR. 23, 1912.

1,047,648. Patented Dec. 17, 1912.

Fig. 1

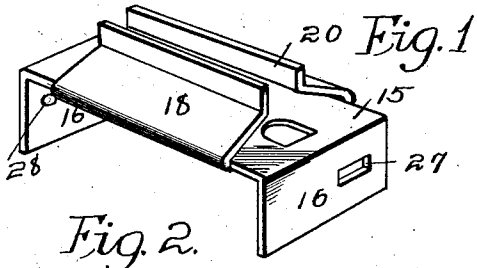


Fig. 3

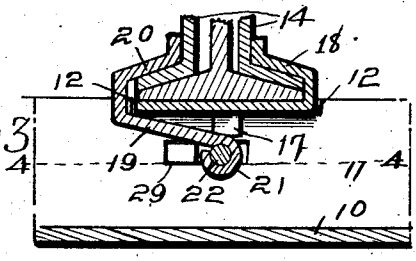


Fig. 2.

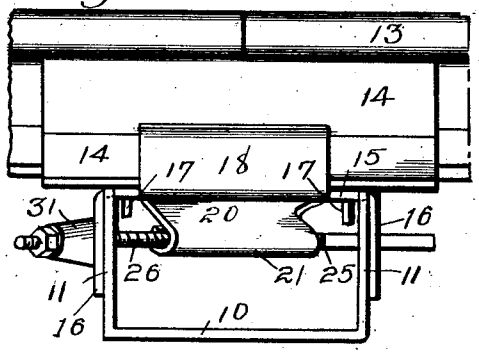


Fig. 4.

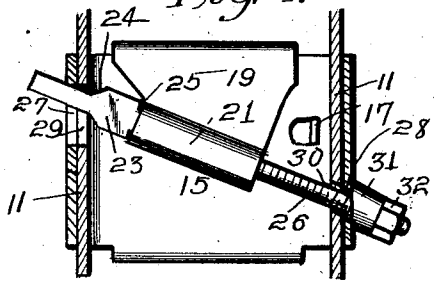


Fig. 5.

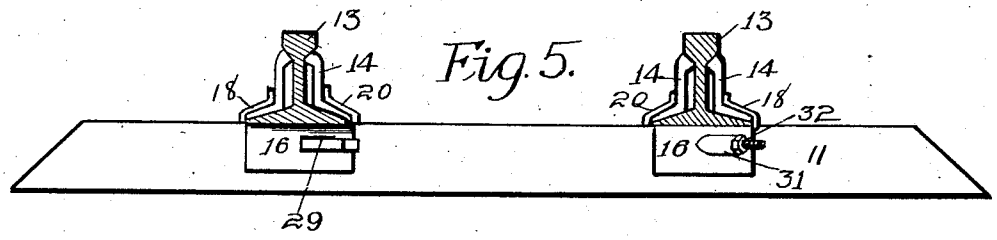
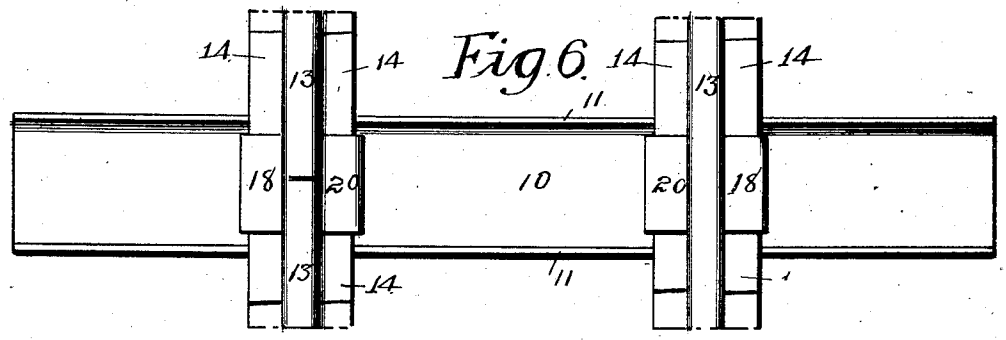


Fig. 6.



Witnesses

A. G. Hague.

W. A. Loftus.

Inventor.

Frank M. Johnston.

by Young & Baier attys.

UNITED STATES PATENT OFFICE.

FRANK M. JOHNSTON, OF BOONE, IOWA.

RAILWAY-RAIL CLAMP FOR METALLIC TIES.

1,047,648. Specification of Letters Patent. Patented Dec. 17, 1912.

Application filed April 23, 1912. Serial No. 692,726.

To all whom it may concern:

Be it known that I, FRANK M. JOHNSTON, a citizen of the United States, residing at Boone, in the county of Boone and State of Iowa, have invented a certain new and useful Railway-Rail Clamp for Metallic Ties, of which the following is a specification.

The object of my invention is to provide a device of simple, durable and inexpensive construction for readily and easily clamping a railway rail to a metallic tie in such a manner as to firmly and securely hold the rail to the tie; and further in this connection to provide a device of this class in which the impact of heavy trains upon the rail will have only a minimum tendency to loosen the rail clamping device whereby the said rail clamping device may be held tightly to the rail and to the tie even after considerable use and even in the event that the nut on the clamping device should become loosened.

My invention consists in certain details, in the construction, arrangement and combination of the various parts of the device, whereby the objects contemplated are attained, as hereinafter more fully set forth, pointed out in my claims and illustrated in the accompanying drawings, in which:

Figure 1 shows a perspective view of the two clamping members in position with relation to each other as required in use. Fig. 2 shows a side elevation of two adjoining railway rails, a fish plate and a metallic tie having my improved clamping device applied thereto. Fig. 3 shows a detail, transverse sectional view of my improved clamping device applied to a metallic tie and to a railway rail. Fig. 4 shows a sectional view on the line 4—4 of Fig. 3. Fig. 5 shows a side elevation of a metallic tie with two rails thereon and with my improved clamping devices applied to the rails, and Fig. 6 shows a top or plan view of the same.

Referring to the accompanying drawings, I have used the reference numeral 10 to indicate the base portion of a metallic tie having two upturned sides 11. In each of the upturned sides at the points where the rails are to rest, I have provided notches having shoulders 12 to thereby prevent lateral movement of the rail relative to the tie. The portions of rails that are shown are of the ordinary form and are indicated by the reference numeral 13 and the fish plates shown in some of the views are indicated by the numeral 14.

My improved clamping device comprises two members, one hereinafter called the stationary clamping member and the other the movable member. The stationary clamping member is preferably made of plate metal and comprises a base 15 having its ends 16 bent downwardly at right angles to the base and also having portions of the base bent downwardly adjacent to the ends 16, said portions being indicated by the numeral 17. This base is designed to rest on the upturned sides 11 of a metal tie and the ends 16 are to stand against the outer surfaces of said sides 11 while the parts 17 stand close to but slightly spaced apart from the inner surfaces of the sides 11. Formed integral with one side of the base 15 is a rail engaging member 18 shaped to extend upwardly around the base of a rail and then inwardly toward the web of a rail and then upwardly as clearly shown in Fig. 3. This rail engaging member may obviously be made of a size and shape to fit against a rail or it may be so shaped as to fit against a fish plate 14 resting against a rail. The other rail clamping member comprises a base portion 19 designed to extend under the base portion 15 and to fit closely against a part of said base 15. This base portion is provided with a rail engaging member 20 similar to the rail engaging member 18, and it is also provided at its lower portion at a point below the base portion 15 with a cylindrical bolt engaging portion 21, the latter being extended at an acute angle relative to a line extended longitudinally of the rail engaging member.

For the purpose of holding the clamping members firmly against a rail and also for the purpose of holding them in position relative to the metallic railway tie, I have provided a bolt comprising a straight, round, central portion 22, a flattened end portion 23 having inclined shoulders 24 and also having square shoulders 25. The other end of the bolt is screw threaded at 26. To provide for receiving this bolt one of the end portions 16 of the base 15 is provided with an oblong slot 27 and the other with a round opening 28. The metallic tie is also provided on one side with an oblong slot 29 and on the other side with a round opening

30. A beveled washer 31 and a nut 32 are also provided for the screw threaded end of the bolt.

In practical operation the stationary clamping member is first placed in position on the tie resting in the recess thereof and against the shoulders 12. Then the movable clamping member is placed in position to engage the side of the rail and the underside of the base 15. The rail engaging portion of the stationary clamping member is preferably against the outer surface of the rail while the movable clamping member is against the inner surface thereof. When the parts are in this position the two oblong openings in the end 16 and in the tie are in line with each other and the round openings in the other end 16 and in the other side of the tie are also in line with each other and all of these openings are in line with the cylindrical part 21 of the movable rail clamping member. When said parts are in this position the bolt may be readily and easily extended through all four of said openings and through said cylindrical portion until the inclined shoulders 24 are within the interior of the metallic tie and the shoulders 25 are in engagement with one end of the cylindrical portion 21. Then the washer 31 and the nut 32 are placed on the projecting end of the bolt and the nut is screwed up tight. The effect of this will be first to have the shoulder 25 engage the end of the cylindrical portion 21 and thereby move the movable clamping member longitudinally of the rail a slight distance. It will also move it toward the rail; that is to say, the movable clamping member will slide in the direction of the longitudinal axis of the bolt toward the nut, thereby firmly clamping a rail between the two rail engaging members, and second, this movement of the bolt and the movable member will cause the inclined shoulder 24 that is nearest to the side of the rail that is engaged by the movable clamping member to press firmly against the end of the slot in the tie and in the end 16 that is adjacent to the side of the rail on which the movable clamping member is placed, as clearly shown in Fig. 4, so that said bolt will bind against the tie at said end of the slot therein. The other end of the bolt will also bind against the same side of the round opening in the tie. The inclined shoulder 24 will obviously prevent a longitudinal movement of the bolt in a direction that would tend to loosen the movable clamping member. Therefore after the nut has been firmly screwed up and in the event that it should become loosened the movable clamping member will be so firmly gripped to the rail and the bolt will bind against the tie to such an extent that the tendency for the movable member to become wholly detached on account of the successive impacts of a train upon the rail is minimized and even if the nut were wholly missing, in all probability the bolt would remain in position and of itself prevent the detachment or removal of the movable rail clamping member. By this arrangement it is obvious that only a single bolt and nut is required for holding together the two clamping members relative to the rail and also for holding the clamping members firmly in position relative to the tie. A transverse movement of the stationary clamping member relative to the tie is prevented by means of the ends 16 and the lugs 17. There is however a slight play permitted between the upper edges of the sides 11 of the tie and the said ends and lugs 16 and 17. This slight amount of play permits of a slight springing movement of the sides of the tie when a heavy train is drawn upon the rail above the tie so that the impact is somewhat cushioned on account of the resiliency of the sides of the metal tie. The stationary plate also serves the additional function of preventing movement to any great extent of the sides of the tie either inwardly or outwardly.

I claim as my invention:

1. The combination with a railway tie, of a stationary and a movable rail clamping member and a bolt extending through the tie at an acute angle relative to a transverse line through the tie, said bolt being connected with the movable rail clamping member.

2. The combination with a metallic tie having openings in its sides, of a stationary rail clamping member designed to rest on the tie and provided with end portions designed to rest adjacent to the sides of the tie and also provided with bolt openings, a movable rail clamping member provided with a bolt receiving sleeve on its under surface, and a bolt extended through the openings in the tie and in the stationary member and through the sleeve in the movable member, and said bolt being provided with a shoulder to engage the movable clamping member, said bolt also being extended through said parts at an acute angle relative to a line transverse of the tie.

3. The combination with a metallic tie having openings in its sides, of a stationary rail clamping member designed to rest on the tie and provided with end portions designed to rest adjacent to the sides of the tie and also provided with bolt openings, a movable rail clamping member provided with a bolt receiving sleeve on its under surface and a bolt extended through the openings in the tie and in the stationary member through the sleeve in the movable member and said bolt being provided with a shoulder to engage the movable

clamping member, said bolt also being extended through said parts at an acute angle relative to a line transverse of the tie, an inclined shoulder, and a nut on the end of the bolt opposite from said shoulder.

4. The combination with a metallic tie having openings in its sides, of a stationary rail clamping member designed to rest on the tie and provided with end portions designed to rest adjacent to the sides of the tie and also provided with bolt openings, a movable rail clamping member provided with a bolt receiving sleeve on its under surface and a bolt extended through the openings in the tie and in the stationary member and through the sleeve in the movable member, and said bolt being provided with a shoulder to engage the movable clamping member, said bolt also being extended through said parts at an acute angle relative to a line transverse of the tie, the end of the bolt adjacent to said shoulder being flat and the opening in the tie and in the adjacent end of the stationary clamping member being formed oblong to prevent rotary movement of the bolt and to permit longitudinal sliding movement thereof.

5. The combination with a metallic railway tie, comprising a base and upwardly extended side members, one of said side members having an oblong slot and the other a round opening, a stationary clamping member comprising a base plate designed to rest on the sides of the tie, and end pieces designed to overlap the sides of the tie, a rail engaging member, one of said end pieces being provided with an oblong slot and the other with a round opening, a movable rail engaging member comprising a base portion designed to extend under the base portion of the stationary member and having a cylindrical bolt receiving member at its lower end arranged at an acute angle relative to a transverse line through the tie and also having a rail engaging member at its upper portion, a bolt having its central portion designed to extend through said cylindrical bolt receiving portion and being formed with a flat end having shoulders to engage said cylindrical bolt receiving portion and also having inclined shoulders adjacent to the aforesaid shoulders to engage the adjacent portion of the tie, said bolt being designed to be extended through the oblong openings, then through the cylindrical bolt receiving portion and then through the round openings at an acute angle relative to a transverse line through the tie, and a nut on said bolt.

6. The combination with a metallic railway tie, comprising a base and upwardly extended side members, one of said side members having an oblong slot and the other a round opening, a stationary clamping member comprising a base plate designed to rest on the sides of the tie and end pieces designed to overlap the sides of the tie, a rail engaging member, one of said end pieces being provided with an oblong slot and the other with a round opening, a movable rail engaging member comprising a base portion designed to extend under the base portion of the stationary member and having a cylindrical bolt receiving member at its lower end arranged at an acute angle relative to a transverse line through the tie and also having a rail engaging member at its upper portion, a bolt having its central portion designed to extend through said cylindrical bolt receiving portion and being formed with a flat end having shoulders to engage said cylindrical bolt receiving portion and also having inclined shoulders adjacent to the aforesaid shoulders to engage the adjacent portion of the tie, said bolt being designed to be extended through the oblong openings, then through the cylindrical bolt receiving portion and then through the round openings at an acute angle relative to a transverse line through the tie, a nut on said bolt, and two downwardly extended lugs on the base of the stationary plate designed to stand slightly spaced apart from the inner surface of the tie sides.

Des Moines, Iowa, April 12, 1912.

F. M. JOHNSTON.

Witnesses:
C. H. CROOKS,
O. E. SLATER.