F. P. MURPHEY.

SUPPORTING AND ATTACHING MEANS FOR RAILROAD RAILS.

APPLICATION FILED JAN. 19, 1916.

1,198,047. Patented Sept. 12, 1916.

Fig. 1.

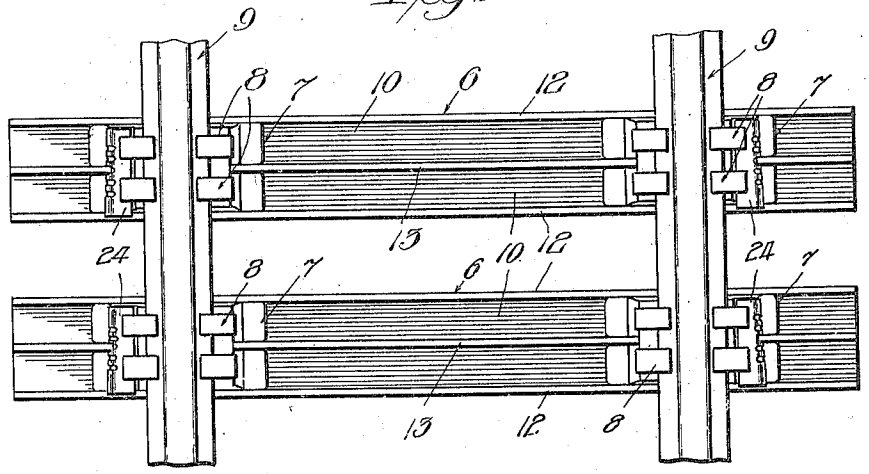

Fig. 2.

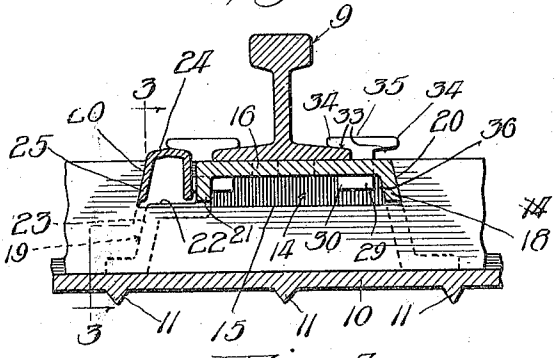

Fig. 3.

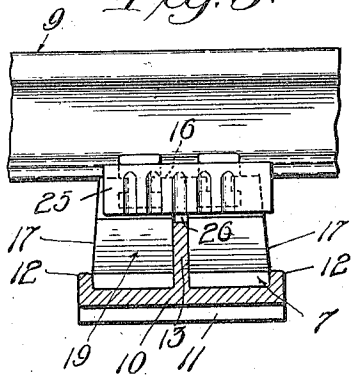

Fig. 4.

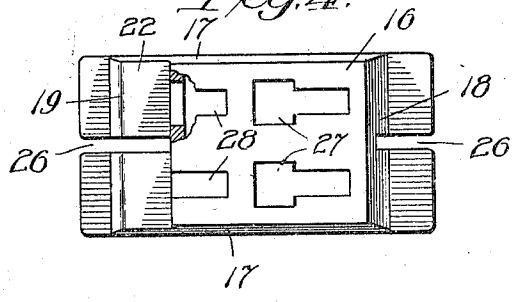

Fig. 5.

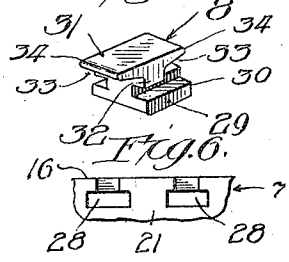

Fig. 6.

Witness:
Harry S. Gaither

Inventor:
Frank P. Murphey
by Wm. P. Bond
Atty

UNITED STATES PATENT OFFICE.

FRANK P. MURPHEY, OF DECATUR, ILLINOIS.

SUPPORTING AND ATTACHING MEANS FOR RAILROAD-RAILS.

1,198,047. Specification of Letters Patent. Patented Sept. 12, 1916.

Application filed January 19, 1916. Serial No. 72,979.

To all whom it may concern:

Be it known that I, FRANK P. MURPHEY, a citizen of the United States, residing at Decatur, in the county of Macon and State of Illinois, have invented certain new and useful Improvements in Supporting and Attaching Means for Railroad-Rails, of which the following is a specification.

The present invention relates to an attachment of the above described class, comprising a tie, a rail-chair, and rail-gripping members, together with means for locking these various parts together into a unified structure.

One of the objects of the invention is to provide a tie which can be formed of metal or analogous material, which will be relatively light of weight and strong of construction, and capable of being easily handled and installed in a road-bed.

A further object of the invention is to provide a chair upon which the rail base rests, which chair will have an interlocking connection with the tie, so as to prevent separation between these parts, and which chair will be of a construction whereby it can be used upon either side of the track, necessitating only a single form of casting.

A further object of the invention is to provide rail-gripping members adapted to be carried by the chairs, which rail-gripping members will also be of a single pattern or design, and which members will also be of a nature so that they can be reversed or turned in end to end position for the purpose of accommodating different widths of rail base.

A further object of the invention is to so arrange the parts that a single key or locking member may be employed for locking all of the parts into a unified structure.

The invention further consists in the features of construction and the combination of parts hereinafter described and claimed.

In the drawings: Figure 1 is a plan view of two rail sections with the ties, the associated rail-chairs, and gripping jaws of the present invention in operative relation thereto; Fig. 2 is a cross section on a somewhat enlarged scale, showing one of the rail-chairs with the rail-gripping jaws of said chair in operative relation to the rail, and a portion of the tie with which the rail-chair is associated: Fig. 3 is a section on line 3—3 of Fig. 2, looking in the direction of the arrow; Fig. 4 is a plan view of the rail-chair; Fig. 5 is a perspective of one of the rail-gripping members; and Fig. 6, a detail of the upper portion of one side of the rail chair.

In the art to which the present invention relates, there are three factors necessary for the proper supporting and securing of a railroad rail, namely, a tie, a rail-chair or tie-plate, and rail-gripping members or jaws. The present invention aims to make all of these parts of metal or analogous material, and to provide an easy and quick means of assembling and securing all of the parts into a unified structure.

Referring now to the drawings, wherein one method of practising the invention is illustrated, the tie is designated by the general numeral 6, the rail-chair by the general numeral 7, the rail-gripping jaws by the general numeral 8, and the rail by the numeral 9. The tie 6, in the construction shown, comprises a base 10, upon which may be formed a series of transverse ribs or projections 11, for the purpose of anchoring the tie in the ballast.

The tie is formed with outer, upwardly projecting flanges 12, and a central, upwardly projecting flange 13, all of said flanges extending longitudinally with respect to the tie body. The flange 13, as will be seen from the drawings, extends to a greater height than the flanges 12. The flanges 12 tend to strengthen the tie as a whole and to give a surface upon which a tamping tool may operate in placing the tie in position. They also serve to engage with the rail-chairs to prevent the same from spreading, as will more clearly hereinafter appear.

The flange 13 is formed with slots 14, there being two of these slots in the flange of each of the ties; and said slots are spaced an equidistance from the transverse center of the tie. These slots, as shown, are of tapering formation, being broader at their lower end than at their top; and, in the construction shown, these slots extend only part way down the said flange 13, as will be seen from Fig. 2, the bottom wall 15 of the slots lying medially of the flange. These slots receive the rail-chairs 7. Each chair is of similar formation, and hence a detailed description of but one is all that is necessary.

The chairs each comprise a top wall 16, side walls 17, an end wall 18, and an end

wall 19. The end wall 18 extends in a continuous slope from the top to the bottom thereof, which slope is of the same angle as the slope of the side walls 20 of the slot 14. Thus, when this end wall 18 is brought up against the side wall 20, as in Fig. 2, there is an interlocking connection made between the chair and flange 13, preventing separation by an upward movement of the chair. The top wall 16 of the chair, in the construction shown, is of less width than the width of the slot 14 at its upper end; and the end wall 19 consists of a vertical-depending face 21 merging into a horizontal face 22, which in turn merges into a second vertical-depending face 23. In other words, this side of the rail-chair is of stepped formation. Such configuration provides a space between the face 21 of the rail-chair and the side wall 20 of the slot 14 adjacent the face 21, as will be seen from Fig. 2; and into this space is driven a tapering key 24, which may be of spring formation. This key, when driven home in this space, acts as a locking member for securing together the chair and rail base, and also acts to receive certain of the rail-gripping members, as will hereinafter appear—in fact, this single key controls the locking together and the separation of the various parts of the attachment. The key, as will be seen from Fig. 2, has a wall or surface 25, which slopes in correspondence to the end wall 20 of the slot 14, making an interlocking engagement between these parts and preventing relative upward movement therebetween; and the tapered formation of the key makes a lock between the tie and chair, preventing relative horizontal movement between these parts, thus joining and locking all parts together.

It is a well known fact that the tendency of a rail to creep or slide is in the direction of movement of the trains passing over the rails, and it is therefore desirable to configure this key in a manner whereby a movement in that direction will tend to drive the key home more firmly, and hence the connection between the tie and chair will be rendered more secure, in accordance with the degree of a strain exerted thereon, which would tend to effect a separation between the rail and chair. The end faces 18 and 19 of the chair are formed with slots 26, which permit the chair to straddle the flange 13, so as to lie upon each side thereof, as will be seen from Fig. 3. The bottom of the chair rests upon the floor 10 of the tie, and the lower portion of the side walls 17 of the chair bear against the flanges 12, so that a tendency of the chairs to move out from the tie is resisted and checked by these flanges 12. Thus movement of the chair out from the tie is resisted by the key 24, by the flange 13, due to the chair straddling this flange, and by the flanges 12, thus distributing this strain upon the chair through several parts, whereby the danger of any part breaking by reason of the strain is minimized and reduced.

The top face 16 of the chair is formed with companion slots 27 and companion slots 28, the slots 27 lying upon one side of the rail base and the slots 28 on the other, and in the construction shown there being one of the slots 27 and one of the slots 28 on each side of the flange 13. These slots receive the rail-gripping members or jaws 8. These jaws are all of similar construction, and detailed description of but one will be made.

Each jaw comprises a base 29, which, as will be seen from Figs. 2 and 5, is elongated in one direction to provide an elongated portion 30. The rail-gripping portion 31 is connected to this base by means of a neck 32, which may be grooved, as shown in the drawings, for insertion into the slots 27 and 28. The rail-gripping portions 31 are configured to provide recesses 33 for receiving the side edges of the rail base and to provide over-hanging flanges 34, which overlie the upper face of the rail base, as will be apparent from Fig. 2.

It will be seen from the drawings that there are one of the recesses 33 and one of the overhanging flanges 34 upon each side of the rail-gripping member. This is provided because said gripping member, as shown, is of an adjustable nature; that is, if turned end for end it will be brought into closer proximity to the oppositely disposed rail-gripping member, and thus accommodate the large size of rail base. By turning end for end the rail-gripping member shown to the right of Fig. 2, and which for clearness will be given the added numeral 35, the elongated portion 30 of the base of said gripping member will then be brought into engagement with the inner face 36 of the end wall 18 of the rail-chair; and, as will be understood from the drawings, this will place said gripping member closer to the center of the chair, and thus decrease the space between this gripping member 35 and its coöperating gripping member on the opposite side of the chair. Thus, a rail base of lesser width may be accommodated by a very simple change.

The slots 28 receive a rail-gripping member of formation similar to the one described. These slots extend clear through the wall 21 of the chair, and thus, when the key 24 is driven into position, it engages with the base of these jaws, as will be seen from Fig. 2, and acts to drive the jaws into firm engagement with the rail base and to also lock the chair with respect to the tie. Of course, it is understood that in driving the key home, the locking action of the key

will force the rail base into close engagement with the rail-gripping member 35, as well as driving the rail-gripping member against which it acts directly, into close engagement with the rail base, so that this key in fact performs the double function of locking the chair to the tie and forcing the rail-gripping members into gripping engagement with the rail base.

All portions of the foregoing mechanism are easily and quickly assembled with respect to one another, and the entire locking operation is performed by the simple means of driving home the single key 24. Of course, no restriction is made on material or size of the parts, and, in fact, no further limitations of the invention are contemplated than may be set forth in the appended claims.

As will be seen from the drawings, the key or wedge is formed with a series of corrugations across its back, which serve to form biting edges that tend to hold the key more firmly in place. Also, the ties as constructed virtually make the entire structure, when secured to the rail, of a unitary part with the rail, thus preventing any spreading of the latter. They also serve to prevent a dislocation of the rail under conditions of operation.

I claim:

1. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion recesses therein, a rail chair seating in each of said recesses, one side of said chair being of stepped formation to provide a space between said side of the chair and the adjacent wall of the recess, and a locking member inserted in said space to join the chair and tie together, substantially as described.

2. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion recesses therein, a rail-chair seating in each of said recesses, the upper portion of each chair being of less width than the recesses, and a key inserted in the space between one end of the chair and the adjacent wall of the recess for locking said chairs to said flanges, substantially as described.

3. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion notches, each notch being of greater width at the bottom than the top, a rail-chair seating in each of said notches and extending downward on each side of said flange to straddle the same, and means for locking said chairs to said flange, substantially as described.

4. An appliance of the class described, comprising a tie body formed with a vertical flange running longitudinally thereof, said flange being formed with companion notches therein, each notch being of greater width at the bottom than the top thereof, a rail-chair seating in each of said notches, each of said chairs being of less width for a portion thereof than the width of the notch, and a key inserted in the space between one end of the chair and the adjacent wall of the notch for locking the chair to the flange, substantially as described.

5. An appliance of the class described, comprising a tie body formed with a vertical flange running longitudinally thereof, said flange being formed with companion notches, a rail-chair seating in each of said notches, each of said chairs being of less width for a portion thereof than the notches the side walls of the notches sloping outward from the top to the bottom thereof, one face of each chair having a slope corresponding to the slope of the walls of the notches, and a key inserted between the other face of the chair and the adjacent wall of the notch for locking the chair to the flange, substantially as described.

6. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion recesses therein, a rail chair seating in each of said recesses and extending downward on each side of said flange to straddle the same, and a single key for locking the chair and flange together, substantially as described.

7. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion notches, each notch being of greater width at the bottom than the top, a rail-chair seating in each of said notches and extending downward on each side of said flange to straddle the same, and a single key for locking the chair and flange together, substantially as described.

8. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion recesses therein, a rail-chair seating in each of said recesses and extending downward on each side of said flange to straddle the same, and vertical flanges along each side of the tie, substantially as described.

9. An appliance of the class described, comprising a tie body formed with a vertical flange, a rail-chair adapted to seat on said flange, an offset along one side of the chair, a key seating in said offset portion and serving to lock the chair to the flange, side walls and end walls for the chair, and said side and end walls resting on the floor of the tie, substantially as described.

10. An appliance of the class described, comprising a tie body formed with a vertical flange, a rail-chair adapted to seat on said flange, an offset along one side of the chair, a key seating in said offset portion and serving to lock the chair to the flange, side walls and end walls for the chair, said side and end walls resting on the floor of the tie, and the end walls of the chair being formed with slots, whereby the chair is permitted to straddle the flange, substantially as described.

11. An appliance of the class described, comprising a tie formed with a vertical flange running longitudinally thereof, said flange being formed with companion recesses therein, the walls of said recesses converging toward one another from their bottom to the top, a rail chair seating in each of said recesses, one side of said chair being of stepped formation to provide a space between said side of the chair and the adjacent wall of the recess, and a locking member inserted in said space to join the chair and tie together, substantially as described.

12. An appliance of the class described, comprising a tie, a vertical flange on the tie extending longitudinally thereof, oppositely disposed rail-chairs secured to said flange, oppositely disposed rail-gripping members on each chair, and means permitting adjustment of said gripping members with respect to one another to accommodate different sizes of rail base, substantially as described.

13. An appliance of the class described, comprising a tie, companion rail-chairs secured to said tie, a longitudinal flange on the tie, said chairs straddling said flange, a series of oppositely disposed slots in the top of each chair, said slots lying on each side of said tie flange, rail-gripping members, one arranged in each slot, the gripping members on one side being adjustable with respect to the gripping members on the other side to permit a relative adjustment between the members to accommodate different sizes of rail base, substantially as described.

14. An appliance of the class described, comprising a tie, companion rail-chairs secured to the tie, rail-gripping members carried by the chairs, each member comprising a base elongated in one direction, said elongated portion acting to space the gripping jaw with which it is associated closer to the opposite gripping jaw when said first-mentioned gripping jaw is turned end for end, whereby various widths of rail base are accommodated, substantially as described.

15. An appliance of the class described, comprising a tie, companion rail-chairs on the tie, companion rail-gripping members on each chair, and a member for locking each rail-chair to the tie and also for forcing the rail-gripping members associated with the chair tightly against the rail base, substantially as described.

FRANK P. MURPHEY.

Witnesses:
H. G. TAYLOR,
B. KEMPER.