Dec. 7, 1937. V. C. ARMSTRONG 2,101,038

RAIL SUPPORTING AND RETAINING MEANS

Filed Sept. 12, 1936

Fig. 1.

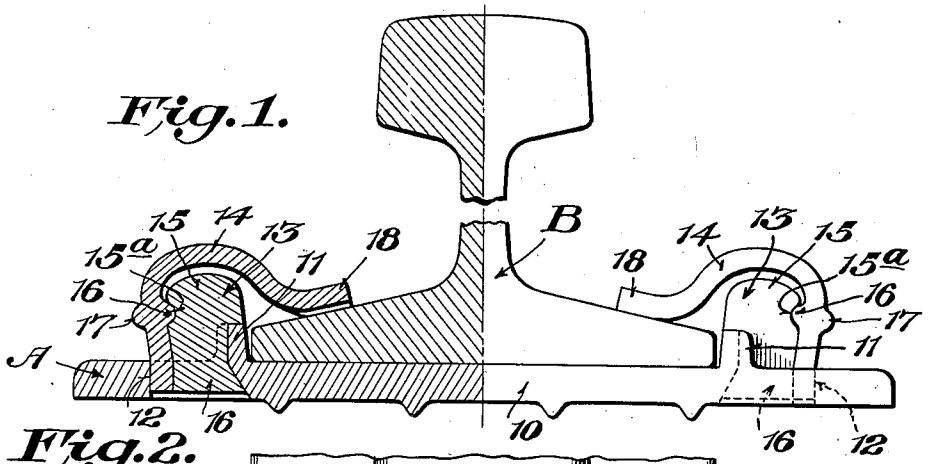


Fig. 2.

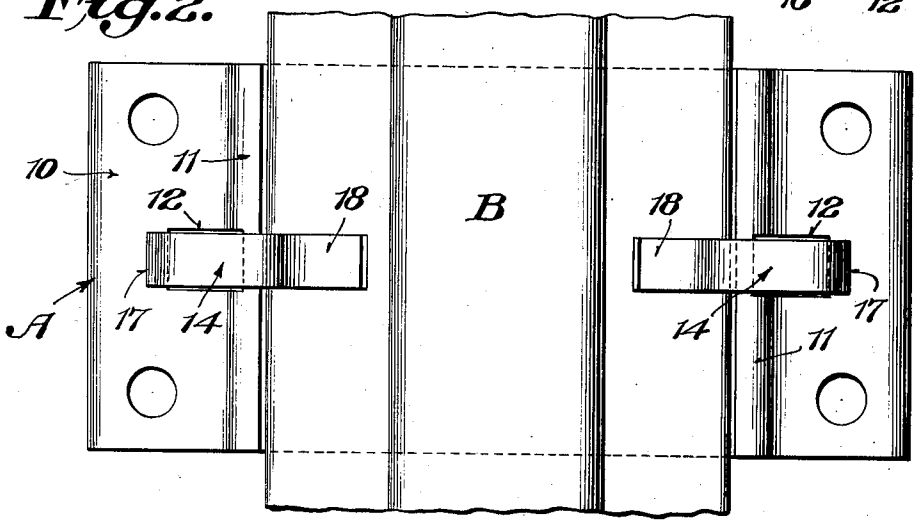
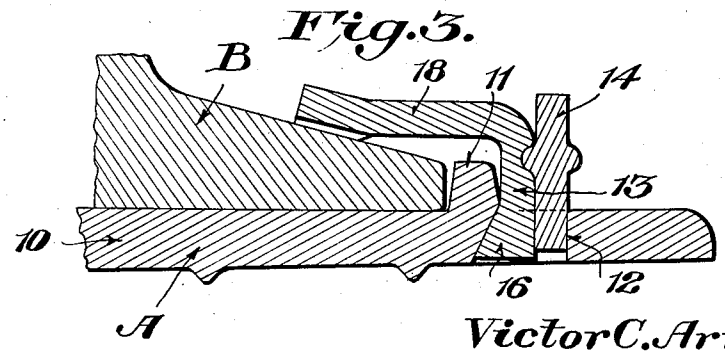


Fig. 3.



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RAIL SUPPORTING AND RETAINING MEANS

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5 Claims. (Cl. 238—349)

This invention relates to improvements in supporting, retaining and anti-creeping means for railway rails, and has particular reference to an improved combination of elements comprising a rail supporting tie plate and, for interlocking cooperation therewith and with each other, a pair of members one of which is formed to engage and to hold a rail seated on said tie plate rigidly against longitudinal movements and yieldingly against vertical movements, whereby so-called "creeping" of the rail is prevented and the same is permitted freely to partake of the wave motion imparted thereto by rolling stock passing thereover.

One special object of the invention is to provide a combination as stated in which the tie plate may be of a known type, thereby to permit economical replacements of a known type of rail retaining means by the present rail retaining and anti-creeping means and, in any event, to permit the economical use in the present combination of a tie plate of known type.

Another special object of the invention is to provide a combination as stated comprising a tie plate, a rail engaging and holding member and a fastening member for cooperation with the tie plate and said rail engaging and holding member to fasten the latter to the tie plate, in which said members are of simple, inexpensive construction and serve effectively to perform their respective functions.

With the foregoing and other objects in view, which will become more fully apparent as the nature of the invention is better understood, the same consists in the novel features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawing and defined in the appended claims.

In the drawing, wherein like characters of reference denote corresponding parts in the different views:

Fig. 1 is a transverse section through a tie plate and a rail illustrating one practical embodiment of the present means for cooperation with the tie plate and the rail to hold the latter against longitudinal movements and yieldingly against vertical movements.

Fig. 2 is a top plan view of the combination of elements shown in Fig. 1; and

Fig. 3 is a view similar to Fig. 1, illustrating an alternative embodiment of the invention.

Referring to the drawing in detail, first with particular reference to the form of the invention illustrated in Figs. 1 and 2, A designates, generally, the tie plate of the present rail supporting, retaining and anti-creeping combination, and B designates, generally, a rail seated on said tie plate.

The tie plate A is of a known type comprising a base 10 to be secured upon a cross tie in any suitable manner and provided at its top with a pair of upstanding, parallel ribs 11, 11 between which the rail A is seated, the said ribs cooperating with the edges of the base flange of the rail to hold the latter against lateral movements relative to the tie plate as is, of course, understood.

Outwardly of each rib 11 the base of the tie plate A has formed therethrough an opening 12 the outer wall of which preferably is straight and disposed vertically and the inner wall of which preferably has its upper portion straight and disposed vertically and its lower portion inclined upwardly and outwardly as shown, making an opening of tapered or flaring form.

Provided for use in each of the openings 12 for detachable interlocking engagement with the base plate A and with each other, is a pair of members 13 and 14, the former of which is in the form of a wedge-type filler block and the latter of which is in the form of a cooperating locking key.

Each filler block 13 includes a head formation 15 and a depending shank formation 16, of which the head formation is formed to overlie the related rib 11 of the tie plate A and the shank formation has the upper and lower portions of its inner face formed vertically straight and upwardly and outwardly inclined, respectively, to mate with the corresponding portions at the inner end of the related opening 12. In addition, each member 13 has the upper and the lower portions of its outer face slightly inclined downwardly and inwardly and upwardly and inwardly, respectively, for a purpose which will presently appear.

The openings 12 are of greater length than the thickness of the members 13. Therefore, when the members 13 are operatively disposed within the openings 12 with their inner faces abutting the walls at the inner ends of said openings, spaces are provided between the outer faces of said members and the walls at the outer ends of the openings 12 to accommodate the members 14.

The members 14 are sectionally dimensioned so as to be drivable into the spaces between the outer faces of the members 13 and the walls at the outer ends of the openings 12. Therefore, when the members 14 are driven into said spaces, the members 13 become rigidly interlocked with the base plate A due to the wedging cooperation of the lower, inclined portions of the inner faces

of said members with the inclined lower portions of the walls at the inner ends of the openings 12. At the same time there are produced wedging actions between the members 14 and the inclined outer faces of the members 13 which tend to urge the upper portions of the members 14 inwardly. In this connection it will be observed that each member 13 is provided with a depression 15a in the upper portion of its outer side and that each member 14 is provided at its inner side with a rib or protuberance 16 positioned to snap into the depression of the related member 13 when the member 14 is driven to an operative position into the opening 12. It follows therefore that when the members 14 are driven until their ribs or protuberances 16 snap into the depressions 15a the members 13 and 14 of each pair become interlocked with each other and with the tie plate against removal except by first removing the members 14. In this connection and to facilitate removal of the members 14 if and when desired, said members are provided with suitable driving-head formations 17 to be engaged by a suitable prying implement.

One or the other of the members 13 or 14 of each pair is provided with a resilient tongue or clip formation 18 to extend inwardly into overlying relationship to the base flange of the rail B to resiliently hold the rail against upward movement relative to the tie plate A and also to hold the rail against longitudinal or creeping movement relative to said tie plate. In this connection and as illustrated in Figs. 1 and 2 the tongue 18 is formed as part of the key member 14. On the other hand and as illustrated in Fig. 3 the tongue 18 is formed as an inward extension of the filler block 13. In either case the same general results are obtained—the rail is held yieldably against upward movement whereby it is not prevented from partaking of its natural wave motion when rolling stock passes thereover and at the same time it is held against longitudinal or creeping movement either by the frictional engagement of the tongues 18 with the base flanges thereof, or positively because of the biting engagement between the carvers of the tongues 18 and said base flanges, provision for each biting engagement being made, if desired, by deflecting the side portions of the tongues 18 downwardly or in any other suitable manner. If the tongues have biting engagement with the rail flanges the rail will be held rigidly against creeping due to the rigidity of the tongues 18 in the direction in which the rail tends to creep.

Obviously, the tie plate A might be formed without the ribs 11, in which event the members 13 may constitute abutments to hold the rail against lateral movements.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. In combination, a tie plate having a rail seat and an opening at the side of said rail seat, a rail seated on said tie plate, and a filler block member and a key member in said opening interlocked with each other and with the tie plate, one of said members having a resilient tongue extending into overlying relationship to the base flange of the rail, said filler block member and said key member being disposed in their entireties above the bottom face of the tie plate.

2. In combination, a tie plate having a rail seat and an opening at the side of said rail seat, the wall defining the inner end of said opening having its lower portion inclined upwardly and outwardly, a rail seated on said tie plate, a filler block member within said opening having the lower portion of its inner face inclined upwardly and outwardly for wedging cooperation with the inclined portion of the wall at the inner end of said opening, a locking key member driven into said opening between the wall at the outer end thereof and the outer face of said filler block member, interlocking means between said locking key member and said filler block member, said filler block member and said locking key member being disposed in their entireties above the bottom face of the tie plate and a resilient tongue extending inwardly from one of said members into overlying relationship to the rail flange.

3. In combination, a tie plate having a rail seat and an opening at the side of said rail seat, the tie plate having a downwardly facing shoulder at the inner side of said opening, a rail seated on said tie plate, a filler block member disposed within said opening and having a head formation preventing downward movement thereof through said opening, said filler block member also having an upwardly facing shoulder at the inner side thereof cooperating with the shoulder at the inner end of the opening to prevent upward movement of said filler block member, a locking key member driven into said opening between the wall at the outer end thereof and the outer side of said filler block member and having wedging cooperation with said filler block member, interlocking means between said members, said filler block member and said key member being disposed in their entireties above the bottom face of the tie plate, and a resilient tongue extending inwardly from one of said members into overlying relationship to the rail flange.

4. The combination as set forth in claim 3 in which the tongue has biting engagement with the rail flange.

5. In combination, a tie plate having a rail seat and an opening of tapering form at one side of said seat, a filler block having a wedge-formation to interlock with said tapered opening, and a key member having an interlocking wedging engagement with said filler block and provided with a rail holding spring-tongue overlying the filler block and the rail flange, said filler block and said key member being disposed in their entireties above the bottom face of the tie plate.

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