Nov. 8, 1932. J. A. McGREW 1,887,457

RAIL FASTENER

Filed July 1, 1931

FIG. 1.

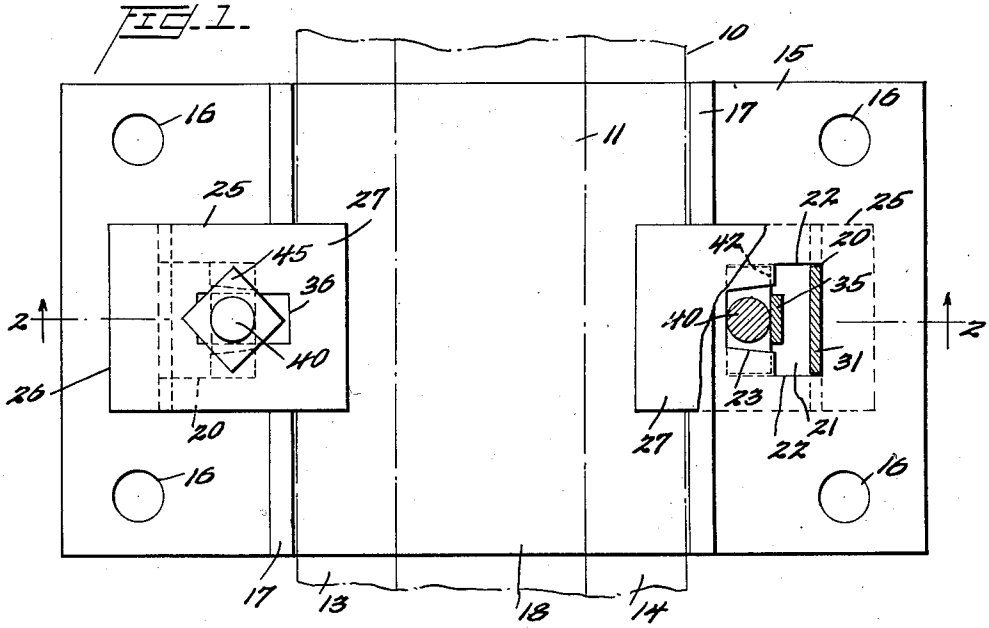


FIG. 2.

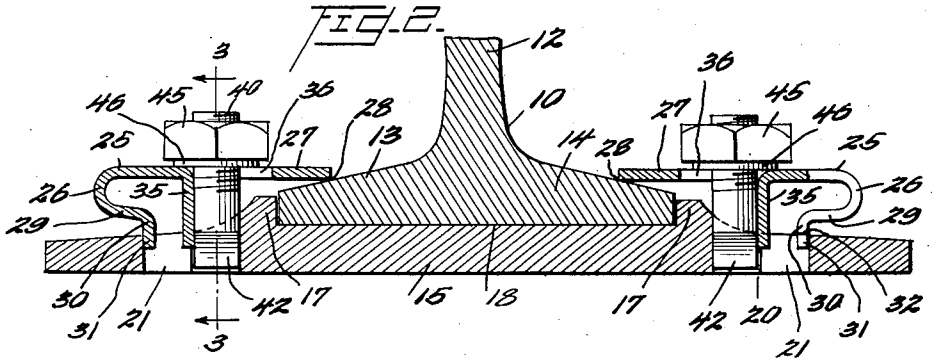
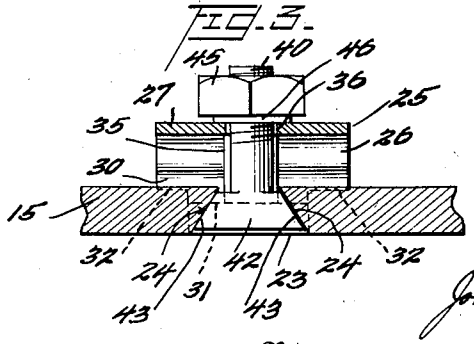


FIG. 3.



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UNITED STATES PATENT OFFICE

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RAIL FASTENER

Application filed July 1, 1931. Serial No. 548,193.

This invention relates to rail fasteners and particularly to the type by which the rail is fastened to a tie plate or other supporting means associated with a cross-tie.

It is a general object of the present invention to provide an improved and novel form of rail fastener which is simple in design, easy to manufacture and efficient in operation.

A more particular object of the invention is the provision of a rail fastener of this type which comprises a lever or a clip adapted to bear upon portions of both the rail base and the tie plate or simlar supporting member, a clip securing element such as a bolt or the like having a portion adapted to be associated with the tie plate, and means for maintaining the clip securing element in its properly applied position with relation to said tie plate during the completion of the application or adjustment of said fastener.

The principles of the present invention are illustrated in the accompanying drawing and described herein as embodied in a rail fastening assembly similar to the one disclosed in my copending application Serial No. 466,506, filed July 8, 1930, but it is obvious that they may be incorporated in many different types of rail fastening, such as for example, those employing rigid as well as resilient clips and those in which the bolt or other securing means is interlocked or associated with the tie plate in various other ways.

Other objects and features of novelty will be apparent from the following specification when read in connection with the accompanying drawing.

In the drawing:

Figure 1 is a plan view of a tie plate and rail fastening means constructed in accordance with my invention, with a portion of one of the clips broken away to reveal the connection between certain of the securing means and the tie plate, the position occupied by the rail being indicated by broken lines;

Figure 2 is a vertical transverse sectional view taken on line 2—2 of Figure 1; and

Figure 3 is a cross sectional view taken on line 3—3 of Figure 2.

As illustrated in the drawing, a standard form of railway rail is indicated generally by the numeral 10 and is provided with the usual head 11, web 12 and base flanges 13 and 14. The tie plate 15 may be of any convenient dimensions but preferably extends laterally for some distance on either side of the base flanges of the rail. The tie plate is provided with any suitable means for securing it to the cross-tie, which may comprise, for example, the ordinary type of rail spike or, preferably, lag bolts which are adapted to be inserted through the perforations 16 formed in the tie plate near the corners thereof. In the illustrated embodiment of the invention the tie plate 15 is provided with upstanding ribs or shoulders 17 which define between them the rail seat 18 which may be level throughout its entire extent or which may be provided with a medial ridge or peak, or a chamber such as shown in my copending application Serial No. 509,495, filed January 17, 1931. However, so far as the present invention in its broadest aspects is concerned, the rail seat may be constructed in any preferred or suitable manner.

Outwardly of one or each of the ribs 17, the tie plate is provided with the perforation or slot 20. This slot 20 comprises a substantially rectangular portion 21 having oppositely disposed parallel vertical walls 22 and an inner portion 23 which is of the same width as the portion 21 at the base thereof, but is provided with upwardly converging walls 24. This construction obviously makes the width of the top of the slot portion 23 considerably less than that of the bottom of the slot.

In the preferred construction illustrated, the rail fastening means are duplicated upon either side of the rail base. This arrangement, however, may be varied, as stated, by providing a rail fastening device upon but one side of the rail base without departing from the scope of the invention as defined in the claims.

An essential element of the rail fastening assembly is the preferably resilient lever or clip 25 which comprises the U-shaped intermediate portion 26 having an elongated substantially horizontal leg 27, the inner lower

edge 28 of which is adapted to bear upon the upper surface of the rail base, and another shorter leg 29 which terminates in a vertical downwardly directed portion 30. A narrowed tongue 31 is formed upon the vertical portion 30 dividing the shoulders 32 upon either side thereof. The tongue 31 is adapted to enter the vertical walled portion 21 of the slot 20 and shoulders 32 are adapted to bear upon the upper surface of the tie plate upon each side of the extreme outer portion of the slot.

Substantially centrally of the elongated horizontal leg 27 of the clip, a portion 35 is severed from the material of the clip upon three sides and is bent downwardly as clearly shown in Figure 2 of the drawing so as to provide the opening 36 in the leg 27 for the insertion of a bolt or like fastening means, and to provide a vertically downwardly extending tongue the purpose of which will be later described.

In order to secure the clips 25 to the tie plate and to cause them to bear with considerable pressure against the top of the rail base flanges, there are provided suitable fastening elements such as, for example, the bolts 40 which are adapted to pass through the openings 36 formed in the upper elongated legs 27 of the clips 25. Each of the bolts 40 are provided with a T-shaped head 42 having a beveled or upwardly converging end surface 43 corresponding in taper to the walls 24 of the portion 23 of the slot in the tie plate. Threaded upon the upper end of the bolts 40 are the nuts 45 which are adapted to bear upon the upper surfaces of the legs 27 when tightened upon the bolt. Washers 46 may be provided in this conection if desired.

In assembling the rail fastening elements which have just been described, the head of the bolt is inserted in the straight walled portion 21 of the slot 20 and moved inwardly beneath the overhanging converging walls 24 into the inner portions 23 of the slot. The clip or lever 25 is then placed on the shank of the bolt so that the bolt will extend through the opening 36. In applying the clip the narrow tongue 31 is inserted in the outer part of the rectangular portion 21 of the slot and the tongue 35 is adapted to project into the inner part of the portion 21 and to bear, preferably with a slight resilient force, against the outer side of the bolt 40 and the flat outer surface of the bolt head 42. The nuts 45 and 46 are then placed upon the shanks of the bolts and are screwed down upon the legs 27 of the clips, thus causing the edges 28 to bear firmly upon the upper surface of the base of the rail. In the preferred embodiment, wherein the clips are formed of relatively thin plates of resilient metal, it will be seen that besides forming resilient clamping means for the base flanges of the rail, the clips 25 also perform the functions of locks for the nuts 45.

It will be understood, furthermore, from the foregoing description and the drawing, that, during the application and adjustment of the rail fastening means, the tongue 35 will maintain the bolt 40 in its interlocked relation with the tie plate and eliminate all possibilities of accidental displacement thereof during the completion of the application of the fastening means. The clips 25 as shown, are rather wider than the slot 20 and, were it not for the provision of the means such as the tongue 35, it would be extremely difficult to keep the bolt head 42 pressed firmly home within the slot portion 23 after the clip is applied and before the nut 45 is finally tightened upon the shank of the bolt.

By means of the present invention, therefore, all the elements of the rail fastening assembly are firmly held in position in association with the rail base and tie plate immediately upon being initially applied thereto, thus facilitating the final tightening and adjustment of the fastener.

The embodiments illustrated and described are susceptible of various changes and modifications within the scope of the invention as set forth in the following claims.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A rail fastener for securing a rail to a tie plate or the like, comprising in combination, a spring clip having a horizontal arm, a vertical arm, an intermediate U-shaped bend, and a vertical tongue depending from said horizontal arm, said horizontal arm adapted to bear upon the rail base, said vertical arm adapted to engage a portion of said tie plate, and flexing and securing means associated with said horizontal arm and said tongue.

2. In a rail fastener, in combination, a tie plate having a rail seat thereon and a slot formed therein, a U-shaped spring retaining clip having a straight elongated horizontal leg adapted to bear upon said rail base and a shorter leg having a vertical downwardly bent portion adapted to enter said slot, a tongue adapted to extend downwardly from said horizontal leg into said slot, and adjustable means for securing the intermediate portion of said clip to said tie plate.

3. A rail fastener for securing a rail to a tie plate or the like comprising, in combination, a spring clip provided with a horizontal arm adapted to bear upon the rail base, a vertical arm adapted to engage a portion of said tie plate, flexing and securing means associated with said clip, and means formed on said clip for holding said flexing and securing means in properly applied position during the assembly of the device.

4. A rail fastener for securing a rail to a tie plate or the like comprising, in combination, a spring clip provided with an elon-

gated horizontal arm adapted to bear upon the rail base, a vertical arm adapted to engage a portion of said tie plate, a bolt adapted to pass through said horizontal arm for securing said clip to said tie plate, and a tongue formed on said clip for holding said bolt in properly applied position during assembly of the device.

5. As an article of manufacture, a spring clip for use in connection with a rail fastening device, which comprises a flat metal plate having an elongated horizontal arm, a short vertical arm, and an intermediate U-shaped bend, said horizontal arm having a portion thereof struck downwardly therefrom to provide an opening for the insertion of fastening means and a tongue for abutting said fastening means.

6. In a rail fastener, in combination, a tie plate provided with a slot, a lever having one end adapted to bear on the rail base and the other end adapted to engage said tie plate, a fastening element adapted to pass through an opening in said clip and a portion of said element adapted to interlock with the walls of said slot, and means carried by said clip to hold said element in interlocked engagement during the further assembly of said fastener.

7. In a rail fastener, in combination, a tie plate, a lever having an arm adapted to bear on the rail base and another arm adapted to engage said tie plate, a fastening element adapted to pass through an opening in said clip and a portion of said element adapted to be connected to said tie plate, and a third arm carried by said clip to hold said element in position during the further assembly of said fastener.

8. In a rail fastener, in combination, a tie plate or the like provided with a slot comprising an outer straight walled portion and an inner portion, the walls of which converge upwardly, a spring lever one end of which is adapted to bear upon the rail base, and the other to engage the tie plate, a flexing and securing bolt adapted to pass through an opening in said lever, a head on said bolt having beveled walls, said head during application of said fastener adapted to be inserted in the outer portion of said slot and to be moved inwardly to interlock with the converging walls of said inner portions, and a tongue adapted to extend downwardly from said clip, enter said slot, and to bear against said bolt to retain it in said interlocked position during completion of the application of said fastener.

In testimony whereof I hereunto affix my signature.

JOHN A. McGREW.