Oct. 20, 1936. T. MANEY 2,057,963

RAIL FASTENING

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Fig. 1.

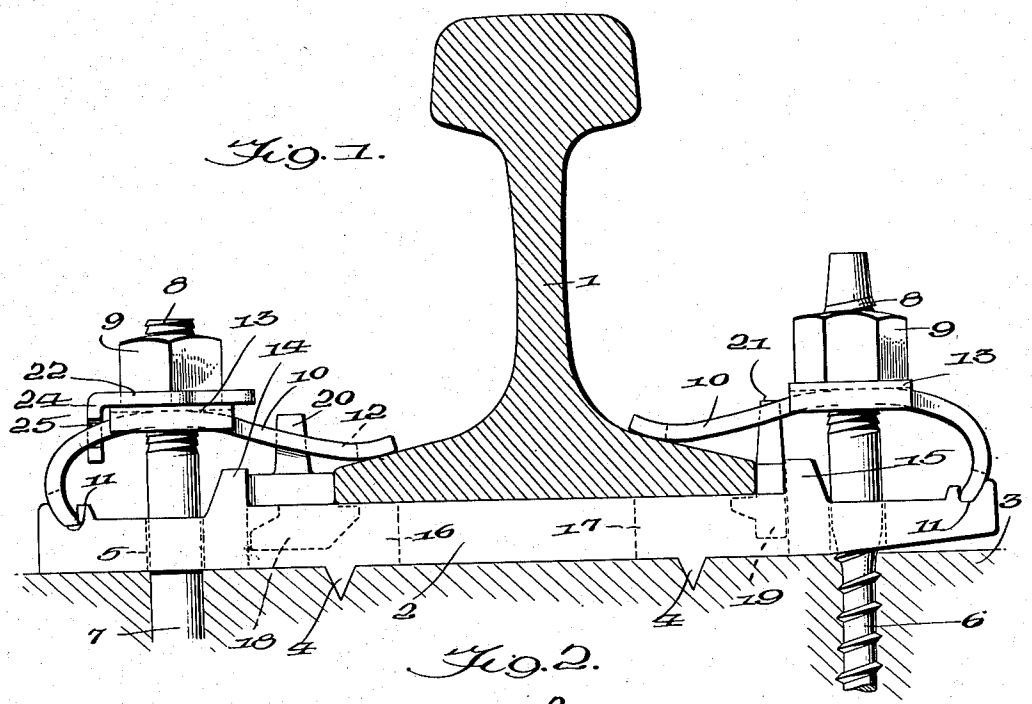
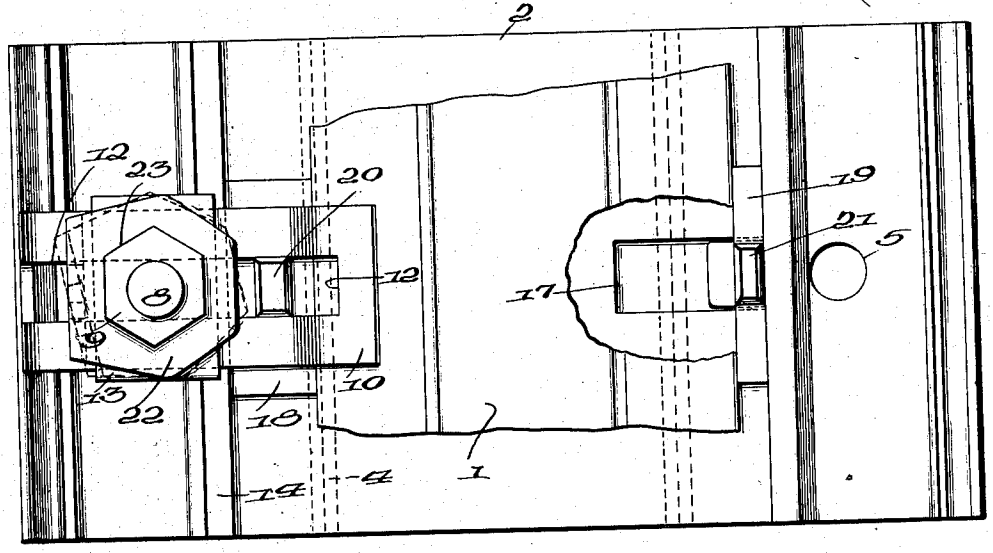


Fig. 2.



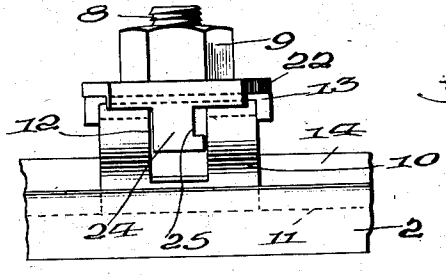


Fig. 3.

Inventor

Thomas Maney

By Vernon E. Hodges

Attorney

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Fig. 4.

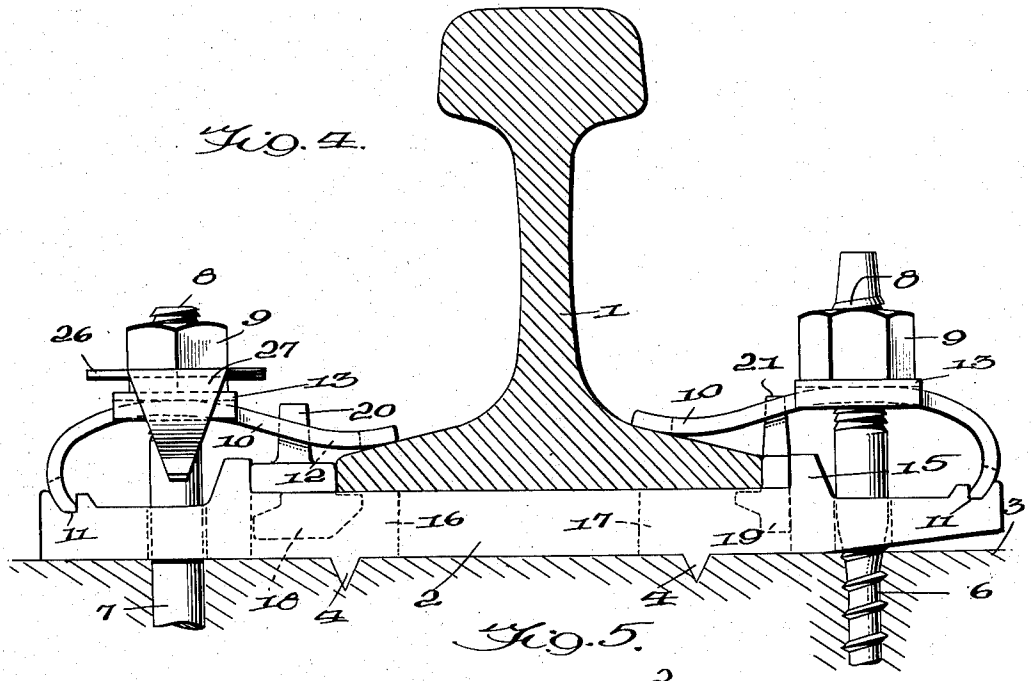
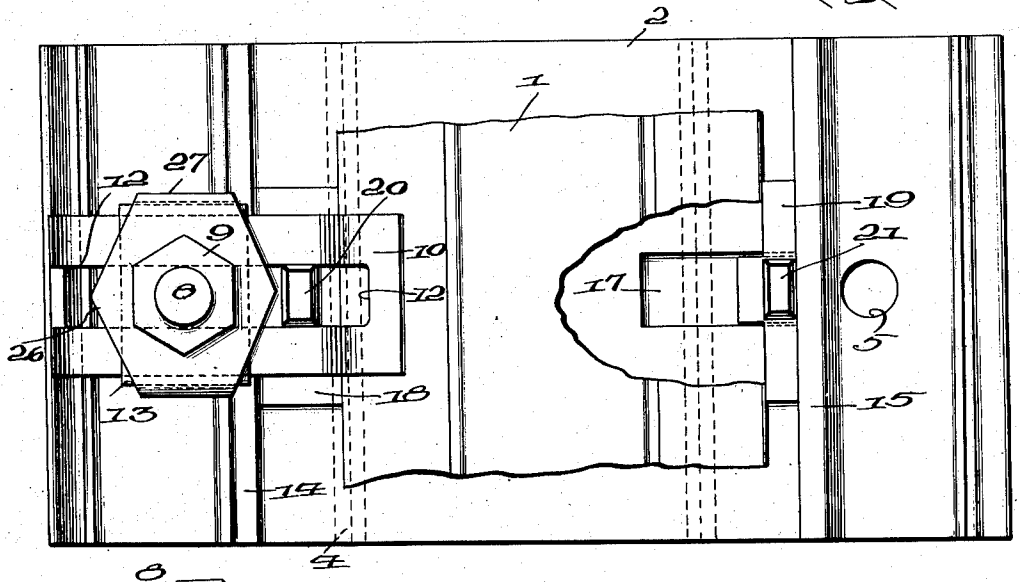


Fig. 5.



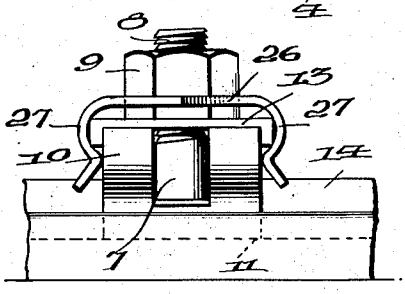


Fig. 6.

Inventor

Thomas Maney

By Vernon E. Hodges

Attorney

Patented Oct. 20, 1936 2,057,963

UNITED STATES PATENT OFFICE

2,057,963

RAIL FASTENING

Thomas Maney, Louisville, Ky.

Application January 20, 1934, Serial No. 707,556

20 Claims. (Cl. 238—304)

This invention relates to an improvement in rail fastenings of the character set forth in my application Serial No. 556,206, filed July 27, 1931, on tie plate construction.

One of the improved features of my present invention relates to the holding of the spring clips against any possible tendency to swivel or turn about the bolt, as for instance in tightening up the bolt, which is accomplished by the provision of a slot in each spring clip through which slot the bolt extends and also there is a boss on the top of the adjusting piece which extends into the slot to hold the spring clip in place and maintain the outer end of the spring clip seated in the groove of the tie plate.

A second improved feature of my present invention relates to the manner of locking the nuts of the screws against removal so as to guard against any slackening of the spring clips due to recession of the nuts. A locking device is applied to one or more of the nuts and cooperates with the spring clip or clips to hold the nut against accidental unscrewing, and thereby loosening the clip.

In the accompanying drawings,

Fig. 1 is a side elevation of a tie plate and rail fastening construction showing the rail in section;

Fig. 2 is a top plan view thereof;

Fig. 3 is a detail end elevation of a portion of one of the clips and the locking device for the bolt thereof;

Fig. 4 is a view similar to Fig. 1 showing a modified form of locking device;

Fig. 5 is a top plan view thereof; and

Fig. 6 is a detail end elevation of one of the clips and its locking device.

The numeral 1 represents a main rail which is seated on a tie plate 2 secured to a cross tie 3. The undersurfaces of the tie plate 2 may have the usual bent ribs 4, if desired, to hold the tie plate against lateral movement on the tie.

The tie plate 2 is provided with holes 5 therein for receiving screw spikes or bolts 6 and 7, either of which may be used as desired, to secure the tie plate to the tie. The upper ends of the bolt and screw are threaded as at 8, receiving nuts 9, screwed thereon and forming the adjustable heads for the spike and bolt. The removal of these nuts permits the tie plate and its fastening means to be removed from the tie without removing the screws or bolts.

Spring clips 10 have their intermediate portions arranged beneath the nuts 9 and their outer ends are curved downwardly to engage in seats 11 of the tie plate 2 while the inner ends thereof bear on the base flanges of the main rail 1, somewhat as illustrated in my former U. S. Patent No. 1,067,125, granted July 8, 1913. Each of the clips 10 has a slot 12 extending longitudinally thereof and receiving the bolt or screw. A washer 13 is seated on each spring clip 10 under the nut 9, spanning the sides of the spring clip and the slot 12 therein, said washer being held in place by down-turned ends.

Shoulders 14 and 15 are formed on the upper surface of the tie plate 2 and of sufficient distance apart to receive the base of the main rail 1 therebetween with the edges of the base flanges spaced from these shoulders. The tie plate 2 is provided with slots 16 and 17 at the inner sides of the shoulders and projecting sufficiently far inward normally to underlie the edges of the base flanges from the main rail.

Adjusting pieces 18 and 19 are mounted between the main rail base flanges and the shoulders 14 and 15. These adjusting pieces preferably are castings, and are similar in construction and arrangement to the corresponding adjusting pieces described and illustrated in my above-mentioned application, Ser. No. 556,206, except that the adjusting pieces 18 and 19 are provided with bosses 20 and 21 which extend upwardly therefrom and are received in the slots 12 of the spring clips. The bosses 20 and 21 cooperate with the respective bolt and screw which also pass through the corresponding slots in the spring clips and hold the spring clips against any tendency to swivel or turn about the bolt or screw, keeping the outer ends of the spring clips properly seated on the tie plate, and the inner ends properly bearing on the inner flanges of the main rail.

Also cooperating with one or both of the spring clips and its connected bolt or screw is a locking device to hold the nut against turning which might slacken the spring clip and render it ineffective for holding the rail. One form of locking device is shown in Figs. 1, 2 and 3 while a slightly different form is shown in Figs. 4, 5 and 6, but either form may be used as desired, for one or both of the screw and bolt of each tie plate, or a pair of screws or bolts.

In the form shown in Figs. 1, 2 and 3, a locking strip 22 has a hole 23 therein to receive and fit the nut 9 after the nut has been tightened up. One edge of locking strip 22 has a downwardly extending hook 24 provided with a notch 25 which may receive one side of spring clip 10, as hook 24 extends into slot 12.

In the arrangement illustrated, the nut 9

would be tightened up to a point where one side of the nut would be at right angles to the clip. The locking strip 22 is then slipped over the nut with hook 24 projecting downwardly into slot 12 in the spring clip after which nut 9 may be turned slightly until the adjacent edge of the spring clip at a side of slot 12 enters notch 25. This holds the nut against further loosening and positively locked. At the same time the locking strip 22 is held against accidental removal from the nut and clip by reason of the engagement of the hook 24 with an edge. However, upon turning of nut 9 to its original position with its sides at right angles to the clip, the locking strip may be removed easily. The constant tendency of the nut to slacken or to turn backward, keeps the parts in tight contact.

In the form shown in Figs. 4, 5 and 6, a locking strip 26 preferably is stamped out of spring steel and formed as shown particularly in Fig. 6 with downwardly extending spring fingers 27 to enable the locking strip to be slipped over the nut as described above and to hold the nut against turning by the engagement of fingers 27 around the edges of washer 13 and the edges of spring clip 10.

I claim:

1. In a rail fastening, the combination of a tie plate adapted to receive a rail thereon, an adjusting piece adapted to be interposed between the portions of the tie plate and rail, said adjusting piece having an upstanding boss thereon, a member adapted to overlie a portion of the rail and hold the rail in place, said member having a slot therein, and bolt means extending through the slot for securing the member in place, said member being held against turning about the bolt means by the engagement of the upstanding boss in the slot thereof.

2. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, an adjusting piece interposed between portions of the tie plate and rail and having an upstanding boss, of a resilient leaf spring having an end overlying a portion of the rail to hold said rail in place, said leaf spring having a longitudinally extending slot therein, and bolt means extending through the slot of said leaf spring to hold the leaf spring in place, said leaf spring being held against turning about the bolt means by the engagement of the upstanding boss in the slot thereof.

3. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, an adjusting piece interposed between a portion of the tie plate and a flange of the rail, said adjusting piece having an upstanding boss thereon, a leaf spring having one end bent inwardly and engaging a portion of the tie plate and the other end overlying the base flange of the rail, said leaf spring having a longitudinally extending slot therein, and bolt means extending through the tie plate and the slot for holding the leaf spring securely on the tie plate and rail, the leaf spring being held against turning about the bolt by the engagement of the adjusting piece boss in the slot thereof.

4. In a rail fastening, the combination of a tie plate adapted to receive a rail, a fastening strip adapted to bear against a base flange of the rail to hold the rail in place on the tie plate, bolt fastening means extending through the tie plate and fastening strip and having a nut thereon, a locking strip fitted around the nut, and means cooperating with an edge of the fastening strip for holding said locking strip against turning relative to the fastening strip and thereby preventing loosening of the nut.

5. In a rail fastening, the combination of a tie plate adapted to receive a rail thereon, a fastening strip arranged to overlie a base flange of the rail to hold said rail in place on the tie plate, bolt fastening means extending through the tie plate and fastening strip and having a nut thereon adapted to bear against the fastening strip, a locking strip having an opening therein corresponding with the periphery of the nut to fit around said nut, and a downturned edge portion attached to said locking strip and arranged to cooperate with a portion of the fastening strip and prevent turning of the nut relative thereto.

6. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, a fastening strip extending between the tie plate and a base flange of the rail for holding the rail in place on the tie plate, a bolt member extending through the tie plate and fastening strip and having a nut threaded on the upper end thereof bearing against the fastening strip, and a locking strip having an opening therein corresponding with the periphery of the nut and fitting around said nut, said locking strip having a downturned flange at an edge thereof arranged to cooperate with a portion of the fastening strip to prevent turning of the fastening strip relative to the bolt member and tie plate.

7. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, a leaf spring having an end portion arranged to bear against the tie plate and the opposite end portion being in position to overlie a base flange of the rail to hold the rail in place, a bolt member extending through the tie plate and leaf spring and having a nut threaded on the upper end thereof bearing against the leaf spring, and a locking strip having an opening therein corresponding with the periphery of the nut and fitting around the nut, said locking strip having a downturned flange at an edge thereof arranged in position to cooperate with a portion of the leaf spring to hold the locking strip and nut against turning relative thereto.

8. In a rail fastening, the combination of a tie plate adapted to receive a rail thereon, a fastening strip arranged to hold the rail in place on the tie plate, said fastening strip having an opening therein, a bolt member extending through the fastening strip and having a nut threaded on the upper end thereof, and a locking strip having an opening therein corresponding with the periphery of the nut and fitting around the nut, said locking strip having a downturned edge flange extending into the opening in the fastening strip to prevent turning of the locking strip and nut relative thereto.

9. In a rail fastening the combination with a rail, of a tie plate receiving the rail thereon, a resilient fastening strip interposed between portions of the tie plate and rail for holding the rail in place on the tie plate, said strip having a slot therein, a bolt member extending through the tie plate and fastening strip and having a nut threaded on the upper end thereof, a locking strip having an opening therein corresponding with the periphery of the nut and fitting around said nut, said locking strip having a downturned edge flange extending into the slot to prevent substantial turning of the nut relative to the fastening strip.

10. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, a resilient fastening strip interposed between portions of the tie plate and rail for holding the rail in place on the tie plate, said strip having a slot therein, a bolt member extending through the tie plate and fastening strip and having a nut threaded on the upper end thereof, a locking strip having an opening therein corresponding with the periphery of the nut and fitting around said nut, said locking strip having a downturned edge flange extending into the slot to prevent substantial turning of the nut relative to the fastening strip, said downturned flange having a notch therein in position to receive an edge of the fastening strip and prevent accidental displacement of the locking strip from the nut.

11. In a rail fastener, the combination with a rail, of a tie plate receiving the rail thereon, a fastening plate interposed between the tie plate and a base flange of the rail to hold the rail in place on the tie plate, a bolt member extending through the tie plate and fastening strip and having a nut threaded thereon, a locking plate having an opening therein corresponding with the periphery of the nut and surrounding the nut, and spring fingers carried by opposite sides of the locking plate embracing the opposite edges of the fastening strip to hold the locking plate and nut against turning relative thereto.

12. In a rail fastener, the combination with a rail, of a tie plate receiving the rail thereon, a spring clip interposed between portions of the tie plate and rail to hold the rail in place on the plate, a bolt member extending through the spring clip and having a nut threaded on the upper end thereof bearing against the spring clip to hold the same in place, a locking strip having an opening therein corresponding in size with the periphery of the nut and fitted around the nut, and spring fingers carried by opposite sides of the locking plate and embracing the opposite edges of the spring clip to hold the locking plate and nut against turning relative thereto.

13. In a rail fastening, the combination of a tie-plate adapted to receive a rail thereon, a leaf-spring having an end portion arranged to bear against the tie plate and the opposite end portion being in position to overlie a base flange of the rail to hold the rail in place, said leaf-spring having an elongated slot therein extending throughout the major portion of the length thereof and terminating short of the end portions thereof, and a bolt-member extending through the slot for holding the leaf-spring in place.

14. A spring clip for a tie plate to hold a rail in place thereon, and having end portions adapted to bear against the tie-plate and rail, and having an intermediate portion between the end portions, said intermediate portion having an elongated slot extending approximately throughout the length thereof and terminating short of the extreme ends of the clip, said slot being adapted to receive a fastening bolt member.

15. A spring clip for a tie plate to hold a rail in place thereon, said clip being bowed approximately throughout the length thereof and having end bearing portions adapted to bear against the tie plate and rail, and having an intermediate portion between the end portions, said clip having an elongated slot extending approximately throughout the length thereof and terminating approximately at the end portions at points spaced inwardly from the extreme ends of the clip to distribute the flexure of the clip approximately throughout the length thereof.

16. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, a spring clip bowed approximately throughout the length thereof and having end portions bearing against the tie plate and rail and holding the rail in place, said clip having an elongated slot extending approximately throughout the length thereof and terminating approximately at the end portions at points spaced inwardly from the extreme ends of the clip to distribute the flexure of the clip approximately throughout the length thereof, and means extending through said slot for holding the clip in place.

17. In a rail fastening of the type in which a fastening strip bears upon a base flange of a rail and upon a tie plate to hold the rail in place, the combination with said fastening strip, of a fastening bolt extending therethrough and having a nut thereon, a locking strip fitted around the nut, and means cooperating with an edge of the fastening strip for holding the locking strip against turning relative to the fastening strip and thereby preventing loosening of the nut.

18. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, an adjusting piece interposed betwen a portion of the tie plate and a flange of the rail, said adjusting piece having an upstanding boss thereon, a member having an end engaging a portion of the tie plate and the other end overlying the base flange of the rail, said member having a longitudinally extending slot therein, and means extending through the tie plate and slot for holding the member securely on the tie plate and rail, said member being held against turning about the holding means by the engagement of the adjusting piece boss in the slot thereof.

19. In a rail fastening, the combination of a tie-plate adapted to receive a rail thereon, a member bearing against the tie plate and adapted to overlie a portion of the rail to hold the rail in place, said member having a longitudinal slot therein extending lengthwise toward the rail, an adjusting piece adapted to be interposed between the portions of the tie plate and rail, said adjusting piece having an upstanding boss thereon extending through the slot in the holding member and holding said member against movement relative to the rail.

20. In a rail fastening, the combination with a rail, of a tie plate receiving the rail thereon, a resilient leaf spring having the ends thereof bearing against the tie plate and rail to hold the rail in place, said leaf-spring having a longitudinal slot therein extending lengthwise toward the rail, an adjusting piece interposed between the tie plate and rail and having an upstanding boss thereon extending through the slot in the leaf spring and holding said leaf spring against turning movement relative to the rail.

THOMAS MANEY.