Oct. 25, 1949. T. F. JONES 2,486,290

RAIL ANCHORING AND SECURING DEVICE

Filed Aug. 28, 1946

Fig. 1.

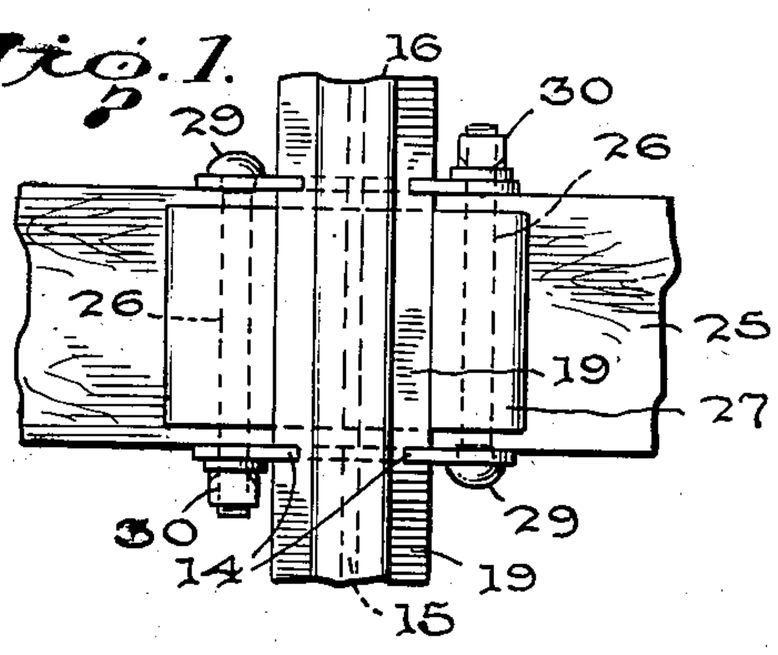


Fig. 3.

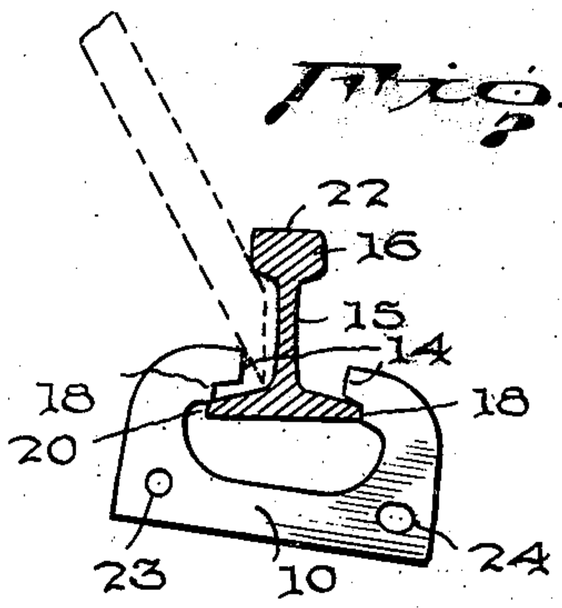


Fig. 2.

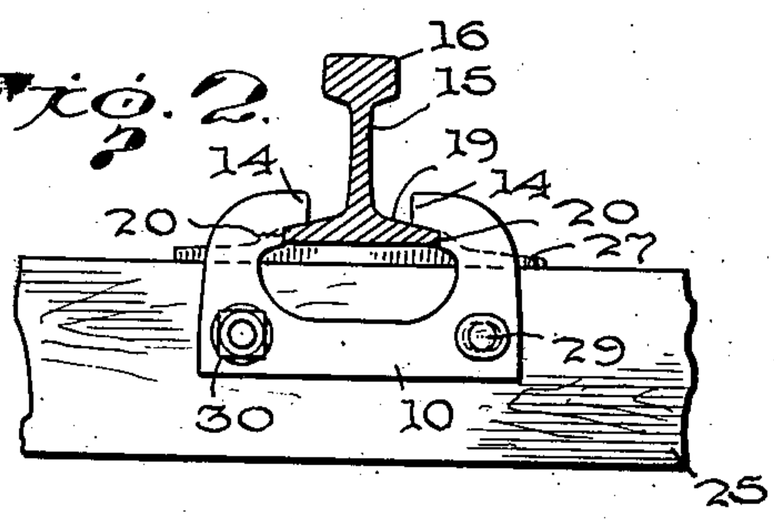


Fig. 4.

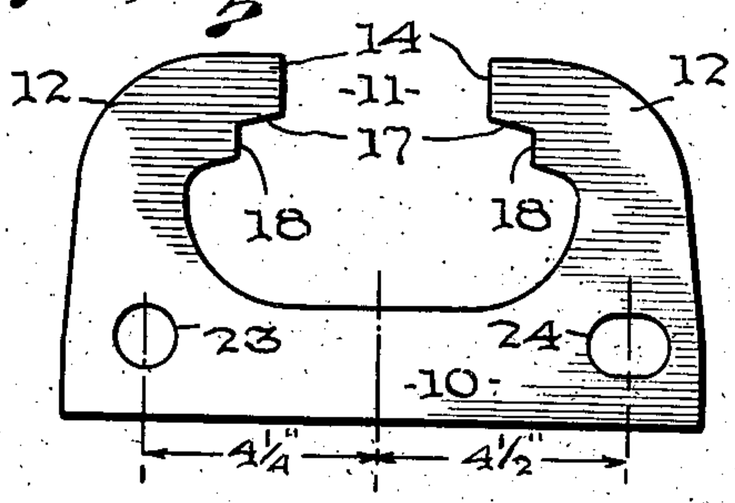


Fig. 5.

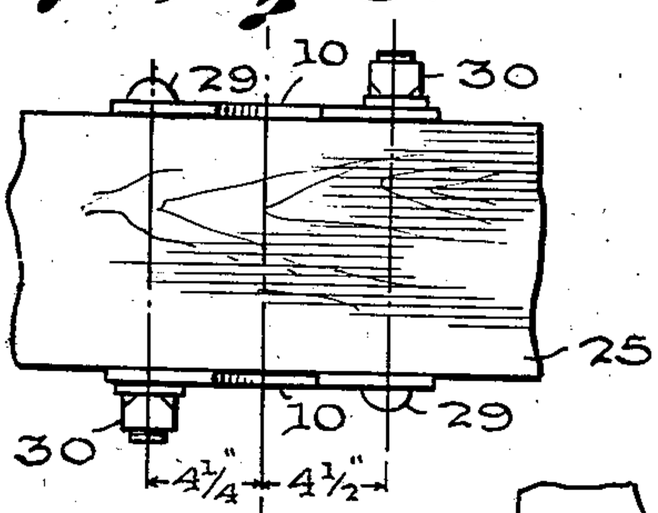


Fig. 6.

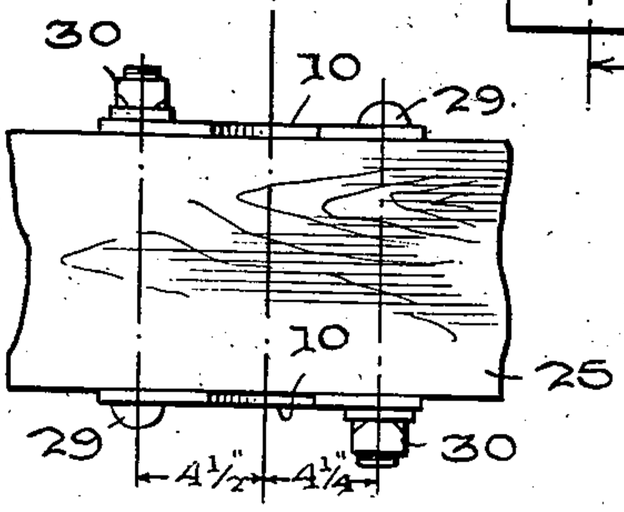


Fig. 8.

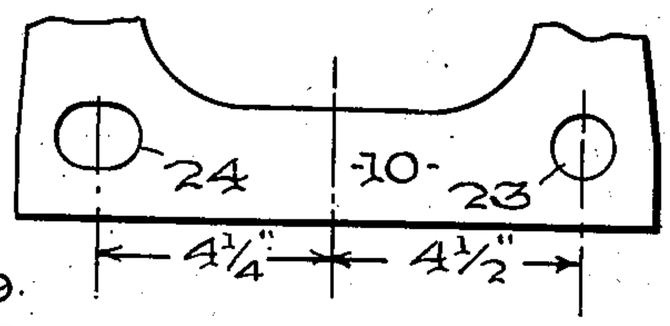
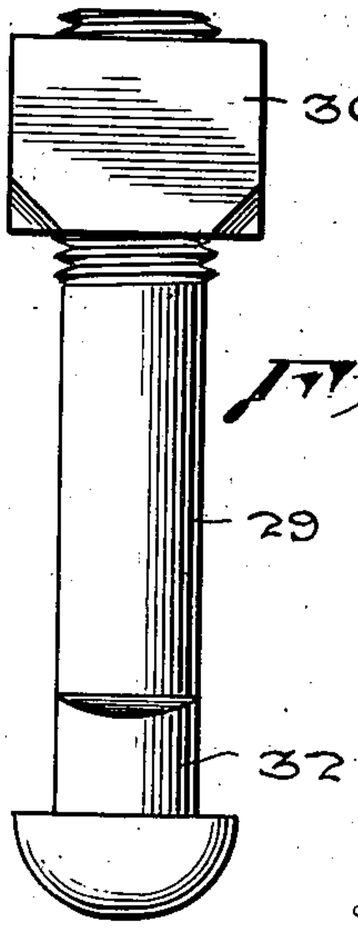


Fig. 7.



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Patented Oct. 25, 1949

2,486,290

UNITED STATES PATENT OFFICE

2,486,290

RAIL ANCHORING AND SECURING DEVICE

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Application August 28, 1946, Serial No. 693,559

5 Claims. (Cl. 238—327)

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This invention relates to an improvement in rail anchoring and securing device.

One of the principal objects of the invention is to provide means by which the rail may be securely anchored to the tie so as to prevent it from moving either laterally or longitudinally and to eliminate the use of spikes the use of which reduce greatly the useful life of the tie due to spike cutting and decay in the vicinity of the spikes.

The invention also eliminates the necessity of gauge rods as with its use each tie becomes a gauge rod. It also eliminates the necessity of using separate rail anchors as the invention prevents the longitudinal movement of the rail in both directions. Provision has been made for the adjustment of the gauge due to wear of the rail or appurtenances.

Where the invention is used on wood ties, ties will be prebored at the treating plant, prior to treatment, to the proper gauge and the proper distance from top of tie depending on type of tie plate to be used and the depth of adzing to receive plate.

Many other advantages of this invention, such as the prevention of tie splitting, additional safety in case of broken rail, elimination of possible damage to base of rail by striking it with spike maul when spiking, ease of application, simplicity of design, low cost of manufacture, reduction of wear between the rail and tie plate and between the tie plate and tie.

In the accompanying drawing:

Figure 1 is a top plan view showing the invention applied to a tie and rail;

Figure 2 is a view in side elevation;

Figure 3 is a view in side elevation of a plate and a rail in cross section to illustrate the application of the plate to the rail;

Figure 4 is a view in elevation of one of the plates of a set;

Figures 5 and 6 are plan views illustrating the position of the plates with respect to the center line of the rails in their different positions;

Figure 7 is a view in elevation of the bolt; and

Figure 8 is a detail view in elevation of one of the plates.

A steel or metal plate 10 of requisite size and thickness is formed in somewhat of the shape of a U or yoke, by providing an opening 11 which extends from one edge of the plate toward the bottom edge, thereby providing two oppositely disposed arms 12, 12. The plate is formed of a metal which affords a sufficient resiliency to the arms to allow for them to be sprung outwardly

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from each other. The upper ends of the arms 12 project or extend inwardly toward each other forming lugs 14, which lugs are in spaced apart relation for receiving the vertical web 15 of a rail 16 therebetween. Beneath the lugs 14 the inner walls of the arms 12 are recessed as at 17 forming shoulders 18 on each arm. The lugs 14 will engage the upper surface of the base flange 19 of the rail 16, and the shoulders 18 will engage the edges 20 of the base flange of the rail 16 when the plate is sprung into position on the rail as indicated in Figure 3. This is accomplished by inserting a suitable tool between the web 15 and tread 22 of the rail 16 and forcing the lug 14 onto the flange of the rail to cause the edges of the rail to be engaged by the shoulders 18.

The bottom portion of the plate 10 is provided adjacent the lower portions of the arms 12 with a round hole 23 and preferably an oval hole 24 respectively. These holes preferably have the centers thereof at different distances from the center line of the plate, so that one hole will be at a greater distance from the center line of the plate than the other.

The cross tie 25, of any suitable material, but generally of wood is provided with two transverse parallel holes 26, 26 at each end of the tie. A tie plate 27 is mounted on the cross ties beneath the rail 16, and plates 10 are applied to both sides of the cross tie 25 and secured in position by bolts 29 and nuts 30.

The plates 10 are substantial duplicates and are applied to a tie on both sides and at each end thereof, so that we have a set of plates at each end of a tie. Now, one of the plates 10, has the center of the oval hole 24, arranged four and one-fourth inches from the center line of the plate, while the hole 23 has the center thereof disposed four and one-half inches from the center line of the plate. The companion plate 10 of the set is located on the opposite side of the tie, and the center of hole 23 is four and one-fourth inches from the center line of the plate, and the oval hole 24 is four and a half inches from the center line of the plate. When these plates 10 are positioned on the tie after having been sprung into position on the base flange 19 of the rail 16, hole 23 of one plate will register with hole 24 of the plate 10 on the opposite side of the tie, and hole 24 of the first plate will register with hole 23 of the second plate, so that the holes of the respective plates which are four and a quarter inches from the center line of the plates will be in registry, and the holes which

are four and a half inches from the center line of the respective plates will be in registry. The bolts **29** are provided adjacent their heads with shoulders **32** on the shanks thereof which correspond to the contour of the holes **24** of the plates, and as the bolts pass through the plates and ties, the shoulders are received in the oval openings or holes of the plates to hold the bolt against turning, while the round or circular portions of the bolts pass through the round holes **23** of the plates, nuts **30** are screwed onto the bolts for securing the plates to the tie and rail. It will be observed that the heads of the bolts for each set of plates are disposed on opposite sides of the tie.

To maintain the gage between the respective rails of a track, due to wear on the inside of the rails caused by the flanges of the wheels passing over the rails, the plates are arranged in a reverse position from what has just been set forth, wherein the ends of the plates having the holes **23**, **24** located four and a quarter inches from the center lines of the respective plates are positioned along the inner side of the base flanges **19** of the rails, the ends of the plates having the holes **23**, **24** disposed four and a half inches from the center line of said plates are positioned on the outer sides of the base flanges **19**. This of course, shifts the center line of the plates inwardly toward the transverse center line of the ties and thereby again establishes the proper gauge between the rails. Figures 5 and 6 diagrammatically illustrate these positions.

The measurements set forth for the disposition of the holes **23** and **24**, is merely for the purpose of illustration as to the manner of having them arranged at different distances from the center line of their respective plates **10**, and it is not the intent to be restricted to these specific measurements.

From the foregoing it will be apparent that provision has been made for anchoring the rail against longitudinal movement and against lateral or spreading action, and also prevents overturning or tipping action.

This invention exerts spring action on the edges of the base flange of the rail on opposite sides thereof by means of the spring arms **12**. This disposition of the arms with respect to the rail not only clamps the rail to the tie, but, due to the spring action of the arms **12** of the plates **10**, effected by forcing the upward ends or lugs **14** of the yoke apart before it can be placed on the rail base, the yokes or plates exert a pressure on each edge of the base of the rail, which action prevents longitudinal movement of the rail.

Further, the rails can be brought into gage after they have become worn by simply turning the plates **10** around and placing the ends of the plates formerly on the gage side of the rail on the outside of the rail.

In the use of these anchor plates **10** with the usual rail, it is unnecessary to employ them on each tie throughout the length of the rail under ordinary circumstances, and other types of plates could be employed for the remainder of the rail. It is preferable to have the plates **10** disposed at different intervals with the other type of fastening interposed therebetween.

I claim:

1. The combination of a rail and its supporting cross tie, said cross tie being provided with transverse holes at each end of said tie, said rail including a tread and base flange, anchor plates disposed on opposite sides of said cross tie comprising upstanding arms arranged in spaced relation for the reception of and engagement with said rail flange, each of said plates being provided with holes therethrough which holes of said respective plate register with the holes at one end of said cross tie when said plates are positioned on each side thereof, and securing means passing through said holes of said plates and tie for securing said rail to said tie, said plates having each of the holes thereof disposed at different distances with respect to the center line thereof and with respect to said arms thereof, so that said plates may be reversibly mounted on the cross tie by turning said plates around end to end so that the ends of said plates formerly on the gage side of said rail are on the outside of said rail and thereby causing said rail and the center line of said plates to be shifted longitudinally of said tie for correcting the gage of said rail.

2. The combination of a rail and its supporting cross tie, said rail including a tread and a base flange, anchor plates disposed on opposite sides of said cross tie comprising upstanding resilient arms, said arms having inwardly extending lugs arranged in spaced relation for engaging the upper surface of said base flange, said arms having the inner walls thereof beneath said lugs resiliently engaging the edges of said base flange upon springing said lugs on to said base flange, each of said plates having holes therethrough and said holes being disposed at different distances from the center line of each of said plates, said plates arranged on said ties so that said holes of the respective plates which are the shortest distance from the center line of said plates will be in registry when said plates are positioned on said tie, and said holes which are the greater distance from the center line of said plates will be in registry, and securing means passing through said holes of said plates and ties for securing said rail to said tie, said plates being reversibly mounted on said tie and rail by turning said plates around end to end so that the ends of said plates having the holes the shortest distance from the center line of said plates are positioned along the inner side of said flange, and the ends of said plates having the holes a greater distance from said center line will be on the outer side of said base flange and thereby cause said rail and center line of said plates to be shifted lengthwise of said cross tie for correcting the gage of said rail.

3. The combination of a rail and its supporting cross tie, said cross tie having transverse holes at each end thereof, said rail including a tread and a base flange, anchor plates disposed on opposite sides of said cross tie comprising upstanding resilient arms, said arms having inwardly extending lugs arranged for engaging the upper surface of said base flange, said arms having the inner walls thereof beneath said lugs arranged to engage the edges of said base flange, said inner walls of said arms normally spaced a less distance apart than the cross-sectional length of said rail base flange, so that upon springing said plates onto said rail said lugs will be moved apart to allow said inner walls to resiliently engage the edges of said base flange and said lugs to resiliently engage the upper surface of said flange to prevent longitudinal, lateral and overturning movement of said rail, each of said plates being provided with holes therethrough which holes of said respective plate register with the holes at one end of said cross tie when said plates are positioned on each side thereof, and securing

means passing through said holes of said plates and tie for securing said rail to said tie, said plates having each of the holes thereof disposed at different distances with respect to the center line thereof and with respect to said arms thereof, so that said plates may be reversibly mounted on the cross tie by turning said plates around end to end so that the ends of said plates formerly on the gage side of said rail are on the outside of said rail and thereby causing said rail and the center line of said plates to be shifted longitudinally of said tie for correcting the gage of said rail.

4. The combination of a rail having a tread and a base flange, a supporting crosstie having a pair of holes at each end extending transversely thereof, anchor plates disposed along a side of said tie at each end thereof, said plates having holes formed therethrough registering with the holes in said tie, means passing through the holes of said plates and tie for securing said plates to said tie, each plate having the holes thereof disposed at different distances from the center of said plate so that upon reversing the position of said plate on said tie and bringing the end of said plate formerly on the gage side of said rail on the outside of said rail the center line of said plate will be accordingly shifted, and lugs on each of said plates for engaging said base flange of said rail.

5. The combination of a rail having a tread and a base flange, a supporting crosstie having a

pair of holes at each end extending transversely thereof, anchor plates disposed along a side of said tie at each end thereof, said plates having holes formed therethrough registering with the holes in said tie, means passing through the holes of said plates and tie for securing said plates to said tie, each plate having the holes thereof disposed at different distances from the center of said plate so that upon reversing the position of said plate on said tie and bringing the ends of said plate formerly on the gage side of said rail on the outside of said rail the center of said plate will be accordingly shifted, and resilient lugs on each of said plates for securing said base flange of said rail to said tie and plate to retain said rail against longitudinal and turning movement.

THOMAS F. JONES.

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