Nov. 1, 1932. J. F. HADDOCK 1,886,010

APPARATUS FOR AND METHOD OF SPIKING RAILS

Filed Oct. 21, 1931

Fig. 1.

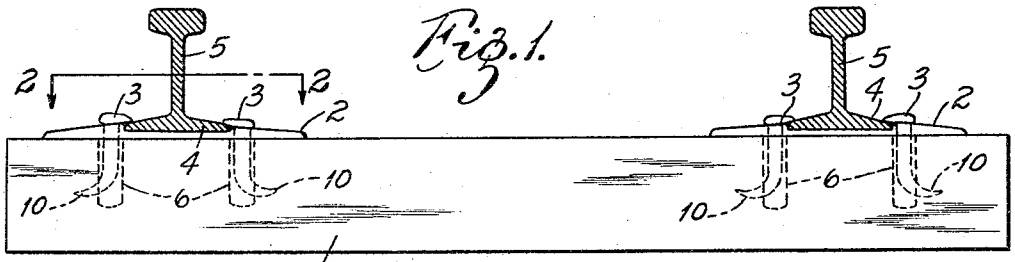


Fig. 2.

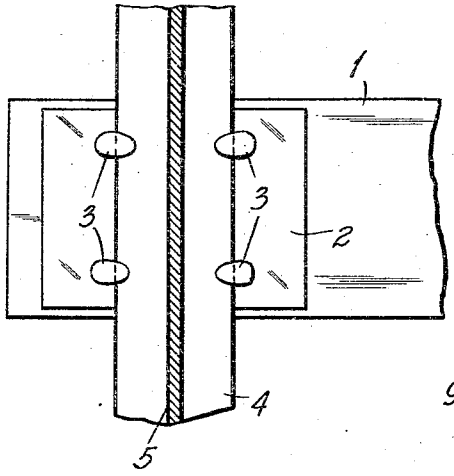


Fig. 3.

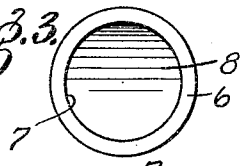


Fig. 4.

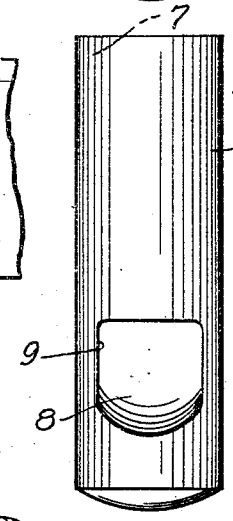


Fig. 5.

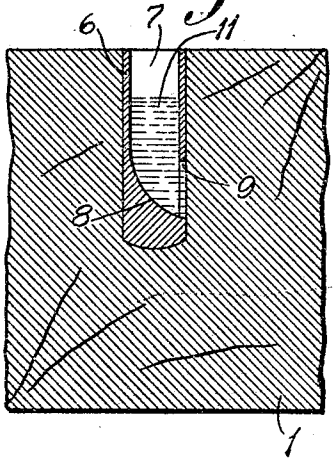
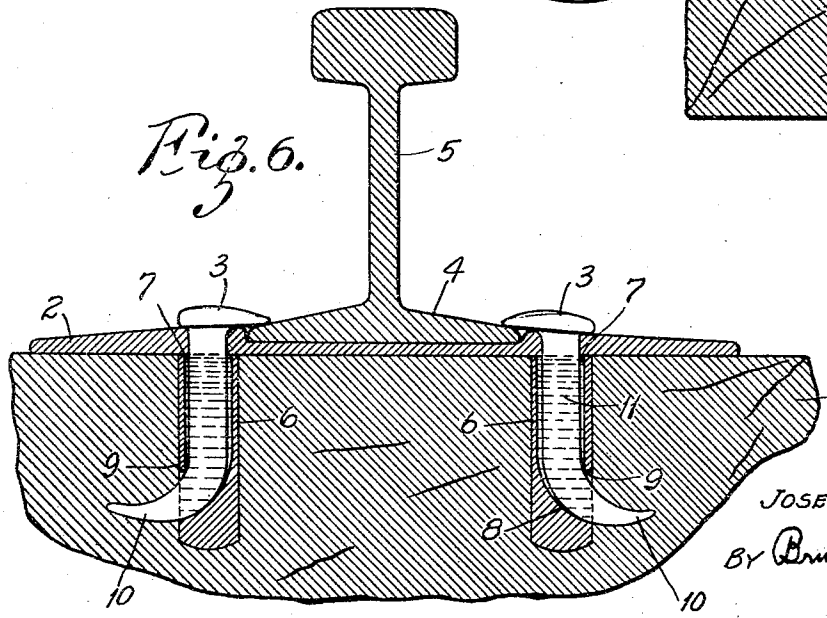


Fig. 6.



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APPARATUS FOR AND METHOD OF SPIKING RAILS

Application filed October 21, 1931. Serial No. 570,113.

The general object of this invention is to provide novel means for, and a novel method of spiking rails to cross ties in a more secure manner than results from spiking rails in the way now commonly practiced.

A further object of the invention resides in the employment of means which will effectively prevent access of moisture to the portion of the spike embedded in the cross tie.

The invention is illustrated in the accompanying drawing in which:

Figure 1 is a section taken through the two rails of a track, in front of one of the cross ties, and showing the rails secured to the cross tie in accordance with my invention;

Figure 2 is a horizontal sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a top view in actual size of a tubular jacket forming a part of my invention;

Figure 4 is a view in side elevation of the same;

Figure 5 is a longitudinal sectional view of a portion of a cross tie having my improved tubular jacket mounted therein and partly filled with waterproofing material, the scale being enlarged as compared with Figure 1; and

Figure 6 is a longitudinal sectional view of a portion of a cross tie, showing in cross section a rail and tie plate secured on the cross tie according to my invention, the view being on the same scale as Figure 5.

Referring now to the drawing, the numeral 1 indicates a wooden cross tie, near either end of which are mounted conventional tie plates 2, provided with the usual spike openings for receiving spikes 3, the head of each of which, as usual, projects a considerable distance from one side of the spike to extend over the base 4 of the rail 5 to firmly secure it, with the tie plate, on the cross tie.

The common practice of spiking rails consists simply in inserting the pointed end of the spike in one of the holes in the tie plate and then driving it into the cross tie. In many cases tie plates are only used at the joints of abutting rails, the rails elsewhere resting directly on the cross ties and being spiked thereon by driving the spike into the cross tie adjacent the side of the base of the rail.

In either case, the spike occupies a substantially vertical position in the cross tie, and in the course of time, due to the shrinkage of the wood and the constant vibration to which the tracks are subjected, these spikes work loose and permit movement of the rail, thereby creating an unsafe condition.

According to my invention, I provide for driving the spikes into the cross tie in such manner that their lower end portions will be turned outward in a manner to be clinched within the center of the cross tie, so that it is impossible for them to be withdrawn except by design, and by the employment of great power.

To accomplish the above result, I employ a tubular jacket 6 open at its upper end and closed at its lower end. Near its lower end, the bottom of the bore or recess 7 of the jacket 6 is outwardly inclined on a curved line, as indicated at 8, Figs. 4 and 5, and directly opposite this inclined portion I provide an opening 9 in the wall of the tubular jacket 6, the bottom of which coincides with the upper surface of the curved bottom 8 in the plane of said opening.

To spike a rail, the cross tie will have holes bored therein of the diameter of the jacket 6 and so located that when the tie plate is placed in position on the cross tie, the holes therein will be directly over the holes in the cross tie. I then insert a spike in each hole in the tie plate and by driving it down into the tubular member, its lower pointed end will engage the inclined surface 8 and be directed outwardly through the opening 9 into the wood of the cross tie, as indicated at 10 in Figures 1 and 6.

My invention may be employed as above described without the use of further means; but an important feature of my invention resides in sealing the tubular jacket against the entrance of moisture and at the same time contributing to the firmness with which the spike will be held in position.

With the above object in view, prior to inserting the spike in the bore 7 of the tubular

jacket, I partly fill the latter with a waterproofing substance, preferably a specially prepared liquid asphalt, as indicated by the reference numeral 11 in Fig. 5. When the spike is inserted in the tubular jacket and driven home, a portion of the asphalt will be forced upward and over the edge of the jacket between the latter and the tie plate, and between the tie plate and the cross tie, and thus cover and protect the opening in the cross tie around the jacket. A portion of the asphalt will of course be forced outward with the end of the spike and into the cross tie, while the asphalt within the jacket will of course cover all of the space in the wall of the opening 9 above the end portion of the spike, and will fill up any open space that may be left between the outer surface of the tubular jacket and the wall of the opening of the cross tie in which it is inserted.

The waterproofing material which I use requires a relatively high degree of heat to liquefy, say approximately 300° F., and on cooling it becomes fairly hard, though still remaining plastic. It will remain in this plastic condition at very low temperatures. Thus it is substantially unaffected either by heat or cold, and not only prevents the access of moisture to the portion of the spike within the jacket and cross tie, but it aids in maintaining the spike in rigid position within its jacket.

It should be stated that the diameter of the bore of the jacket 6 is substantially of the same length as the diagonal width of the spike, so that the latter has practically no play within the jacket.

By inspection of Figure 6, it will be seen that by turning the pointed ends of the spikes outward, or in a direction away from the rail, the tendency will be to force the head of the spike toward the rail, and thus securely lock these two parts in engagement.

It will be further seen that as the only engagement of the spike with the cross tie is at substantially the center of the latter, and as shrinkage will have practically no effect at this distance from the surface of the tie, the engagement of the spike with the cross tie will remain firm at all times and there will practically be no liability of the spike to loosen, even after a long period of use.

Finally, it will be seen from an inspection of Figure 6, that when the spike is clinched in the cross tie its upper surface engages the upper edge of the opening 9, thereby tending to pull the tie plate tightly against the upper end of the tubular jacket. As the head of the spike engages the base of the rail, the bending of the spike at the edge of the opening also forces the base into firm engagement with tie plate. Hence the tubular jacket, tie plate and base of the rail are firmly locked together, and all relative movement between these parts, and especially all rattling of the tie plate, which is a common occurrence even in the case of a new track, is prevented. At the same time, the end of the spike being clinched in the cross tie, upward movement of the spike, jacket, tie plate and rail is likewise prevented.

I claim:

1. In combination with a cross tie, a rail mounted thereon, a spike-jacket embedded in the cross tie adjacent to the side of the base of the rail and provided in its wall near the bottom with an opening, and a spike inserted in said jacket having its head engage the base of the rail and its lower end turned outward through said opening into the material of the cross tie.

2. In combination with a cross tie, a rail mounted thereon, a spike-jacket embedded in the tie adjacent to the side of the base of the rail and having at the lower end of its bore an outwardly curved bottom located directly opposite an opening provided in the wall of the jacket, and a spike driven into said jacket having its head engaging the base of the rail and its lower end turned outward through said opening to pierce the material of the cross tie, by engagement during the driving operation with the curved bottom of said jacket.

3. In combination with a cross tie, a rail mounted thereon, a tubular jacket embedded in the cross tie adjacent to the side of the base of the rail and having an opening in its wall near its lower end, water-proofing material contained in said jacket, and a spike mounted in said jacket and surrounded by said waterproofing material, said spike having its head engaging the base of the rail and its pointed end turned outward through said opening into engagement with the material of the cross tie.

4. In combination with a cross tie, spike jackets embedded therein, each of which is provided in its wall near the lower end with an opening and at the lower end of its bore with an outwardly curved bottom located directly opposite said opening, a tie plate mounted on the cross tie with its openings directly over said jackets, a rail mounted on said tie plate, and spikes driven through the openings in the tie plate and into said jackets to have their heads engage the base of the rail and their lower ends turned outward through said opening to pierce the material of the cross tie, by engagement during the driving operation with the curved bottom of said jacket.

5. A device for use in spiking rails, comprising a tubular jacket provided with an opening in its wall remote from its lower end and with an outwardly curved bottom at the lower end of its bore located directly opposite said opening.

6. The method of spiking a rail to a cross

tie which comprises placing a rail on the tie, embedding in the tie adjacent the rail a jacket having a bore with an outwardly curved bottom positioned opposite an opening in the wall of the jacket, and then driving a spike into said jacket to cause its pointed end to engage said curved surface and be turned outward thereby through said opening into piercing engagement with the interior of the tie, and the head of the spike to engage the base of the rail.

7. The method of spiking a rail to a cross tie which consists in placing a rail on the tie, embedding in the tie a jacket having a bore with an outwardly curved bottom positioned opposite an opening in the wall of the jacket, pouring waterproofing material into said jacket, and then driving a spike into said jacket to cause its pointed end to engage said curved surface and be turned outward thereby through said opening into piercing engagement with the interior of the tie, and the head of the spike to engage the base of the rail.

8. The method of spiking rails which consists in providing recesses in a cross tie, mounting a rail on the cross tie adjacent said recesses, driving spikes into said recesses until the heads thereof engage the base of the rail, and simultaneously with the driving operation curving the pointed ends of the spikes outward into piercing engagement with the interior of the cross tie.

9. The method of spiking rails which consists in forming recesses in a cross tie, pouring waterproofing material into said recesses, positioning the rail on the cross tie with its base adjacent said recesses and then driving spikes into said recesses until the heads thereof engage the base of the rail, and simultaneously with the driving operation curving the pointed ends of said spikes outward into piercing engagement with the interior of the cross tie.

In testimony whereof, I have hereunto set my hand.

JOSEPH F. HADDOCK.