Aug. 8, 1933. E. KELLY 1,921,194

RAILWAY SPIKE

Filed Jan. 9, 1931

Fig. 1

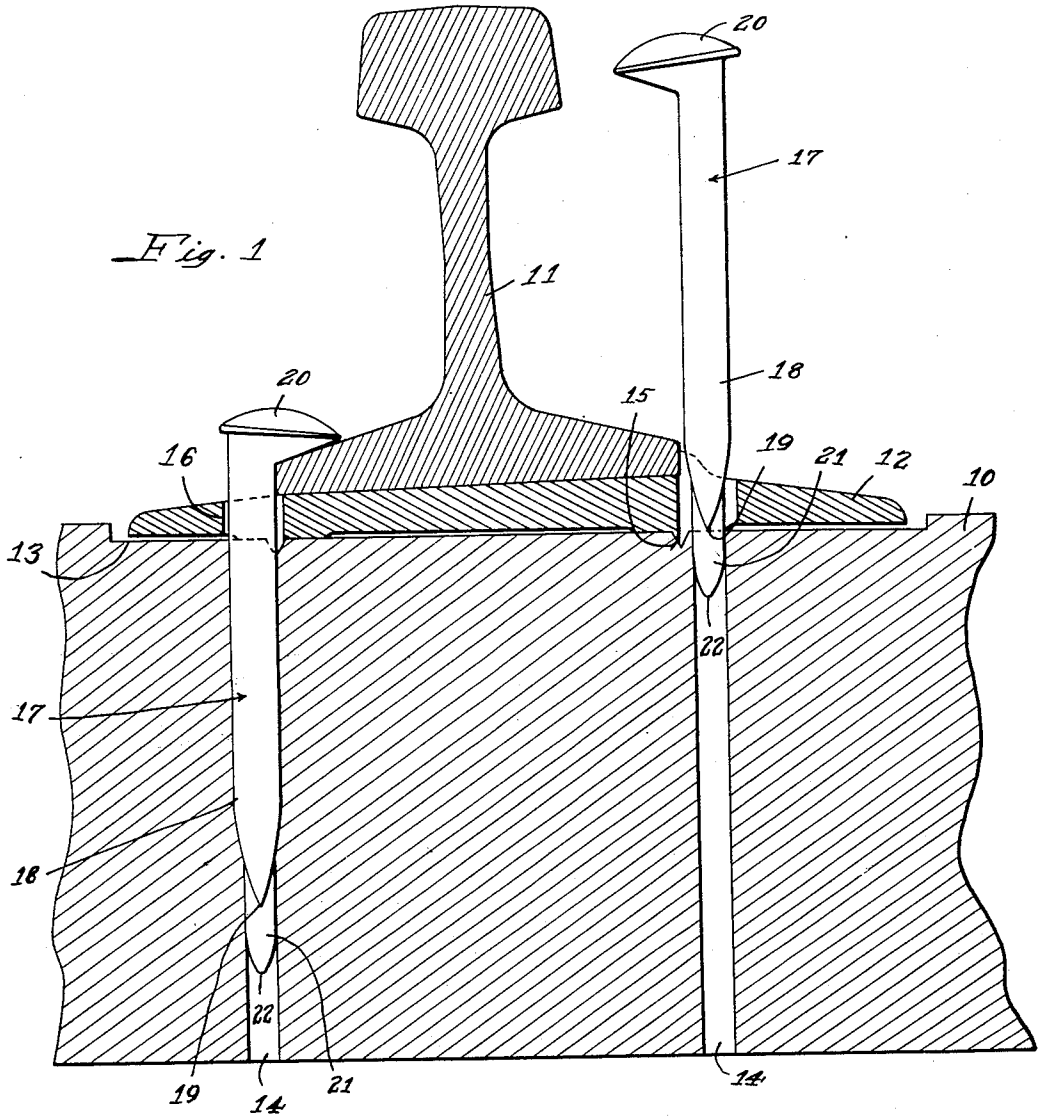
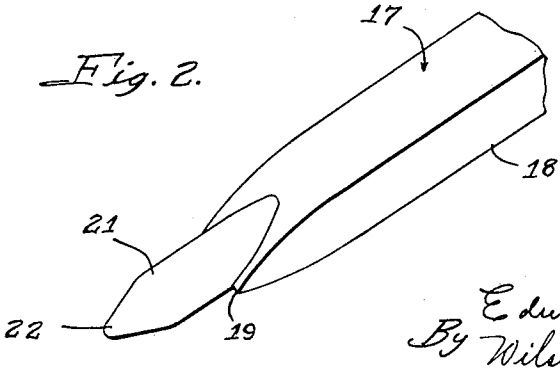


Fig. 2.



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RAILWAY SPIKE

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2 Claims. (Cl. 85—30)

This invention relates to railway spikes.

It is rather common practice to prebore railway ties to provide holes for the spikes, such holes being bored before the ties are subjected to a creosote treatment. The spikes commonly used are rectangular in cross-section and provided with an ordinary chisel point and it has been found that they will not necessarily follow the bored holes. For one thing, the track men, for convenience or through carelessness, tilt the spikes. It is also common practice for the track men to strike the spike a blow from the side to fit it snugly against the rail, which is known as "heeling" the spike, and, of course, this results in leaving an opening alongside the spike for water to enter. The result is "spike killing" of the treated ties. As a matter of fact, more than fifty percent of the creosoted ties removed from the track have to be removed for that reason, the spike holes being enlarged by decay as a result of the spike having cut into the untreated wood.

The principal object of my invention is to provide a spike which, while otherwise of the same form as the ordinary chisel point spike now in general use, has a cylindrical pilot extension at the chisel point adapted to fit snugly in the hole bored in the tie and of sufficient length to guide the spike so that it is properly centered at the start and remains absolutely central with respect to the hole for its full penetration, thereby avoiding the objections noted above and preventing spike killing of ties. Naturally, with the pilot extension leading the spike, it cannot be tilted so easily or veer to one side or the other as it is driven, thus preventing penetration of the untreated wood. Furthermore, owing to the fact that the spike is kept central with reference to the hole it offers greater resistance to pull and to lateral thrust, and there is no necessity for striking it a blow sidewise to bring it snugly against the rail. Then, too, the fact that the spike is bound to be driven true with reference to the hole, the location of which is, of course, accurately determined, is of advantage because the plate is thereby centered on the tie in the same relation as the holes are bored in the tie, thus providing a more uniform bearing for the plate, and reducing the damage to ties caused by the rail anchors bearing against the tie plates, which in turn bear against the spikes. And lastly, there is the incidental advantage that the pilot extension permits the spike to be started in the hole without use of a hammer, thus dispensing with the work of the men who were otherwise needed to start the chisel point spikes with hand hammers, where pneumatic spike drivers are used.

The invention will more clearly appear by reference to the accompanying drawing in which—

Figure 1 shows a section through a tie, rail and tie plate, illustrating at the left how my spike appears when driven home and at the right how it is started, and

Fig. 2 is a perspective view of the end of the spike showing the cylindrical pilot extension off the chisel point.

The tie 10 is illustrated in connection with a rail 11 of conventional form and one well known form of tie plate 12. It is rather common practice to adze the tie, as indicated at 13, to provide a rail seat, and also to bore holes 14 therein for the spikes previous to the creosote treatment. Where plates of the form herein shown are used, having ribs 15 on the bottom thereof, grooves are also accurately cut in the ties to accommodate these ribs. The holes 14, are of course, bored so that the holes 16 in the tie plate 12 through which the spikes are passed will register therewith. Considering the care with which all this is done, it goes without saying that care ought to be exercised to provide the proper spikes and to drive them into the holes properly so that the rail will be securely anchored with the plate bearing uniformly on the tie with the ribs thereof located squarely in the grooves provided therefor. The fact of the matter is that much of the good that should come from the expense of preboring and treating the ties and otherwise preparing the same for use is frustrated by the track men driving the ordinary chisel point spikes so that they do not come anywhere near being truly central with respect to the holes for their full penetration. The proper registration of the holes in the tie with the holes in the plate is to little or no purpose if the spikes are not driven centrally in the holes. Actual checks made by the American Railway Engineering Association showed that only one-third of the regular chisel point spikes follow prebored holes accurately, another third only to a fair degree, and the remaining third were found to lead off badly. It is obvious that the mere fact that there is a necessity for heeling the spike is an indication to what extent the spikes are driven off in penetrating the tie. In accordance with my invention the spikes, designated by the reference numeral 17, are formed as will be described below with a view to positively insuring that the spikes will be driven truly central with respect to the holes for their full penetration and there will be no occasion for having to heel the spike to make it fit snugly against the rail.

The spikes 17 are generally similar to the ordinary chisel point spikes from the standpoint that they have rectangular shanks 18 terminating in chisel points 19 and have heads 20 of conventional form. These spikes, however, differ from others by reason of their having cylindri-

cal pilot extensions 21 adapted to fit snugly in the holes 14 bored in the tie. These pilot extensions, as shown in Fig. 2, are located exactly in the middle of the edge 19 and, of course, are truly axial with respect to the shank of the spike, so that when these extensions are entered in the holes, as the right hand spike is shown in Fig. 1, the spikes are centered truly with respect to the holes, with a short portion of the edge 19 projecting to the same extent on either side of the hole and arranged to penetrate the wood as the spike is driven. The pilot extensions are, furthermore, sufficiently elongated to locate the spikes truly axially with respect to the holes for the full length of the spikes. That is to say, these pilot extensions are long enough so that their bearing in the holes is enough to insure alignment of the spikes with the holes, not only at the time the spike is first entered in the hole, as shown at the right in Fig. 1, but in the driving of the spike all the way home, as shown at the left in the same figure. The spikes, in other words, remain absolutely central with respect to the hold for their full penetration, thus avoiding spike killing of the treated dies, such as arose from having spikes driven to one side or the other of the hole, or by having the spikes heeled by being struck a blow from the side when driven all the way in in order to fit the same snugly against the rail. The fact that creosote and other preservatives penetrate the wood to only a very small extent across the grain makes it of prime importance to keep the spike from deviating even to a small extent from the hole especially in that direction. The pilot extensions prevent the chisel point from penetrating the tie more than a predetermined distance from either side of the hole and thus avoid spike killing of ties. Then, too, a spike that is kept centered all of the way in leaves the hole open below the spike to act as a drain for any water which may enter the tie around the spike, thus eliminating an important cause of rotting. When a spike is driven in improperly and leaves the hole it closes it off and forms a perfect trap for water. The fact that the pilot extensions keep the spikes centered is of advantage in other ways aside from protecting the ties from damage by rotting. For one thing, a spike that is kept central with reference to the hole offers greater resistance to pull as well as lateral thrust and will, furthermore, be so related to the rail when driven all the way in so that there is no necessity for striking it a blow to heel it into proper relation with the rail. Then, too, there is the advantage that a properly centered spike means proper centering of the plate on the tie in the same relation as the holes are bored in the tie, thus providing for more uniform bearing for the plates and reducing damage to ties caused by the rail anchors bearing against the tie plates and they, in turn, bearing against the spikes. Then, too, it is obvious that the track is bound to be kept to exact gauge since the spikes are driven centrally in the bored holes, the locations of which are, of course, determined exactly according to gauge. From the standpoint of saving in labor cost there is the incidental advantage that the pilot extension permits the spikes to be started in the holes without use of a hammer, as is illustrated in Fig. 1, the spikes being arranged to be driven all the way in with pneumatic spike drivers, if so desired.

In the majority of cases the pilot extensions 21 will, of course, be taken advantage of in the way indicated above, but where the ties have not been prebored and it is desired to dispense with the boring of holes the pilot extensions 21 may be taken advantage of as pilots in a different way. That is, the ends of the pilots may be pointed, as indicated at 22, more or less sharply, similarly to the end of a nail or spike for ordinary use, so as to permit the spike to be started into the tie more easily and with better possibility of getting it started straight and in the exact location desired. Naturally, too, the pilot extensions will have a tendency to guide the spikes in the direction desired, although in this case these extensions are penetrating the wood as the spike is driven in farther and farther, instead of sliding in the holes, as described above. The pointing of the ends of the pilot extensions naturally also makes it easier to enter said extensions into the holes in the tie, which, of course, is some advantage, worthy at least of mention incidentally. The sharpening of the ends of the pilots, therefore, adapts the spikes to general usage and, at the same time, does not detract from the effectiveness of these pilot extensions so far as use of the spikes in the ordinary way is concerned.

I claim:

1. A railway spike comprising a rectangular shank having a head provided on one end thereof and a chisel point formed at the other end thereof by the downwardly converging opposite sides of the spike, and a cylindrical pilot extension formed coaxial with said shank centrally of the chisel point and depending therefrom, the said pilot extension being of the proper diameter to fit snugly in a hole bored in a railway tie, whereby to center the chisel point of the spike accurately with reference to the hole, and said pilot extension being sufficiently elongated and fitting snugly in the hole substantially its full length whereby, due to its lateral bearing in the hole, it is prevented from penetrating the tie alongside the hole, and is arranged to axially align the shank of the spike with respect to the hole and, thereby prevent the chisel point from penetrating the tie more than a predetermined distance to either side of the hole.

2. A railway spike adapted to be driven interchangeably into plain ties or bored ties, said spike comprising a rectangular shank having a head provided on one end thereof and a chisel point provided on the other end thereof by the downwardly converging opposite sides of the spike, and a substantially cylindrical pilot extension formed centrally of the chisel point and depending therefrom, the said pilot extension being of the proper diameter to fit snugly in a hole bored in a railway tie, whereby to center the chisel point of the spike accurately with reference to the hole, and said pilot extension being sufficiently elongated and fitting snugly in the hole substantially its full length whereby, due to its lateral bearing in the hole, it is prevented from penetrating the tie alongside the hole, and is arranged to axially align the shank of the spike with respect to the hole and, thereby prevent the chisel point from penetrating the tie more than a predetermined distance to either side of the hole, and the end of the pilot extension being suitably pointed to permit the same to be easily driven into a plain tie.

EDWARD KELLY.

CERTIFICATE OF CORRECTION.

Patent No. 1,921,194. August 8, 1933.

EDWARD KELLY.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 132, claim 2, after "formed" insert "coaxial with said shank"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 19th day of September, A. D. 1933.

M. J. Moore.

(Seal) Acting Commissioner of Patents.