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R. A. RUIZ

2,474,281

RAILROAD SPIKE

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Fig. 1.

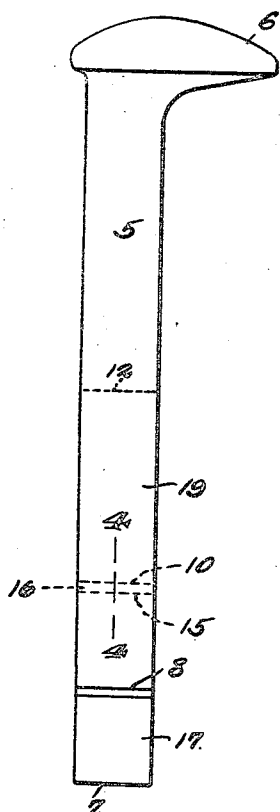


Fig. 2.

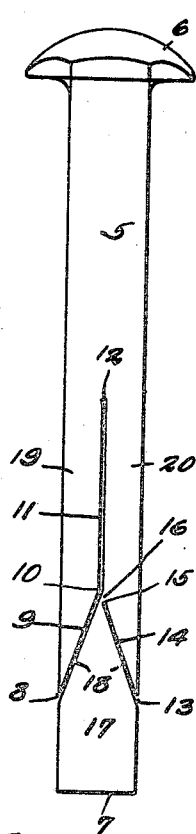


Fig. 3.

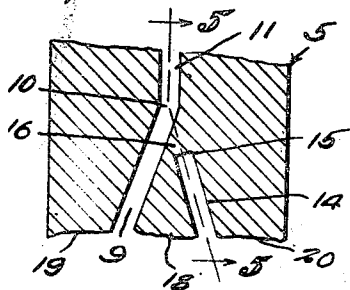
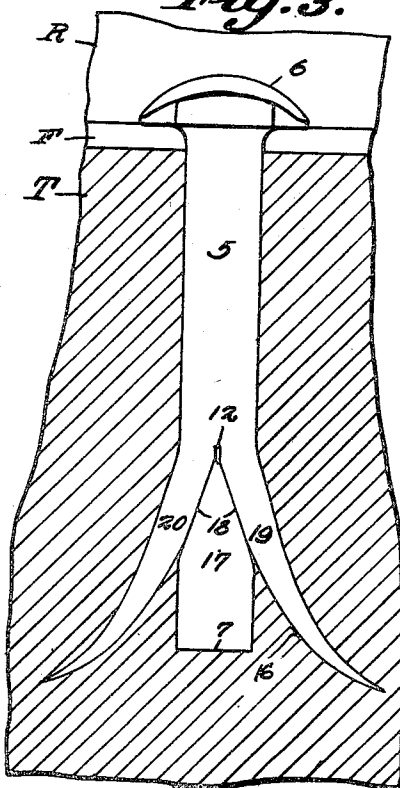


Fig. 4.

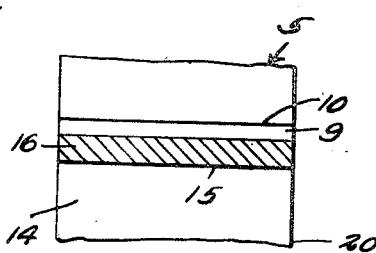


Fig. 5.

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RAILROAD SPIKE

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1 Claim. (Cl. 85—26)

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This invention relates to spikes or nails, and more particularly, refers to a spike or nail integrally formed with spreadable legs, and with a means adapted to cause spreading of the legs when the spike is forced into an engaged surface.

My invention finds probably its best application in the railroad spike art, since a spike constructed in accordance with the invention is particularly suited, when driven into a railroad tie for the purpose of affixing a rail thereto, to withstand the tremendous pressure exerted against the spike, tending to loosen it within the tie, and lift it therefrom. However, as will be obvious from the description to be provided hereinafter, the invention could as well be applied to other types of spikes, nails, or bolts, whenever a wholly permanent engagement of these fastening means with an engaged surface, adapted to withstand heavy pressures tending to loosen the engagement, is desired.

As is well known, rails are attached to cross ties most commonly by the use of heavy railroad spikes, which in their most common form, are simply huge nails, engaging the flange of the rail, and driven forcibly into the tie. Naturally, tremendous pressure is placed upon these spikes, and in time, they tend to loosen within the tie, causing a corresponding loosening of the connection to the rail, and quite often resulting in serious train accidents. By reason of this tendency, track walkers and maintenance crews are required to patrol the track continually, for the purpose of detecting loosened spikes, and repairing the connection before an accident can occur.

Previously in the art, there have been designed spikes adapted to resist the pressure described, but these have not been found to be satisfactory, and have not found wide acceptance. One reason for the failure of the industry to accept these spikes widely lies, I believe, in the fact that in most cases, these spikes are formed in two or more pieces, resulting in a greatly increased cost of manufacture, and additionally, in a troublesome increase in the amount of equipment required to be carried by maintenance crews, as well as a considerable slowing up of the process of driving the spike itself.

The invention aims, therefore, to provide a spike of the type stated which is capable of manufacture with ease, and at little or no cost above the cost of the conventional railroad spike. The invention further aims to provide such a spike that is of one piece, exactly as is the conventional spike, and which may be driven into engagement

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with the supporting surface represented by the cross tie, without special positioning of cooperating parts separate from the spike itself.

Another important object of the invention is to provide a spike of the type stated which when driven into the tie, will engage the tie in a manner adapted to withstand the tremendous upward pressure subsequently exerted upon the spike by the passage of trains, thereby preventing almost entirely the possibility of the spike becoming loosened, and resulting in a considerable saving in maintenance expense.

With the foregoing and other objects in view which will appear as the description proceeds, the invention consists of certain novel details of construction and combinations of parts, hereinafter more fully described and pointed out in the claim, it being understood that changes may be made in the construction and arrangement of parts without departing from the spirit of the invention as claimed.

Referring to the drawing

Figure 1 is a side elevational view of a railroad spike constructed in accordance with the invention.

Figure 2 is a front elevational view thereof.

Figure 3 is a view taken through a cross tie, showing the spike after it has been fully driven into engagement therewith.

Figure 4 is an enlarged detail view, showing a portion of the spike, taken on line 4—4 of Figure 1.

Figure 5 is a similar view, taken on line 5—5 of Figure 4.

Referring to the drawing in detail, the reference character 5 designates the shank of a railroad spike, while 6 designates the head thereof. In general conformation, a spike constructed in accordance with the invention is of the same shape, size and materials, as a conventional spike, and in fact, a conventional spike can be used as a blank from which the spike constituting the invention may be formed.

A short distance above the lower end 7 of the shank 5, I introduce a cut into one side of the shank, at the point 8. Initially, the cut is angled upwardly toward the center of the shank 5, as shown at 9, and upon reaching a line drawn longitudinally through the center of the shank, the direction of the cut is changed as at 10, the upper portion 11 of the cut following said longitudinal center line, and terminating at 12, intermediate the ends of the shank.

I next introduce a cut at 13, on the opposite side of the shank, and preferably, the same dis-

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tance above the lower end 7 as the first-named cut. This second cut, designated at 14, is extended upwardly at approximately the same angle as the first cut, as best shown in Figure 2, and extends directly toward the point 10. However, as shown at 15, cut 14 terminates just short of this point, and thus, there is defined a ligament 16. Ligament 16 is integral with the upper end of a wedge 17 defined by the angular cuts 9 and 14 at the lower end of the shank.

Wedge 17, as best shown in Figures 2 and 3, is thus caused to have upwardly converging side walls 18 defining the wedge formation described.

The formation of cuts in the shank 5, made as illustrated and described above, defines opposed legs 19 and 20 having, as will be seen, obliquely disposed inner surfaces at their respective lower ends, that are spaced from and are parallel with, the upwardly converging side walls 18 of the wedge. Leg 20 is integrally joined with wedge 17 by means of ligament 16.

In operation, a hole of suitable depth is first drilled in a cross tie T, and the rail R, having flange F, is positioned properly upon the tie. The railroad spike illustrated in Figures 1 and 2 is then introduced in the hole, wedge 17 resting on the bottom, as clearly seen in Figure 3.

When the spike has been so inserted, it is forcibly struck upon the head 6, and this causes a complete fracture of the ligament 16. As a result, continued striking of the spike causes the legs 19 and 20 to spread, as the spike is driven into the tie T, with the oblique side walls 18 of the wedge 17 causing said legs to diverge outwardly more and more until the spike has been fully driven into the tie. When the operation has been completed, the upper end of the wedge 17 will be positioned at or adjacent to the upper end 12 of cut 11.

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It will be readily seen that a spike so formed and used will resist tremendous pressures tending to raise the spike or loosen it within the cross tie.

An important characteristic of the invention is its integral formation, without necessity of special dies or castings, or the use of separate cooperating parts. The invention is exceedingly simple, both in form of the spike itself and in its operation, and can even be applied readily to conventional spikes, which in such instance would constitute blanks.

Although the invention has been shown as applied to a railroad spike, it is to be understood that within the spirit of the claim, it could be applied as well to other types of nails, spikes, or bolts.

What is claimed is:

In a spike, a shank having opposed cuts formed therein one of said cuts having an angular lower portion and an upper portion extended along a line drawn substantially centrally and longitudinally through the shank, the other cut being angularly extended, and opposing the angular portion of the first cut but terminating short thereof, whereby to define opposed legs at the sides of the shank, and a wedge between and integrally connected to one of the legs.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,060,543	Evans	Apr. 29, 1913
1,433,206	Hojnowski	Oct. 24, 1922