I. L. EDWARDS.

SPIKE.

APPLICATION FILED APR. 20, 1917. RENEWED APR. 26, 1919.

1,318,315. Patented Oct. 7, 1919.

FIG. 1.

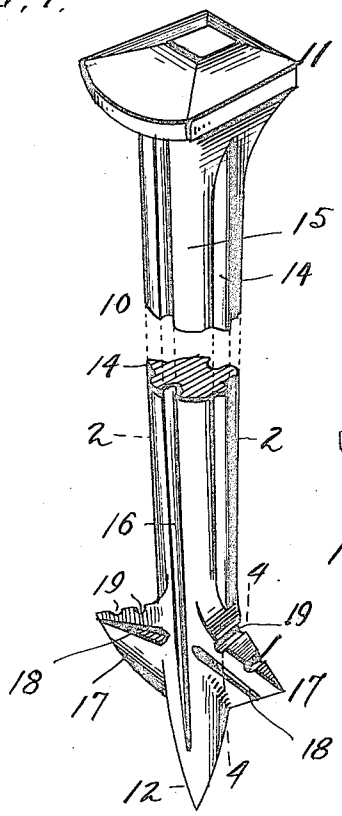


FIG. 2.

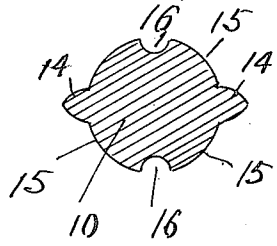


FIG. 3.

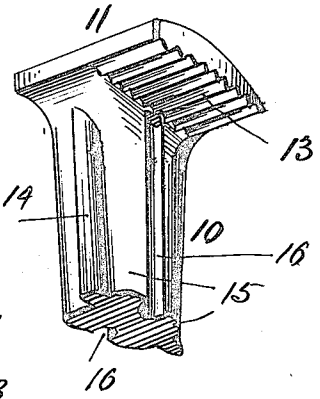
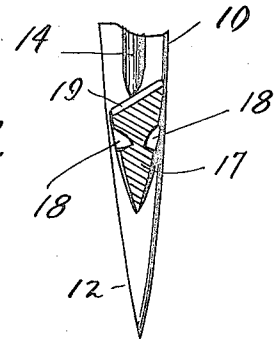


FIG. 4.



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SPIKE.

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To all whom it may concern:

Be it known that I, ISAAC L. EDWARDS, a citizen of the United States, and resident of Aurora, in the county of Kane, and in the State of Illinois, have invented a certain new and useful Improvement in Spikes, and do hereby declare that the following is a full, clear, and exact description thereof.

The object of my invention is to provide a railroad spike in which will be combined the following: a minimum of weight with no impairment of efficiency; a minimum of injury to the fibers of the tie, and particularly by cutting the same both in driving the spike and withdrawing it as when it becomes necessary to remove or replace the rail; to render unnecessary the employment of filling plugs, such as are required with ordinary spikes to fill previously made holes when the spike is to be again driven into the tie; and which will most efficiently resist tendency to twisting, or lateral movement from sidewise pressure of the rail and for the production of a spike having the properties, or qualities just stated, my invention consists in the spike constructed substantially as hereinafter specified and claimed.

In the accompanying drawings:—

Figure 1 is a perspective view of a railroad spike embodying my invention;

Fig. 2 is a detail view in perspective head portion;

Fig. 3 is a cross section below the head portion of the spike from the underside;

Fig. 4 is a vertical section on the line 4—4 of Fig. 1.

The shank 10 of my spike is preferably regularly tapered throughout its length from its head 11 to its sharpened point 12, and as usual, the head is prolonged, or projected on one side to overlap the top of the rail flange. On the underside of the flange-overhanging portion of the head there are teeth, or sharpened ribs 13 which extend crosswise of the rail and which bite into, or are embedded in the top side of the rail flange and thus a secure grip that tends to resist longitudinal creeping of the rail is secured.

On those two sides of the spike which lie crosswise of the rail there are longitudinally extending ribs 14, one for each of said sides, and each reaching from the head of the spike downward and each of said ribs is convexly rounded in cross section, and what in spikes of ordinary construction are sharp edges at the four corners of the spike, are convexly rounded surfaces 15. In each of the other two sides of spike there is a longitudinally extending groove 16, which is concave. Each groove extends from the head of the spike downward.

By the employment of the rounded surfaces instead of angular, or sharp edges, it will be evident that the spike when driven does not cut in two, or sever the fibers, and hence, the friction effect of the tensile stress in the uncut fibers is effective upon the side surface of the spike, and when the spike is withdrawn those tensile stresses tend to straighten the fibers and move them into the opening and thus act, partially at least, to restore the original condition of the wood and thus no hole is formed of a size which requires the use of a filling plug when the spike is again driven into the tie.

The lateral projection of the ribs 14 prevents turning tendency of the spike as upon its longitudinal axis from the sidewise pressure of the rail, and obviously a greater bearing is afforded by the spike against bodily sidewise movement of the spike under sidewise thrusts of the rail in comparison with a spike of ordinary construction whose bearing surface is formed by the mere side of the spike itself. The area of the spike subjected to the friction of the tie is increased both by the surfaces of the ribs and the surfaces of the grooves. The fibers of the wood, of course, enter the grooves.

Within a short distance of the point of the spike and on each side thereof which is provided with the longitudinally extending rib 14, is a horizontally projecting fin 17 or substantially triangular shaped lug which in vertical cross section has the tapering form best shown in Fig. 4, which enables it readily to enter into the tie, and as it is driven into the latter to spread apart the fibers with a minimum of destructive injury thereto. The sides of each of said fins are preferably provided with horizontally extending grooves 18, in which the fibers become embedded, or interlocked, and thus the security of the hold of the spike enhanced. The fins, it will be observed, also resist any turning tendency of the spike, as on its longitudinal axis. Said fins are useful in supporting the spike in position for driving, because a slight tap on the head of the spike causes the point to penetrate the tie and brings the under edges of the fins into con-

tact with the tie and it is thereby afforded widely extending supports that prevent its accidental toppling over and thus facilitates and expedites the work of driving the spike. The upper side of the fin is flattened and downwardly inclined, or beveled and several grooves 19 are provided therein. Thus an abrupt upper side is provided that tends to resist outward movement of the spike and yet by reason of its inclination there is not an objectionable positive obstruction to the intentional outward movement of the spike when it is to be withdrawn from the tie.

The form, or contour of my spike is such that it can be cheaply manufactured by means of dies.

Having thus described my invention what I claim is:

1. A spike having four sides and having a rib on each of two opposite sides, and a groove in each of the other two sides, said ribs and grooves extending longitudinally of the spike, the corners of the spike being convexly rounded.

2. A spike having a rib on each of two opposite sides, and a groove in each of the other two sides, said ribs and grooves extending longitudinally of the spike, and tapering fins extending from the same sides of the spike to those having the ribs and being situated near the point of the spike.

3. A spike having a pointed extremity and fins projecting from opposite sides of the spike near the point of the extremity, the under edges of said fins, being spaced above the extremity, whereby the point may enter a tie before said fin-edges reach the tie.

In testimony that I claim the foregoing I have hereunto set my hand.

ISAAC L. EDWARDS.