May 9, 1944. L. A. COUCH 2,348,331

RAILROAD SPIKE

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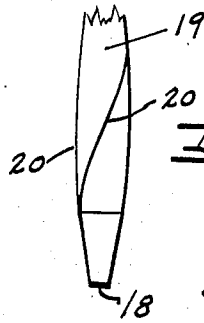


Fig. 3

Fig. 1

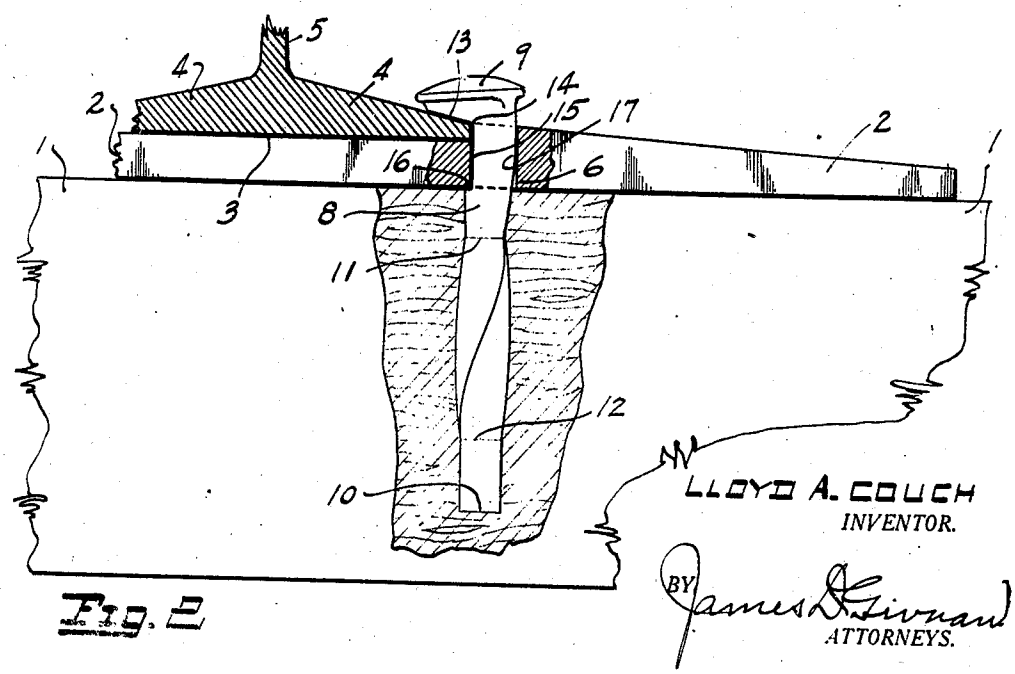


Fig. 2

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RAILROAD SPIKE

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2 Claims. (Cl. 85—20)

This invention relates to improvements in railroad spikes especially designed for use in connection with the conventional railroad tie, tie-plate and rail. The spike is of the type shown and described in United States Patent No. 2,196,534, dated April 9, 1941.

One of the principal objects of the invention is to provide a spike of this character which will securely unite the rail, through the medium of its flange, with the tie-plate to prevent any relative movement between the two, and between either the rail or the tie-plate and the throat of the spike, so that there will be no mechanical wear on any of the element so united, and particularly no "throat-cutting" of the spike, as it is referred to in the industry.

A further object is the provision of primary locking means for anchoring the spike to the tie, and a secondary locking means for automatically uniting the rail to the tie-plate when the spike is driven home. By this arrangement the rail and tie-plate are securely locked to the tie and prevented from creeping or slipping in any direction with respect thereto.

A still further object is the provision of means formed on the shank of the spike for causing it to twist its way, through the conventional square aperture in the tie-plate and into the tie in such a manner that when the spike is driven home and engaged with the flange and tie-plate by the secondary locking means, as aforesaid, it will be locked in a fixed and non-rotatable position and will, therefore, be prevented from becoming loose with respect to the tie.

The foregoing and other objects will appear as my invention is more fully hereinafter described in the following specification, illustrated in the accompanying drawing, and finally pointed out in the appended claims.

In the drawing:

Figure 1 is a perspective view of a conventional rail, tie-plate and tie, showing one of my new and improved spikes driven home into locked engagement with the flange of the rail, the tie-plate and the tie, and also showing another of said spikes in a position to be presented to and driven through the square aperture in the tie-plate and into the tie.

Figure 2 is a fragmentary sectional view taken approximately along the line 2—2 of Figure 1.

Figure 3 is a fragmentary view of a slightly modified form of spike wherein the chisel edge at the bottom end thereof is of less width than that of the body or shank of the spike.

Referring now more particularly to the drawing:

Reference numeral 1 indicates the usual wooden railroad tie, upon which is placed the conventional tie-plate 2 formed with a channel 3 to receive the base or flanges 4 of the rail 5. Adjacent the edges of the channel 3, two or more square apertures 6 are formed. The edges of the channel 3 form shoulders 7 from which the flange tapers outwardly toward its outer ends, as shown.

The spike, shown in perspective in Figure 1 and in side elevation in Figure 2, comprises a shank 8 provided with an integral head 9 at one of its ends and tapering to a chisel edge 10 at its opposite end. The upper portion of the shank, above the line 11, is of substantially straight formation, while from below the line 11, down to the line 12, which denotes the lines of origin of the chisel edge, is spiraled or twisted one-quarter turn or through 90 degrees. In other words the shank is twisted so that the chisel edge is moved through 90 degrees from a position at right-angles to the length of the head 9 into alignment therewith, as best illustrated in Figure 1.

The underside of the head 9 is tapered as at 13 from its outer-most end to a point or line 14, where-at the bottom of the head merges with the shank. From the line 14 downwardly, the shank is inset or relieved, as at 15, to form a locking shoulder 16. The opposite side of the shank 8 is formed with a cam surface 17 extending from beneath the head to the line 11. The upper portion of the cam surface, it will be observed, occupies all of the upper end of the aperture 6 when the spike is driven home, and the action of the cam surface against the adjacent wall of the aperture 6 forces the tapered portion 13 of the head of the spike into wedging engagement with the top surface of the flange 4 and the outer edge of said flange into rigid contact with the relieved portion 15 of the spike and the shouldered portion 16 thereon into locking engagement beneath the tie-plate; thus, the rail and tie-plate are securely united by the spike, which is prevented from turning and becoming loose with respect to the tie through the medium of the substantially straight upper portion of the spike being arrested within the square aperture 6.

From the foregoing it is obvious that relative movement cannot possibly occur between the spike and the square aperture 6, nor can any occur between the flange and tie-plate by reason of their wedged engagement between the under-

surface 13 of the head and the locking shoulder 16.

As illustrated in Figure 1, the spike to be driven through the tie-plate and into the tie is presented to the square aperture 6 with the head 9 arranged parallel to the rail and as the shank of the spike is advanced through the square aperture and into the tie, the same will rotate through 90 degrees whereupon the spike will be driven home and the head positioned at right-angles to the rail and in firm engagement therewith, as shown by the companion spike in Figure 1.

In the modified form of spike illustrated in Figure 3, I have reduced the chisel edge 18 to a width less than that of the body or shank 19 of the spike, so that as a spike is driven or advanced into the wooden tie, the spiral edges 20 of the shank will cut their own paths free and clear of any cutting done by the chisel edge.

While I have shown a particular form of embodiment of my invention, I am aware that many minor changes therein will readily suggest themselves to others skilled in the art, without departing from the spirit and scope of the invention. Having thus described my invention, what I claim as new and desire to protect by Letters Patent is:

1. A railroad spike comprising a shank having an elongated head at one of its ends, and a chisel edge at its opposite end, said shank being of square formation in cross-section, the underside of the head being tapered for engagement with the upper surface of the flange of a rail, said tapered portion of the head merging with a straight portion of the shank wherein is formed a locking-shoulder for engagement with the underside of a tie-plate, and the lower portion of the shank being twisted through 90 degrees to position said chisel edge into alignment with the major axis of the head.

2. A railroad spike comprising a shank having an elongated head at one of its ends, and a chisel edge at its opposite end of less width than that of the shank, said shank being of square formation in cross-section, the underside of the head being tapered for engagement with the upper surface of the flange of a rail, said tapered portion of the head merging with a straight portion of the shank wherein is formed a locking-shoulder for engagement with the underside of a tie-plate, and the lower portion of the shank being twisted through 90 degrees to position said chisel edge into alignment with the major axis of the head.

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