April 9, 1940. E. C. NEAL 2,196,534

RAILWAY SPIKE FOR TIES

Original Filed May 6, 1937

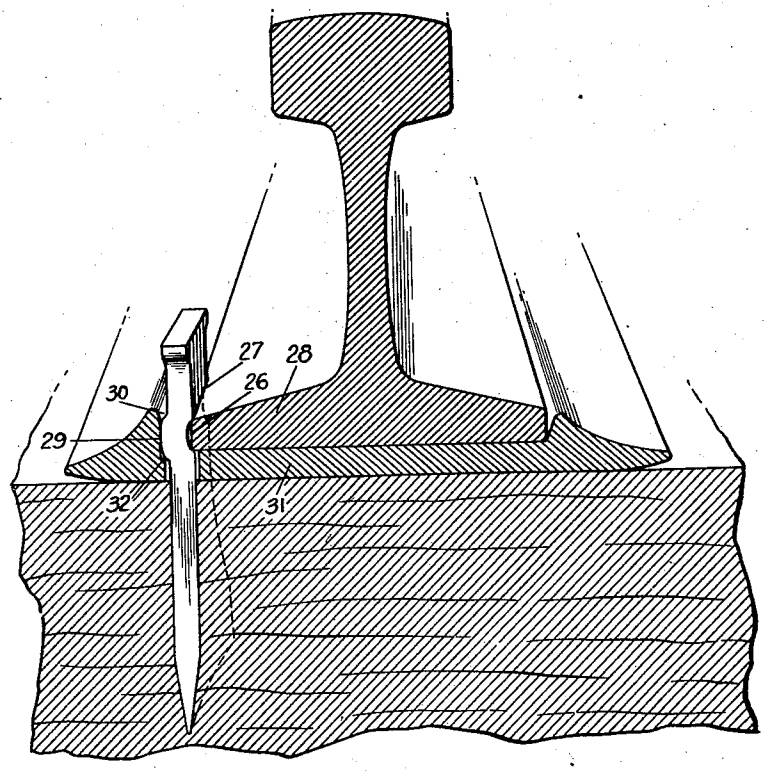


Fig. I

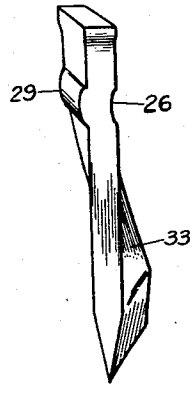


Fig. II

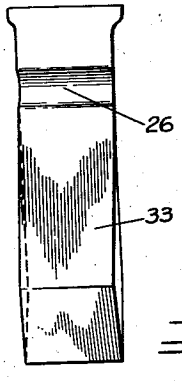


Fig IV

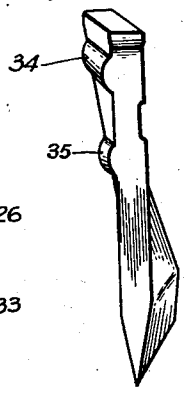


Fig III

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RAILWAY SPIKE FOR TIES

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5 Claims. (Cl. 85—24)

Heretofore railway spikes have been made of metals that were relatively soft, easily bent and of metal that had no inherent spring action disposed therein. The shanks of the spikes thus made were substantially square in cross section.

In my new and improved spike the same is made of steel having a high carbon content and one that has an inherent spring action disposed therein with the opposite broad faces of the spike being concave and convex respectively. Lugs outwardly extend from the opposite ends of the head to permit a claw bar being passed thereunder to remove the spike from placement.

The primary purpose and object of my invention is to provide a railway spike that will be stiff.

A still further object of my invention is to provide a railway spike that will not work from placement when the same is driven home within a tie and through the holes of a tie plate.

A further object of my invention is to provide a railway spike that offers greater compression area against the end grain of the tie than railway spikes now in use.

A still further object of my invention is to provide a railway spike that is to be used in conjunction with a railway tie plate and one that will remain in placement when driven home within the tie through the tie plate.

With these and incidental objects in view, the invention consists in certain novel features of construction and combination of parts, the essential elements of which are set forth in the appended claims, and a preferred form of embodiment of which is hereinafter shown with reference to the drawing which accompanies and forms a part of this specification.

In the drawing:

Fig. 1 is a perspective end view of a rail, a perspective side view of a tie plate upon which the rail is disposed and a fragmentary perspective edge view of the spike driven home through the tie plate.

Figs. 2 and 3 are edge views of two alternative forms of the spike made having a twist or wind disposed in the body portion of the spike.

Fig. 4 is a front view of the spike.

My new and improved spike is preferably to be used in conjunction with tie plates that are placed upon the tie and beneath the base of the rail where the rail crosses the tie.

The tie plates are to be double shouldered in order that the base of the rail may be made to engage the shoulders of the tie plate at each side of the tie plate and at the opposite edges of the rail where the same rests upon the tie plate. The tie plates are punched to permit my new and improved spike being driven therethrough.

My new and improved spike has a dual purpose in maintaining the rail in a stable condition, namely: to prevent the movement of the rail longitudinally of the tie and second to prevent longitudinal movement of the rail upon the tie plate.

It will be apparent that the spike may be made from a bar, the cross section of which, will have parallel sides with each of the sides forming straight lines and where the edge of the spike is formed of straight lines with the edges of the spike being disposed at right angles to the broad faces of the spike.

By placing an offset in the broad face of the spike below the head of the spike and positioning the inset to engage precisely the outer edge of the rail and having the opposite side of the spike offset at the same location, or at substantially the same location and at one or more points, the rail is then gripped between the spikes on its opposite edges. Spikes so made maintain the rail in a stable condition, prevent the transverse movement of the rail and the longitudinal movement of the rail along the tie plate.

In order to further maintain the spike within the tie when it is driven home therein, I may place a wind or twist within the body portion of the spike in sufficient amount to stress the body portion of the metal of the spike and simultaneously to stress the end fibers of the wood within the tie. This maintains the spike in a stable condition relative to the tie and it simultaneously increases the gripping force of the spike where the same engages the edge of the rail.

The heads of the spikes will not necessarily engage the top of the base of the rail. Where the spikes are made with small heads and have an offset disposed therein, a lesser amount of the material will be required to make the spike head. The spike head extending above the rail base facilitates the pulling of the spike when it is desired to remove the same from the tie plate and from engagement with the edge of the rail.

My rail spike has broader surfaces that engage the end grain of the tie than the spikes now in general use. It will be preferably made of spring material or of material of a high carbon content or that has been heat treated or tempered. This spike eliminates to a large extent, if not entirely, the necessity for anti rail creepers.

A railroad spike made of spring material will compensate for a variation in tolerance that is customarily allowed in the width of the base of the rail of the same rolling or of a different

rolling. Spikes of my design further allow for a slight difference in tolerance in the position of the shoulders of the tie plate and of the position of the punched holes in the tie plate. Spring spikes also absorb, in a cushion like manner, the transverse movement of the loaded vehicle passing over the rails which are further imparted to the rail and to the substructure supporting the same.

Railroads having light ballast under the ties and particularly in wet weather, or where the frost is going out of the ground sometimes develope a pumping action, caused by the wave motion of the rails as loads pass thereover. A spike of this type is particularly desirous on butt welded rail because the longitudinal movement of the rail must be permitted to build resistance sufficient within the rail to absorb the expansion and contraction of the rail within the elastic limits of the metal itself from which the rail is made.

Like reference characters refer to like parts throughout the several views.

I make my spike of high carbon steel, and as illustrated in Figs. 1 to 4 inclusive, the spike is made slightly longer than the conventional spike.

I place an offset in the body of the spike substantially below the head of the spike.

The inset **26** is made to engage the edge **27** of the base **28** of the rail. The offset **29** is made to engage the wall **30** of the hole disposed in the tie plate **31**.

To prevent the over driving of the spike I place a shoulder **32** on the rear wall of the spike hole of the tie plate.

Since the head of the spike is not driven home to cause the head to engage the top of the base of the tie plate, the head of the spike is made much smaller than the head of a conventional spike as is illustrated in Figs. 1 to 4 inclusive. To further cause the spike to maintain a tight grip upon the edge of the rail base, I place a twist **33** in the body of the spike between the offset and the spike point.

I also recommend spikes that are to be used on butt welded rail to have two offsets as illustrated in Fig. 3 at **34** and **35** and that the inset be placed midway between the two offsets **34** and **35**.

This maintains without diminution a tight grip between the spike and the edge of the base of the rail for long periods.

While the form of mechanism herein shown and described is admirably adapted to fulfill the objects primarily stated, it is to be understood that it is not intended to confine the invention to the embodiment herein shown and described, as it is susceptible of embodiment in various forms, all coming within the scope of the claims which follow.

What I claim is:

1. A railway spike made of spring material, said spike being pointed upon one of its ends and the body of said spike being of greater width than depth and having a head disposed upon its opposite end and said spike having an inset disposed within one of its broad faces to facilitate the edge of a railway rail engaging therein, and having a plurality of offsets disposed upon its opposite disposed broad face to urge the spike toward the rail edge when the spike is driven in the hole of a rail tie plate, and the body of said spike having a twist disposed therein.

2. A new article of manufacture made of spring material and said article being pointed on one end and having a head disposed upon its other end and said head projecting outwardly from either edge of the article and said article having an inset disposed within one of its faces and placed between the head and the point and having a plurality of offsets disposed upon the opposite broad face of the article of manufacture, and the body of the article being of greater width than depth and said body being shaped to impart a torsional strain to the article when driven in a dense medium.

3. A railway spike made of spring material, said spike having a head disposed upon one of its ends and said spike having an inset for receiving the edge of a railway rail disposed below the head and having a plurality of offsets disposed below the head and on the opposite side of the spike, upon which the inset is disposed and the body of the spike, disposed below the inset, having a wind disposed therein, and the body of the spike being wider than it is deep.

4. A railway spike made of spring metal, said spike being pointed and having a driving and pulling head and said spike being made of material substantially wider than it is deep and being shaped between its head and point to impart a torsional strain within the spike when driven in the railway tie and means associated with the opposite faces of the spike for forcing contact with the edge of the face of the rail when the spike is driven through a tie plate.

5. A railway spike made of strip metal substantially wider than it is deep being pointed on one of its ends and having an inset disposed in one of its faces to adapt the same for engaging the edge of a railway tie, and the face of the spike opposite to that of the inset being offset and said spike being shaped between its points and inset to impart a torsional strain to the spike when the spike is driven in a railway tie.

ERNEST C. NEAL.