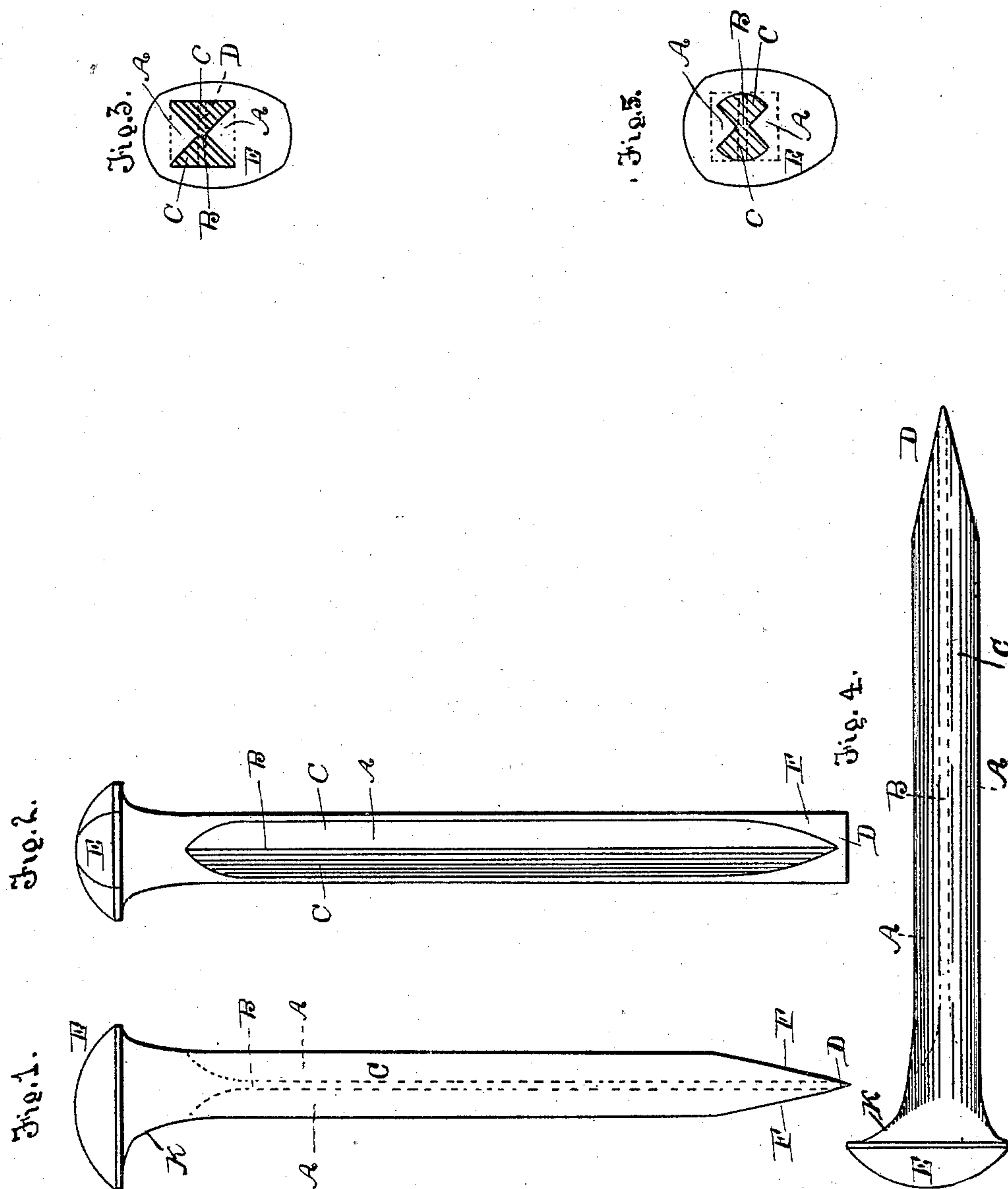


(No Model.)

F. W. ALDRICH.
SPIKE.

No. 452,892.

Patented May 26, 1891.



WITNESSES:

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SPIKE.

SPECIFICATION forming part of Letters Patent No. 452,892, dated May 26, 1891.

Application filed February 14, 1891. Serial No. 381,490. (No model.)

To all whom it may concern:

Be it known that I, FRED W. ALDRICH, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvement in Spikes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in spikes, having special reference to railroad-spikes; and it has for its object to provide a spike which will cut the fiber of the wood instead of crushing and tearing it; furthermore, to provide a spike which will have the maximum area of frictional surface with the minimum amount of material and weight; furthermore, to provide a spike having stiffness to resist torsional and lateral strains, and, furthermore, to provide a spike having a sharpened point to open the way in the material in which it is driven, said point being equal in length to the greatest diameter of the spike.

With these objects in view the invention consists in a certain novel construction and combination of parts, fully described herein-after in connection with the drawings, wherein—

Figure 1 is a side view of a spike embodying my invention. Fig. 2 is a front view of same. Fig. 3 is a transverse sectional view of same. Fig. 4 is a side view, and Fig. 5 is a transverse sectional view, of a round spike provided with my improvements.

Referring to Figs. 1, 2, and 3, the angular longitudinal grooves A A are formed in the front and rear sides of the spike, the apexes of these diametrically-opposite grooves being preferably within about three thirty-seconds of an inch of each other, so as to form a thin axial web B, extending from the head of the spike to the point. Thus in cross-section, as seen in Fig. 3, the spike consists of two diametrically-opposite sections C C, which are triangular in cross-section and are connected at their apexes by a thin axial web. The point D is equal in length to the greatest di-

ameter of the spike, and consists of a sharp edge which extends diametrically across the end of the spike from the center of one flat or plane side to the center of the other and at right angles to the length of the head E. This point is a continuation of the central web, and the lower ends of the triangular sections C are cut away at their side edges, as shown at F F, to reduce the width of the same to the thickness of the point.

It will be seen that in driving this spike the point will open the way by cutting the fiber of the wood, this separation being equal to the full width of the spike at its widest part. Thus the way for the central web is opened at once and the wood passes up into the grooves without being first crushed or pressed aside. The beveled lower ends of the triangular sections cut into the fiber of the wood and displace only enough of the material to accommodate the triangular sections. It will be obvious that if the point were parallel with the head, or extended from the apex of one groove to the apex of the other, (even though said grooves were very shallow,) it would necessarily be shorter than the width of the spike, and therefore would not open the way for the latter.

I am aware that heretofore spikes have been provided with diametrically-opposite grooves; but either the grooves have been shallow, so as not to materially reduce the length of the point, (as above mentioned,) or the lower ends of the grooves have been closed by upsetting the metal, in order to allow the point to be of the desired length. In the former case the spike drives with difficulty and forces its way by crushing and tearing the wood, and in the latter case the wood-fiber is spread or crushed away and then allowed to spring into the grooves after the upset portion has passed. This latter construction is defective, for the reason that, having once been crushed and broken, the fiber loses the greater portion of its strength and elasticity, and therefore, not bearing upon the surface of the spike with the same force, does not offer the same resistance to the withdrawal of the spike.

By my improved construction I calculate that I reduce the weight of the spike (compared with a square spike) from one-fourth

to one-third, and at the same time increase the frictional surface in about the same proportion.

5 In Figs. 7 and 8 I have illustrated my improvement in connection with a round spike, the advantages in this form being similar to those described in reference to the square spike. (Shown in Figs. 1 to 3.)

10 In my spike the point is a continuation of the central web, the latter being of the same thickness throughout as the point, whereby it is only necessary to cut away the edges of the lateral sections at their lower ends to produce a sharp edge which is in length equal to
15 the full width of the spike, and therefore cuts a sufficient opening in the wood to receive the spike without crushing or tearing the fiber.

20 My improved spike may be formed by rolling, the head being upset in any ordinary or suitable way, the edges of the lateral sections being subsequently cut away to form the point.

25 The upper end of the shank of the spike is enlarged or thickened slightly toward the head (as seen at K) to fit snugly in the opening in the wood caused by the slight lateral play of the upper end of the spike as it is driven. The spring of the metal invariably causes a slight enlargement of the upper end of the opening in the wood; but the corresponding enlargement of the shank fits snugly
30 in the opening when the spike is driven home and prevents moisture from following the spike and entering the opening to cause rust.

35 The present forms of spikes crush or tear the wood at the surface and throughout the depth of the perforation, so that water is al-

lowed to enter and cause the rusting of the spike and the rotting of the tie. But from the above description it will be seen that my improved spike will cut its way, thus divid- 40 ing the fiber of the wood sufficiently to enter without crushing or breaking it, and therefore the fiber will fit closely around the shank of the spike throughout its length and will prevent the entrance of water. It is only in 45 case the spike is not struck perfectly straight and true in driving that the enlargement toward the upper end of the shank is necessary. If the spike is struck an accurate blow, there will be no lateral spring (hereinbefore 50 mentioned) and there will be no enlargement of the upper end of the opening; but it is difficult to guard against striking the blows slightly to one side, and therefore I prefer, in practice, to form the enlargement as described. 55

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

60 The improved spike herein described and shown, consisting of diametrically-opposite triangular sections connected by a thin axial web at their apexes, having a transverse point equal in length to the greatest diameter of the spike, and provided with an enlargement 65 near its head, substantially as specified.

In testimony whereof I affix my signature in the presence of two witnesses.

FRED W. ALDRICH.

Witnesses:

A. G. BORP-SMITH,
WM. B. COX.