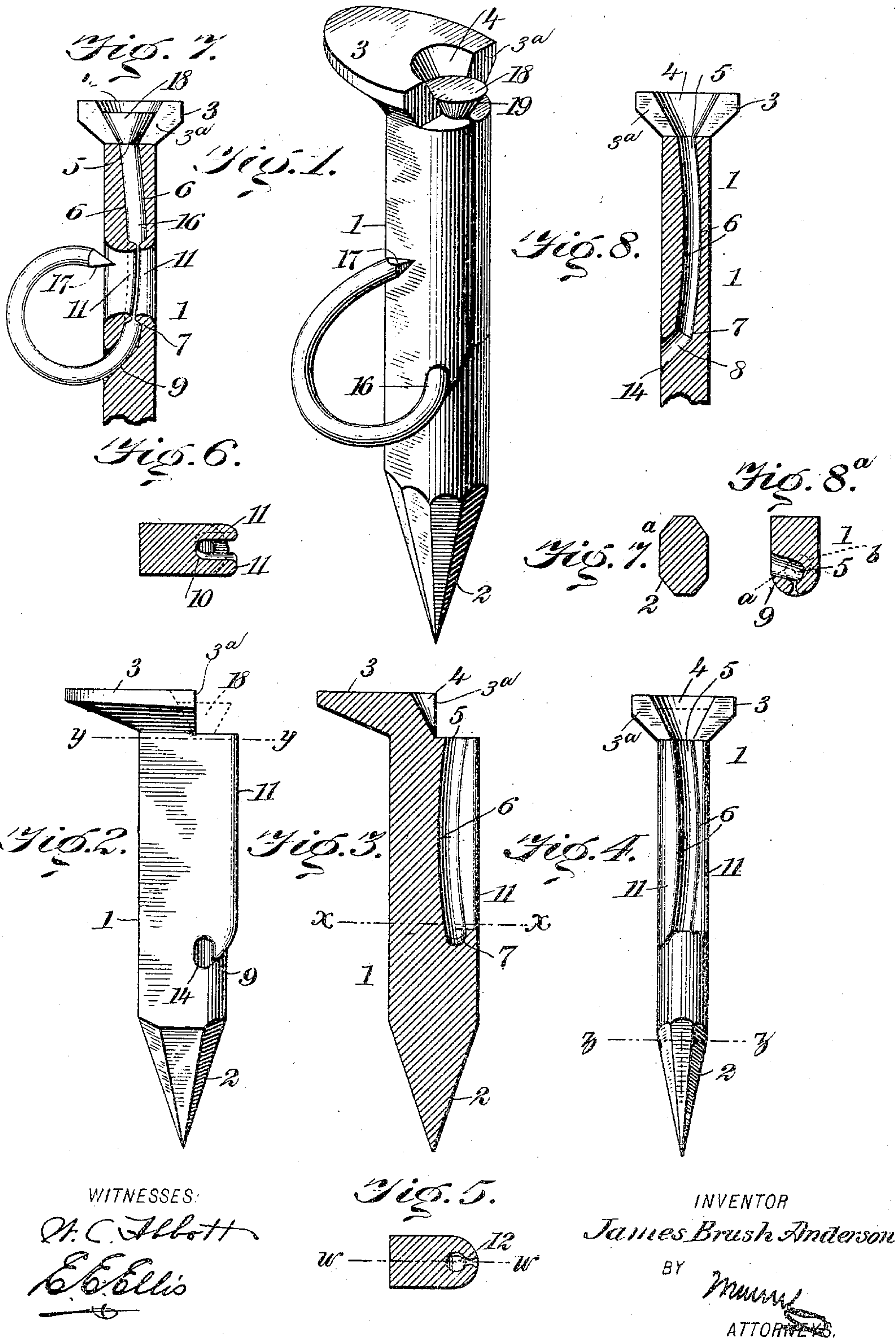


J. B. ANDERSON.  
SPIKE.

APPLICATION FILED APR. 29, 1903.

MODEL.



WITNESSES:

*H. C. Abbott*  
*E. C. Ellis*

*Fig. 5.*



INVENTOR

*James Brush Anderson*

BY

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# UNITED STATES PATENT OFFICE.

JAMES BRUSH ANDERSON, OF PORTLAND, OREGON.

## SPIKE.

SPECIFICATION forming part of Letters Patent No. 774,144, dated November 8, 1904.

Application filed April 29, 1903. Serial No. 154,814. (Model.)

*To all whom it may concern:*

Be it known that I, JAMES BRUSH ANDERSON, a citizen of the United States, and a resident of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Spike, of which the following is a full, clear, and exact description.

This invention relates to spikes; and it consists, substantially, in the construction and combinations of parts hereinafter particularly described and claimed.

Though applicable to other purposes in the arts my improvements have reference more especially to railroad-spikes; and one of the principal objects of my invention is to provide a device of this kind which is thoroughly effective and reliable in use and one which may be easily driven into place and again withdrawn, besides possessing the capacity for long and continued service.

The above and additional objects are attained by means substantially such as are illustrated in the accompanying drawings, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a view in perspective of an embodiment of my improvements, said view indicating the form the anchoring device for the spike proper is induced to assume on being driven through the latter and into the tie or other timber into which the spike proper may be driven. Fig. 2 is a side view of the spike proper at one stage of construction of the same and minus the anchoring device therefor, but indicating in dotted lines the manner in which the head of the latter is seated within the head of the former in the normal or driven position of both the spike and said device. Fig. 3 is a vertical sectional elevation taken substantially on the line *ww* of Fig. 5. Fig. 4 is a side view of the spike proper, taken substantially at right angles to the view shown in Fig. 2. Fig. 5 is a transverse sectional view taken on the line *xx* of Fig. 3. Fig. 6 is a similar view taken on the line *yy* of Fig. 2. Fig. 7 is a vertical sectional view in detail to show more clearly the construction and coöperative organization of the spike proper and the anchoring device therefor. Fig. 7<sup>a</sup> is a cross-section on the

line *zz* of Fig. 4. Fig. 8 is a vertical sectional view of the spike, and Fig. 8<sup>a</sup> is also a transverse sectional view taken slightly below the line *xx* in Fig. 3.

Before proceeding with a more detailed description it may be stated that in the form of my improvements herein shown I preferably employ a wrought-metal spike proper of special construction and coöperating with which is an anchoring device for securely maintaining the spike against loosening in the tie or other timber due to vibration or other causes, and the embodiment is such that the said spike is locked independently within the timber and in a manner not to interfere with the full compressive action of the fibers of the latter about the spike for practically the entire surface of the spike. No drilling of the spike proper is required in its formation; but the same is provided for a suitable part of its length with an opening leading therethrough in such manner that the sides of said opening induce the anchoring device employed to effect peculiar engagement with adjacent inner parts of the tie or other structure laterally of and beyond the spike, said engagement being such as to prevent the spike from working loose and also preventing withdrawal of either the spike or anchoring device without the employment of special means for the purpose. Other advantages of the construction and organization of parts will be more fully explained hereinafter, and while I have herein represented a certain preferred embodiment of my improvements it will be understood, of course, that I am not limited to the precise details thereof in practice, since immaterial changes therein may be resorted to coming within the scope of my invention.

Specific reference being had to the drawings by the designating characters marked thereon, 1 represents the spike proper, which may be of any preferred length and other dimensions and also of any desired shape in cross-section, the said spike being tapered and pointed at 2, by which to enable the same to be readily driven into a railroad-tie, for instance, in the ordinary way. Said spike is also preferably formed at its upper end with practically a half-head 3, which projects lat-



erally beyond the sides of the spike for substantially the semicircumference thereof only, said half-head being formed transversely with a vertical straight face 3<sup>a</sup>, leaving substantially one-half of the upper surface of the body of the spike perfectly flat as well as in a plane considerably below the plane of the upper surface of the half-head, the latter being formed with a half-countersink extending inwardly from said transverse face 3<sup>a</sup> and the lower edge of the downwardly and inwardly convergent sides of which lead to the upper entrance of an opening 5, formed in the body of the spike for a suitable part of the length thereof, the sides of this opening being correspondingly curved laterally at 6 in Figs. 4 and 8 from the upper end of the opening to the point thereof (indicated at 7) and also curved in a direction from front to rear, as indicated in dotted lines in Fig. 8<sup>a</sup>. From the lower end of the said curved portion said sides are curved more abruptly at 8 and also obliquely at 9 with reference to the plane of the adjacent side of the spike, the purpose of which construction will be presently explained. I may form the said opening 5 either by drilling the spike or otherwise; but in order to enable spikes of any desired length to be used and also to preserve the strength of the spike I prefer first to partially groove the spike longitudinally at 10, (see Fig. 6,) and I provide duplicate flanges or lips 11 on either side of this groove, which flanges or lips are substantially bent or turned inwardly toward each other, as indicated at 12, (see Fig. 5,) thus forming or constituting the said opening. These flanges or lips may be brought quite close together or not, as may be preferred, and the edge of the inner end of the opening 5 is rounded off or curved at 14 for the purpose hereinafter described, it being here stated that the tapered portion 2 of the spike may be formed with as many sides as may be desired.

As an auxiliary to the spike proper I employ an anchoring device therefor, consisting, preferably, of a wire or wrought-metal nail 16, originally of considerably greater length than the spike and also preferably tapered and pointed at its inner end, as shown at 17, said nail being also preferably provided at its upper end with a head 18, the sides of which are tapered downwardly at 19 in conformity with the sides of the half-countersink 4 in the head 3 of said spike proper, as shown. The body of this nail is preferably slightly less in diameter than the diameter of the opening 5 between its sides, and after the spike 1 is driven into the railroad-tie or other timber in the usual way the pointed end 17 of the nail is inserted in the opening 5 at the upper end of the latter, and the said nail is forced through said opening in any suitable way until the said pointed end thereof comes into contact with the lower part of the ab-

ruptly-curved sides 8 of the opening, and thus will the lower portion of the nail be given a bend laterally and be deflected in an oblique direction, which causes the pointed end of the nail to enter the material of the tie in a manner quite apparent. The construction and organization of the parts are such that as the driving blows are imparted to the nail the latter is caused to bend laterally throughout its length in conformity with the curved portions 6 of the sides of the opening 5, and as the inwardly-driven portions of the nail successively emerge from the inner end of said opening such portions are caused to curve upwardly into the wood, due to the described course followed by the lower curved portions 9 of the sides of the opening, the said curved portions of the nail being caused to pass clear of the spike, thereby enabling such portions to be bent into one or more complete circles or coils within the wood, according to the length of the nail employed. The results described are due to the fact that as the nail portions are driven through the abruptly-curved and oblique side portions of the opening 5 said nail portions are subjected to a sort of twisting or torsional action, as it were, thereby starting the same in the curved direction followed thereby, and thus is a secure anchoring or locking of the spike effected. The nail is driven in until the head 5 thereof becomes seated in the half-countersink 4, as indicated in Fig. 1, and it may be stated that the particular form of nail-head shown enables the ready application of a suitable implement thereto for the purpose of pulling out or withdrawing the nail, so as to enable the spike to be withdrawn; but by employing no head on the nail, or at least one which is but little greater in diameter than the thickness of the nail, the said nail may be driven all the way through the opening to enable withdrawal of the spike.

The dotted line *a* in Fig. 8<sup>a</sup> shows the nail at the normal position, while the dotted line *b* shows it at its greatest curvature.

By means of my improvements it is impossible for the spike to come out until entire disconnection or separation of the anchor therefrom takes place or is effected, and other advantages will also appear without further explanation.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A spike formed for a part of its length with a longitudinal opening, said opening being curved laterally in two directions, that is, in a direction from front to rear and in a direction from side to side, the lower end of the opening ranging abruptly laterally and obliquely, relatively to the plane of the adjacent side of the spike, and an anchoring device for insertion through the said opening, adapted to be deflected in accordance with the directions followed by the sides of the opening,



whereby portions thereof are caused to be projected into the material into which the spike and said device may be driven, in curved directions.

5 2. A spike formed for a part of its length with a longitudinal opening, said opening being curved laterally in two directions, that is, in a direction from front to rear and in a direction from side to side, the lower end of the  
10 opening ranging abruptly laterally and obliquely, relatively to the plane of the adjacent side of the spike, the outer sides of the said opening being constructed of closed intumed flanges, and an anchoring device comprising a  
15 nail for insertion through the opening, the nail being adapted to be deflected in accordance with the direction followed by the sides of the opening, whereby portions thereof are caused to be projected into the material in which the  
20 spike and said nail may be driven, in curved directions.

3. A spike having a laterally - projecting half-head, formed with a straight transverse face, extending inwardly from which is a half-  
25 countersink, the body of the spike being formed for a part of its length with an opening, and an anchoring device for insertion

through said opening, said device having a tapering head, for partially seating within the half-countersink, substantially one-half of the  
30 upper surface of said body of the spike being in a plane below the upper surface of the said half-head.

4. A spike having a laterally - projecting half-head formed with a straight transverse  
35 face, extending inwardly from which is a half-countersink, the body of the spike being formed for a part of its length with an opening, an anchoring device for insertion through said opening, said device having a tapering  
40 head for partially seating within the half-countersink, substantially one-half of the upper surface of said body of the spike being in a plane below the upper surface of the said half-head and the outer sides of the said open-  
45 ing in the spike being constructed of closed intumed flanges.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES BRUSH ANDERSON.

Witnesses:

H. A. HEPPNER,  
L. W. HEPPNER.