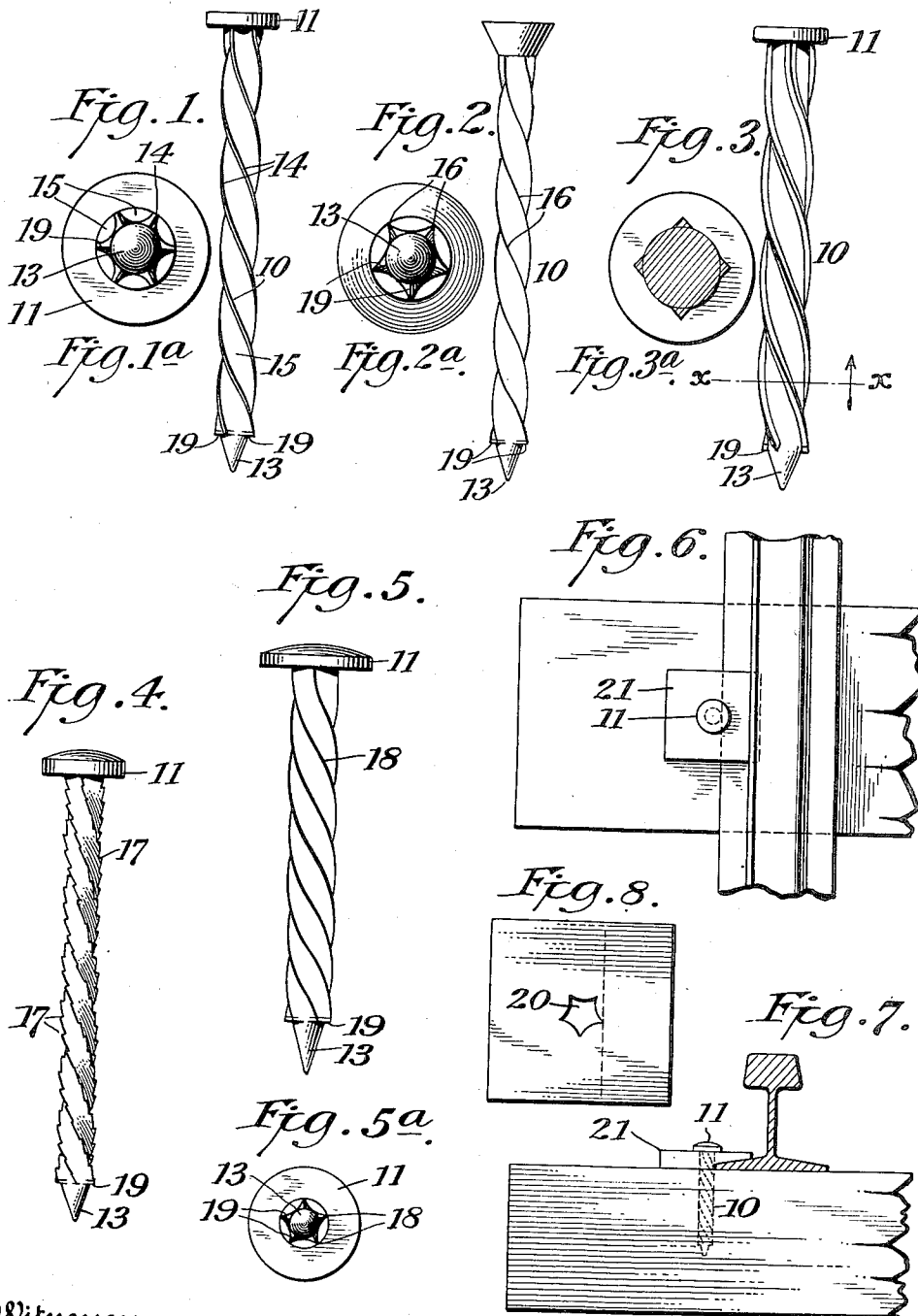


F. A. ROUXEL.
NAIL, SCREW, AND SPIKE.
APPLICATION FILED DEC. 3, 1913.

1,125,885.

Patented Jan. 19, 1915.



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK A. ROUXEL, OF BROOKLYN, NEW YORK.

NAIL, SCREW, AND SPIKE.

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Specification of Letters Patent.

Patented Jan. 19, 1915.

Application filed December 3, 1913.* Serial No. 304,337.

To all whom it may concern:

Be it known that I, FREDERICK A. ROUXEL, a citizen of the United States of America, residing at Brooklyn, in the county of Queens and State of New York, have invented certain new and useful Improvements in Nails, Screws, and Spikes, of which the following is a specification.

This invention relates to nails, screws or spikes, constructed so as to impart rotary movement about its axis, when the same are driven into wood, and the nails, screws or spikes are provided with angular cutting edges, which eliminate all danger of the wood splitting when the nails are driven into the same, whether a hard or soft wood is used.

The principal object is to provide a nail, screw or spike formed from rods of equal thickness throughout their length and having helically formed fins or webs, extending throughout the length of the nail, screw or spike, whereby when such a nail, screw or spike is driven into wood, a movement about its longitudinal axis is imparted to the nail, screw or spike without material resistance to greatly increase the nail, screw or spike retaining powers, and without crushing or splitting the wood.

A further object of the present invention, may be said to reside in having the penetrating point of the nail, screw or spike, narrower at its top than the diameter of the body of the nail, screw or spike and the base of each helically formed fin or web, which projects beyond the area of the top of the point, and which is preferably V shaped will serve as a cutting edge, said cutting edge being preferably at right angles to the axis of the body of the nail, screw or spike, for its complementary fin or web, thereby eliminating all danger of splitting the wood, whether soft or hard wood, when the nail, screw or spike is forced into the wood.

With these and other objects in view the invention consists of the improvements hereinafter described and finally claimed.

The nature, characteristic features and scope of the invention will be more fully understood from the following description taken in connection with the accompanying drawings forming part hereof and in which:

Figure 1, is an elevational view of the nail embodying the invention; Fig. 1^A, is a bottom or plan view thereof, showing angular cutting edges. Fig. 2, is a view in

elevation of a slightly modified form of nail; Fig. 2^A, is a bottom or plan view thereof, showing angular cutting edges. Fig. 3, is a view in elevation of a still further modified form of nail, Fig. 3^A, is a view of Fig. 3, through line X—X. Fig. 4, is a view in elevation of a still further modified form of nail. Fig. 5, is a plan view of spike embodying the invention, Fig. 5^A, is a bottom or plan view thereof. Fig. 6, is a top elevational view of the spike and plate positioned with relation to a railway tie and track. Fig. 7, is a side view of Fig. 6, and Fig. 8, is a top view of the plate.

Referring to the drawings and more particularly to Figs. 1 and 1^A, inclusive, the nail of any suitable material, thereshown is formed from a cylindrical bar or rod of equal diameter throughout its length. In the figures 10, designates the body of the nail 11, the head, 13 the penetrating point and 19, the angular cutting edge. The body of the nail has formed thereon throughout its length helical fins or webs 14, which spring from equally spaced parts of the body 10, and have therebetween grooves 15. The edges of the fins or webs as shown in said figures are relatively blunt in contradistinction from having a sharp edge.

The nail shown in Figs. 2 and 2^A, is of the same construction as the nail just described with this exception, that the edges 16, of the fins or webs are sharp or chisel like see Fig. 2^A. The base of the ribs or fins on all the figures shown are sharp or chisel like and may be said to be V-shaped.

Referring now to Figs. 3 and 3^A, there is shown a wire nail formed from a cylindrical bar of equal diameter throughout its length, the body of which has formed therewith a plurality of helical or obliquely twisted fins or webs 18, preferably four in number, spaced equally about the body of the nail, which extends practically throughout the length of the nail body and shown as having sharp cutting edges, also sharp V-shaped base cutting edges.

In Fig. 4, a nail is shown, the body of which has formed thereon helical or oblique twisted fins or webs similar to those disclosed in Figs. 2 and 3, with this exception, that the edges thereof are provided with continuous series of closely adjacent teeth.

Referring to Figs. 5 and 5^A, a spike is disclosed in which the shank and body thereof comprise a cylindrical bar having

formed thereon helical twisted fins or webs similar to those disclosed in Fig. 2, and is also provided with V-shaped cutting edges for its fins or webs.

5 As shown in Figs. 6 to 8 inclusive, a plate 21, constructed of any suitable material, is provided with a channel 20, the side walls of which are formed to receive the fins and grooves of the spike. The plate is placed 10 partly upon the railway tie, and partly upon the flange of the rail, and the spike is driven to place. The plate is so formed, that when it is resting in the above described position, it is impossible to move same laterally, 15 thereby restricting a lateral movement of the spike, and anchoring same within the tie.

In the specific form shown in Fig. 4, the teeth 17, while not offering resistance when 20 the nail or spike is being driven to place, the teeth do serve to offer great resistance when the nail is being withdrawn.

Every nail described in the specification, is provided with a penetrating point and 25 angular base cutting edges. The object of the base cutting edges is to eliminate the splitting of the wood, when nails are driven into the same, with a rotary movement. The base cutting edges serve to act as guides 30 for their complemental fins or webs, and as the cutting edges 19 cut the fiber of the wood, instead of spreading the same, all danger of splitting a piece of wood, into which it is desired to drive a nail is overcome. 35

It is preferable when using the nails on hard wood, to use the nail referred to in Figs. 1-1^A, for the reason that the blunt edges 14, are better adapted to more efficiently retain the natural curve of the 40 helical fins or webs. It is also preferable to use nails having six or more fins or webs, when driving nails to place in hard wood, inasmuch as the fins are smaller and 45 the grooves therebetween shallower, thus giving more strength to the body of the nail. When soft wood is used, the remaining forms of nails, screws or spikes can be used, and it is not necessary to use nails 50 having more than four or five fins, as the

strain upon the nail when driven to place in soft wood is less than hard wood. In the specific form

What I claim is:—

1. A nail, screw or spike consisting of a 55 cylindrical body, including its complemental head and pointed end, said body having formed thereon helical fins throughout its entire length with corresponding grooves therebetween, base cutting edges for said 60 fins, the circular cross-sectional area and twist of said parts being uniform throughout said body.

2. A nail, screw or spike, consisting of a cylindrical body including its complemental 65 head, cutting edges at an angle to the axis of said body and pointed end, said body having formed thereon helical fins throughout its length with corresponding grooves therebetween, the circular cross sectional 70 area and twist being uniform throughout said body.

3. A nail, screw or spike, consisting of a cylindrical body including its complemental 75 head and pointed end, helical fins formed on said body throughout its entire length, said pointed end being less in cross sectional area at its top than the body of the nail, and means at right angles to the axis 80 of the nail formed by the ends of said fins to prevent splitting of the wood or the material, when the nail, screw or spike is driven into the same.

4. A nail, screw or spike, consisting of a cylindrical body, helical fins formed on said 85 body throughout its entire length, a penetrating point equal in cross sectional area to the cross sectional area of the body of the nail adjacent the grooves, and a shoulder formed at the base of the fins or webs 90 sharpened at right angles to the axis of the nail to serve as cutting edges for their complemental fins, substantially as described.

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

FREDERICK A. ROUXEL.

Witnesses:

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