(No Model.)

J. W. VAUGHN.

SPIKE.

No. 442,560. Patented Dec. 9, 1890.

Fig I.

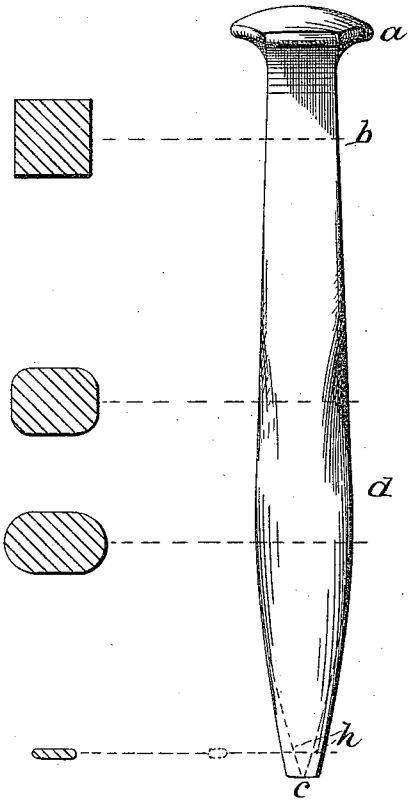
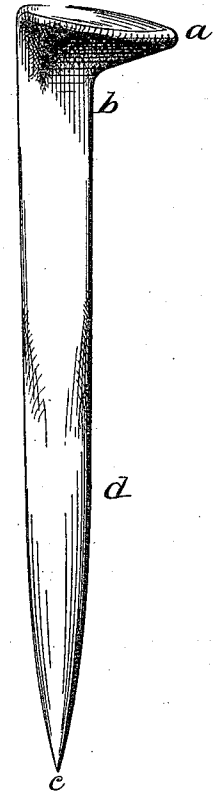


Fig II.



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UNITED STATES PATENT OFFICE.

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SPIKE.

SPECIFICATION forming part of Letters Patent No. 442,560, dated December 9, 1890.

Application filed August 27, 1890. Serial No. 363,215. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. VAUGHN, a citizen of the United States, residing at Syracuse, in the county of Onondaga and State of New York, have invented certain new and useful Improvements in Spikes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to that class of spikes which are driven into the wooden cross-ties of a railroad beside the rails to hold the rails to the ties; and its object is to shape the spike so that it will penetrate the wood without splitting it and will hold tightly in the wood while in service, and yet so that the spike may be repeatedly moved and replaced in the same hole without injuring that elastic quality of the wood which tends to restore it to its original form when penetrated and to hug repeatedly to the spike.

To this end my invention consists of a spike of the form hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure I shows a front view of the preferred form of my spike, with cross-sectional views on different levels indicated by the respective dotted lines; and Fig. II shows a side view of the same spike.

The head *a* of the spike may be of any usual or preferred form, and the neck *b* of the usual size of spike-bodies, about nine-sixteenths of an inch square.

The point *c* is preferably chisel-shaped in the direction to cut across the grain of the wood and a little narrower than the neck. The body *d* is considerably broader than the neck and a very little thinner, its greatest breadth being about three-quarters of an inch at two-thirds the length of the spike from its head, and its thickness at the same point being about half of an inch. The sides have easy sloping curves from the widest portion to the point and for about the same distance upward, then continue on a straight-line taper to the neck. The front and rear faces are also curved from the said widest portion to the point and are on a straight-line taper from the neck to the widest point. The sides at the widest portion are rounded in cross-section and so continue to the point, while upward from the widest portion this rounding gradually verges to the corners, where the rounding is discontinued at about two-thirds the height of the spike.

When this spike is driven into the wood, its chisel-edge cuts across the grain a little less than the width of the neck. Then the sides, being rounded, part the grain on a long easy wedge until the broadest portion passes in, when the grain closes gradually as the width of the spike diminishes, and the corners are left along the neck portion, in order that the grain, which has been stretched somewhat in being parted, may hug it closely, as it would not do if the spike were of the same form at the neck as at the wedging end, which does the parting. The front and rear faces, converging slightly to the broadest portion, have a constant bearing on the severed ends of the grain. The continual pounding of passing trains causes the fibers of the wood to vibrate with a tendency to resume their normal position, whereby there is a constant action against the wedging end of the common spike to force it upward, thus loosening its hold on the rail, and to counteract that tendency in this spike I have formed its body with more of its length tapering upward than downward. At the same time the sides are so rounded and free from cutting-edges and the taper both ways so gradual that the wood may not only be penetrated once without destroying its elasticity, but the spike may be withdrawn and again placed in the same hole without overcoming the natural hugging tendency of the grain, thus permitting repairs to the track without removing the tie and securing a great economy in the saving of ties. Some of these advantages would be obtained if the spike were pointed, as shown in dotted lines *h*, with a circular cross-section; but I prefer the chisel-point.

Having thus fully described my invention,

what I believe to be new, and desire to secure by Letters Patent, is the following:

A spike having a square neck, a chisel-edged point, and a body tapering on its front and rear faces from neck to point and broader than it is thick midway, and having rounded and curved edges, substantially as described.

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

JOHN W. VAUGHN.

Witnesses:
ARTHUR BEEBE.
W. F. RAFFERTY.