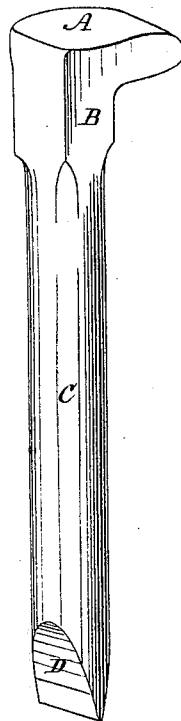


C. FISHER.
Railroad Spikes.

No. 151,657.

Patented June 2, 1874.



Witnesses.

Thos. Jewell
Wm. E. Chaffee

Inventor.

Clark Fisher
By R. R. Voorhies
Atty.

UNITED STATES PATENT OFFICE.

CLARK FISHER, OF TRENTON, NEW JERSEY.

IMPROVEMENT IN RAILROAD-SPIKES.

Specification forming part of Letters Patent No. **151,657**, dated June 2, 1874; application filed March 10, 1874.

To all whom it may concern:

Be it known that I, CLARK FISHER, of the city of Trenton, in the county of Mercer and State of New Jersey, have invented an Improvement in the Form of Railroad-Spikes, of which the following is a specification:

This invention relates to that form of metal spike intended for securing the rails of a railroad-track to their cross-ties, and having a hook-head—that is, a head on one side only. Such spikes can, however, be applied to other uses.

The object of this invention is to proportion a railroad-spike of maximum strength and efficiency of hold in the wood into which it may be driven, and of minimum weight of metal at the same time, thereby making a better and cheaper spike than any now fabricated.

Heretofore spikes have been made of many forms of cross-section, and some of differently-shaped sections in parts of their lengths, but none of them have had combined in one spike the several features constituting this invention. The advantages and mutual relation and coaction of these features will now be cited.

The usual form of railroad-spike is square in cross-section, chisel-pointed, and hook-headed. The form of my spike is seen in the accompanying drawing, in which—

A is the hook-head of the spike; B, a portion of the upper part of the body of the spike, rectangular in section; C, a middle portion of the body of the spike, circular in cross-section; and D is the chisel-point of the spike.

Experiment proves that when square spikes are driven into wood their edges or corners bear greatest against the fibers of the wood, and so displace or spread them as to seriously impair the holding power of the spikes, or the grasp of the fibers of the wood, for the fibers do not bear equally upon the square faces of the spike that lie between those edges, but are sprung off by the edges, and hence but little resistance to the pulling out of the spike is

made by the fibers in contact with the edges, because the whole surface of that part of the spike in the wood is not body-bound, and the spike offers less resistance than it should to any extractive strain brought to bear upon it. The nearer that part of a spike that is driven into wood approaches in cross-section to a circle, the more equally is the pressure distributed over its whole exterior surface, of the fibers of the wood into which it may be driven, thereby exerting the greater resistance to any extractive strain that may be brought to bear upon the spike, because of the perfect grasp of the fibers of the wood upon the whole of its surface—in other words, because the spike is completely body-bound in the wood. My spike is chisel-pointed, because if round-pointed it would split the wood in the act of driving it therein. Part of it is circular in cross-section, for the reason above stated, and its upper portion, near the hook-head, is rectangular in section, because there it must have a flat face to bear against the edge of the rail of the track, and also because that portion out of the wood and near the head requires additional mass to resist any tendency to bend under the blows in the act of driving it into the wood, or from the subsequent side-thrust of the rails, caused by moving loads. Finally, in addition to the more effective action of that part of my spike in contact with the wood, as before stated, there is a considerable saving in weight per spike over those spikes heretofore made with the square or rectangular section throughout their whole length, thus making it more economical to use my spikes, as they can be made with equal facility and at no greater expense per thousand than spikes of the ordinary form, either from square iron by reducing a portion of the length to the proper circular section, as above described, or from round or octagonal iron, and giving the proper form of head and rectangular shape at that end by a modification of the ordinary machinery, or by any other machine devised for the purpose. My spikes, therefore, have ample strength,

greater efficiency, and cost less than ordinary railroad-spikes.

I do not claim as my invention any one of the separate parts of this spike, nor the combination of any two of them, such parts and combination being well known and having been long used; but as my invention, which I desire to secure by Letters Patent,

I claim—

As an article of manufacture, a hook-headed

railroad-spike, having its body round in cross-section, a small portion of its length under its head rectangular in section, and its point wedge-shaped or chisel-pointed, all substantially as described, for the purposes set forth.

CLARK FISHER.

Witnesses:

S. T. FULLER,

MARCIA FISHER.