

E. L. WIRES.

SHOE NAIL.

No. 266,408.

Patented Oct. 24, 1882.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.



Fig. 6.



Fig. 7.

Witnesses:

Wm. Zittel  
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# UNITED STATES PATENT OFFICE.

EPHRAIM L. WIRES, OF MILFORD, MASSACHUSETTS.

## SHOE-NAIL.

SPECIFICATION forming part of Letters Patent No. 266,408, dated October 24, 1882.

Application filed November 24, 1879.

*To all whom it may concern:*

Be it known that I, EPHRAIM L. WIRES, of Milford, in the county of Worcester and State of Massachusetts, have invented an Improvement in Wire Shoe-Nails, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part thereof.

In the drawings, Figures 1 and 2 are side views of my improved nail. Figs. 3 and 4 show my improved nail with a modified head and point, and Figs. 5 and 6 illustrate the clinch.

For most uses the nails should be corrugated, and the best form of corrugations is depressions and projections in the form of a screw-thread; but slight grooves or indentations around or nearly around the body of the nail answer nearly as well in practical use. The wire is fed between dies, and may be corrugated or threaded by the dies, or before it is gripped between them. The only essential functions of the dies are to hold the blank, or that part of the wire between them, securely while that end of the blank which projects slightly from the dies is struck by a header and headed, as is well understood by all skilled in nail-making. This is the common way of making headed nails from wires; but the points in all such nails heretofore made were also formed by dies, the metal forming the point being swaged into the shape of a four-sided pyramid, (see Fig. 7.) or into the shape of a two-sided flaring wedge, well described in Patent No. 231,255, to John M. E. Baackes, dated August 17, 1880, which patent, although it was applied for long after my invention, yet well describes the practical difficulties of making a two-sided wedge-shaped point on a wire nail by swaging.

My nail differs from the nail shown in Fig. 7 and from the nails shown and referred to in the Baackes patent in that the point is that part of the wire left after cutting away the surplus metal, and is not a wedge or pyramid rendered hard and brittle by swaging. Swaged points will not bend back and form a hook-clinch, as shown in Figs. 5 and 6, while points formed by milling or cutting away the surplus metal from one end of the section of wire without disturbing the molecular arrangement

of the metal that remains are very malleable and tough, and when such nails are driven into boots and shoes their points will, when they strike the metal surface of the last, be bent back and form the hook-clinch without cracking or becoming weakened by the sharp bend.

I am aware of the following patents and disclaim as any part of my present invention all that is described in either of them, viz: No. 114,920, to A. H. Caryl, May 16, 1871; No. 172,127, to E. W. Kelley, January 11, 1876; No. 172,361, to E. L. Wires, January 18, 1876; No. 206,515, to E. L. Wires, July 30, 1878; No. 164,889, to H. F. Whidden, June 22, 1875; No. 219,238, to J. M. Estabrook, September 2, 1879, and No. 181,619, to L. W. Austin. In some of these patents the ends of horse-nails are milled off, but on one side only, instead of on both sides, as in my nails; and, moreover, the heads of horseshoe-nails are not formed by upsetting one end of a short piece of wire. In all the other patents, except No. 206,515, the nails are cut nails, made from rectangular blanks cut from nail-plate and shaped by swaging in dies. All such nails lack uniformity, and differ widely from nails made from short sections of wire in many material respects, and my invention has no concern with cut nails of any kind. My Patent No. 206,515 contains a mere suggestion of milling, but does not describe either the mode of manufacture or the nail which forms the subject-matter of this application. I further disclaim that mode of manufacturing nails which consists in upsetting one end of a short piece of wire to form the head and swaging the other end to form the point, and also disclaim the headless wire nail with a two-sided wedge-shaped malleable point described in Patent No. 85,374, granted to Joseph M. Estabrook, December 29, 1868, as I am not the inventor of either one of the processes making up my improved mode of manufacture, and am the inventor of the combination. Nor am I the inventor of wire nails headed, but with hardened, brittle, swaged points; nor of wire nails headless, but with tough, malleable, milled points, and am the inventor of my new wire nail headed like the old wire nails, but unlike any prior wire nail, in being both headed and

having a tough, malleable, milled point, and also possessing all the many other advantages of wire nails over cut nails.

What I claim as my invention is—

5 The improved wire shoe-nail above described, having a laterally-projecting head formed by upsetting one end of a short piece of wire, a body whose size is due to the size of the wire

from which the nail is made, and a cut, two-sided, wedge-shaped, malleable point adapted to clinch, as and for the purposes specified. 10

EPHRAIM L. WIRES.

Witnesses:

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