

E. L. WIRES.

METALLIC-FASTENING FOR LEATHER, &C.

No. 172,361.

Patented Jan. 18, 1876.

Fig. 1.



Fig. 2.



Fig. 4.



Fig. 5.

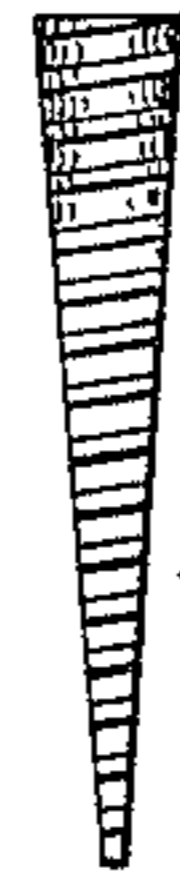


Fig. 3.

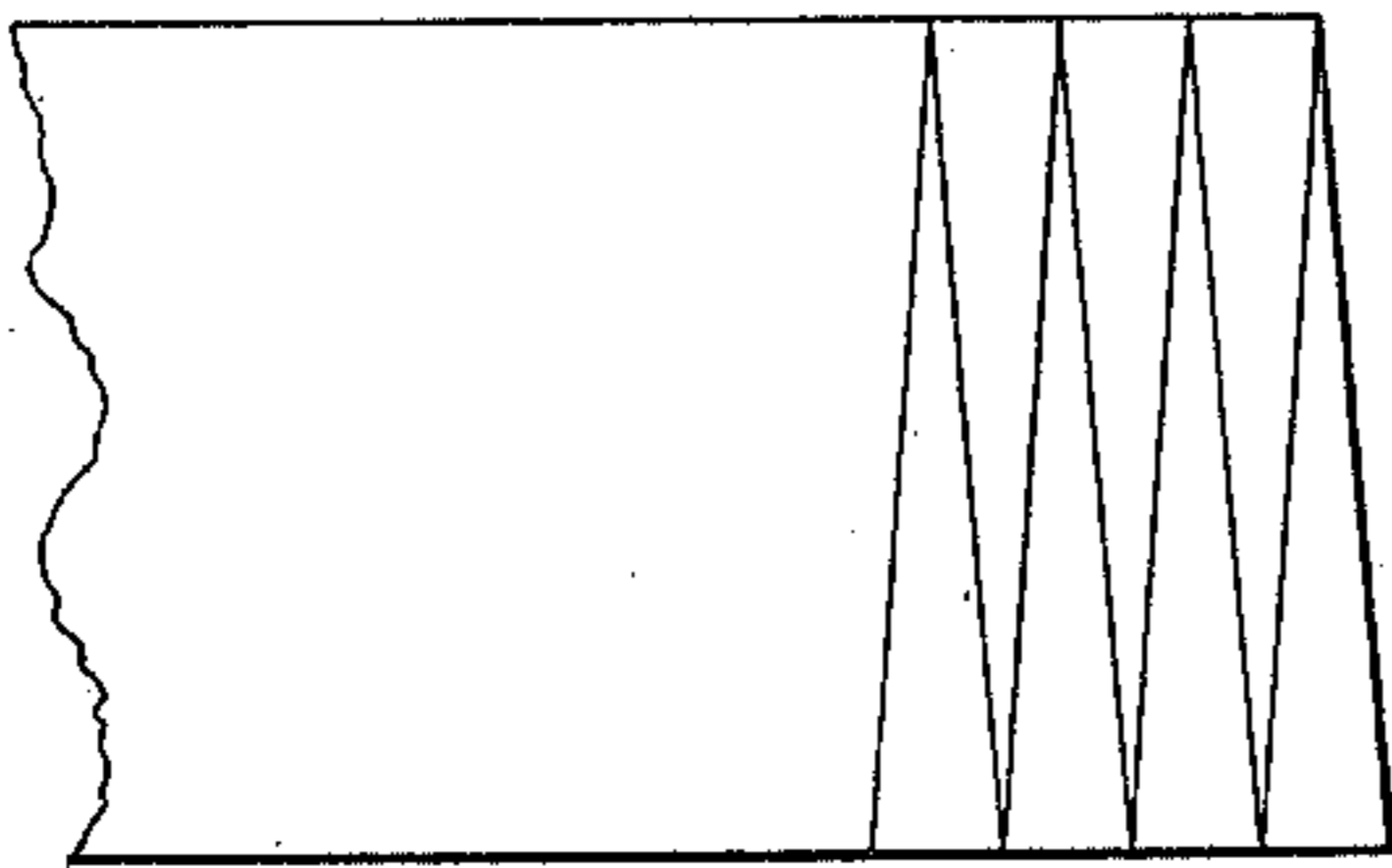


Fig. 6.

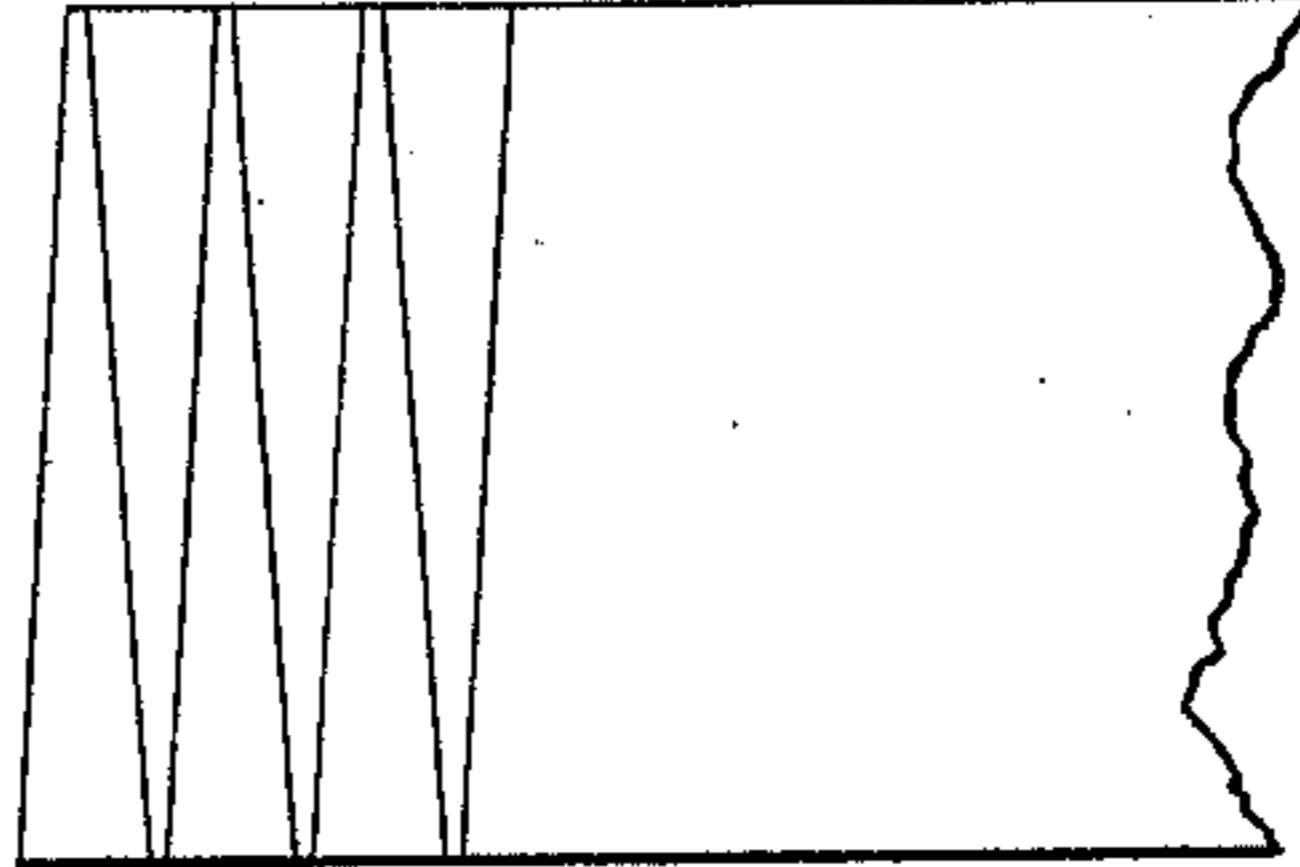


Fig. 7.



Fig. 8.

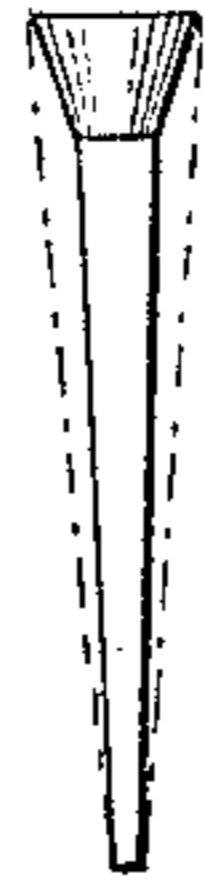


Fig. 9.

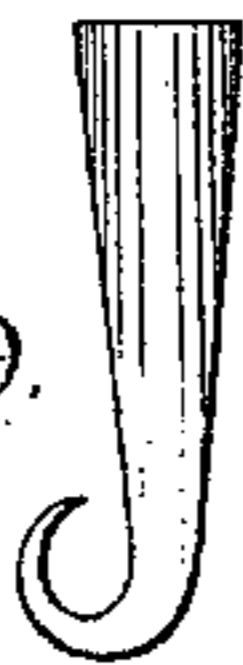
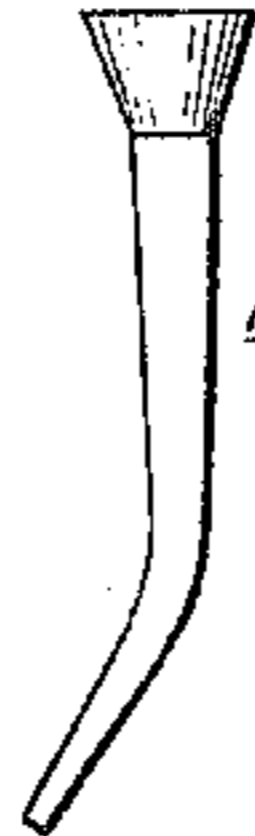


Fig. 10.



Chas. F. Sleepers.
J. L. Knox.

Ephraim S. Wires
by J. E. Maynard
his atty.

UNITED STATES PATENT OFFICE.

EPHRAIM L. WIRES, OF MILFORD, MASSACHUSETTS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOSEPH M. ESTABROOK, OF SAME PLACE.

IMPROVEMENT IN METALLIC FASTENINGS FOR LEATHER, &c.

Specification forming part of Letters Patent No. **172,361**, dated January 18, 1876; application filed September 9, 1875.

To all whom it may concern:

Be it known that I, EPHRAIM L. WIRES, of Milford, in the county of Worcester, State of Massachusetts, have invented an improved Metallic Fastening for Boots, Shoes, Hose, &c., of which the following is a specification:

My invention consists in a headless metal fastening or nail, made from blanks which are wedge-shaped, or substantially so, and which are wedged or gripped between dies, which make the butt of the wedge cylindrical, but still leave it substantially a wedge, the point of the blank or nail being so fine and thin, and the angle formed by the inclined sides being such, that the point will readily clinch without danger of crippling or bending that portion of the nail which is in the leather, and in order that the same length of nail may clinch more or less within comparatively wide limits.

In order to make the nail shown in Figs. 1 and 2, the ordinary nail-plate is cut by the usual mechanism into blanks substantially wedge-shaped, as is shown in Fig. 3, and each blank is conveyed as it is cut, in the usual manner, to a pair of dies, which are provided with suitable projections and depressions to corrugate the blank, and which are so shaped that the butt of the wedge will be made cylindrical. This completes the nail.

In cutting a fine thin point, as shown in Fig. 2, the metal yields to the shears and the point is imperfect on one side, as seen at Fig. 1. This is not a serious objection, but it is sometimes better to make the extreme point of the nail more perfect. This can be accomplished by forming the blanks in the shape of a very slightly truncated wedge, as shown in Fig. 6; but when this is done it is essential that more stock shall be used in the rest of the wedge, as is shown in Fig. 6.

If the wedge-shaped blank be too much truncated, the nail will not clinch properly; the point, or that part of the nail intended to go through the leather, must be much weaker than the rest of the nail, and this can only be effected by cutting the blank to a feather-edge, as in Fig. 2, or else by cutting the blank as fine as is practically possible without making the point imperfect, as in Fig. 5, and in this case care must be taken to make the body of the nail much stiffer than this slightly-truncated point. This is exemplified in Figs. 7 and 8, where one common form of

shoe-nail is shown, and the dotted lines represent edge views of my nails.

Shoe-nails are usually manufactured in lengths which vary by one-sixteenth of an inch, and two and sometimes three lengths are requisite for the best result in one pair of boots and shoes; but my nails, if five-eighths of an inch in length, will answer perfectly where any other five-eighths nail can be used, and also where any other four-and-one-half eighths, four-eighths, three-and-one-half eighths nail can be used; or my four-eighths and six-eighths nails will take the place of any other nails, from two-and-one-half eighths up to six-eighths, both inclusive. For machine work, this is a matter of very great importance.

The butt of the wedge, after it is made cylindrical, should be of a diameter equal to the diameter of the head of the common headed shoe-nails, such as is shown in Figs. 7, 8, and 10, and consequently the point of the nail, as it is driven through the leather and against the metal surface, is perfectly controlled by the rest of the nail, and clinched back without danger of crippling or bending the rest of the nail, as in Fig. 10, and so of every other point up to nearly two-thirds the length of the nail. As the nail is thin and fine at the point, and its stiffness increases from the point much more rapidly than in the nail shown in Figs. 7 and 8, and yet not so rapidly as to limit the clinch to a short distance from the point, as in other clinching shoe-nails, (for example, see Patent No. 85,374, to J. M. Estabrook,) and, hence, my nails may be clinched back full half their length without danger of crippling.

If the butt of the wedge were not made cylindrical, or substantially so, it would be impossible to so drive the nails that they would present anything like a uniform appearance in the sole of the shoe; the sharp corners would also be objectionable.

What I claim as my invention is—

A headless nail having a fine thin point, and a heavy cylindrical butt, tapering on two sides from butt to point, and parallel on its other two sides, all as set forth.

EPHRAIM L. WIRES.

Witnesses:

J. E. MAYNADIER,
J. E. KNOX.