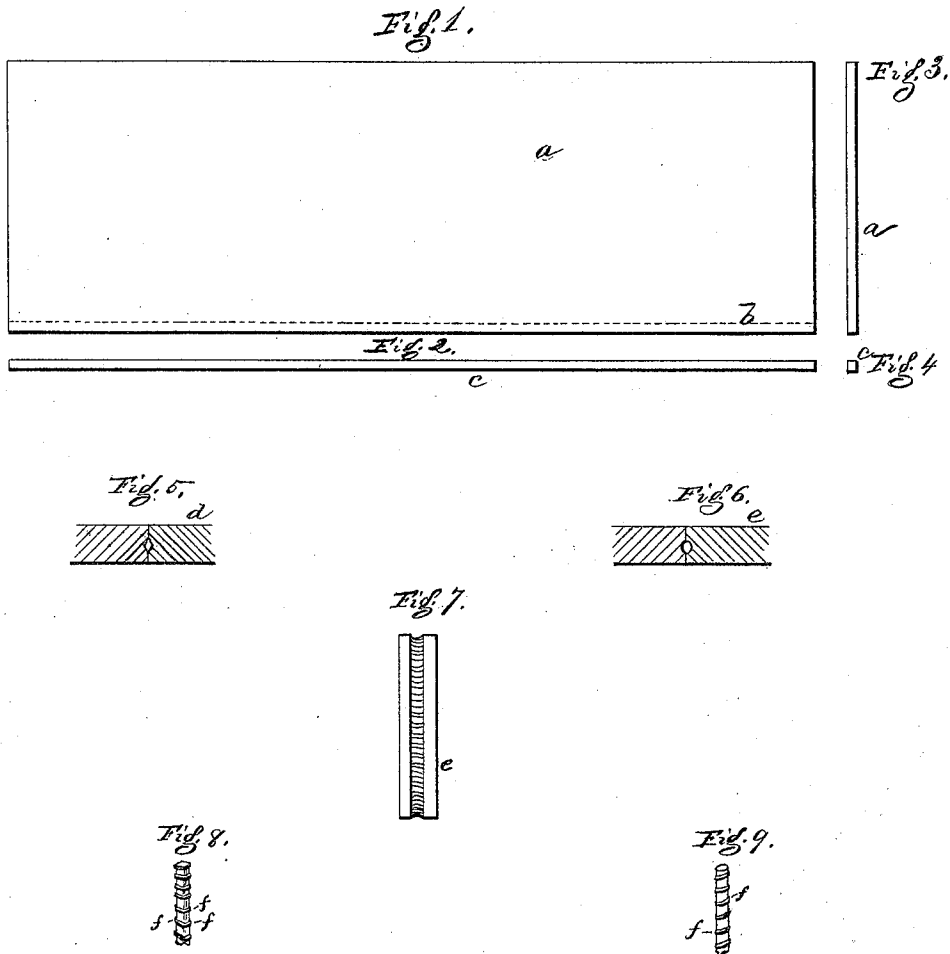


E. P. RICHARDSON.
METALLIC SOLE-FASTENING STRIP.

No. 172,658.

Patented Jan. 25, 1876.



WITNESSES.
L. H. Latimer.
W. J. Pratt.

INVENTOR,
Everett P. Richardson
per Henry Morgan, atty's.

UNITED STATES PATENT OFFICE.

EVERETT P. RICHARDSON, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO
GORDON McKAY, OF CAMBRIDGE, MASSACHUSETTS.

IMPROVEMENT IN METALLIC SOLE-FASTENING STRIPS.

Specification forming part of Letters Patent No. **172,658**, dated January 25, 1876; application filed
July 15, 1875.

To all whom it may concern:

Be it known that I, EVERETT P. RICHARDSON, of Lawrence, in the county of Essex and State of Massachusetts, have invented an Improvement in Metallic Sole-Fastening Strips, of which the following is a specification:

This invention relates to improvements in metallic strips, from which nails or fastenings for soles of boots or shoes are made; and consists in a sheet-metal strip of a length sufficient to make a number of nails, and of a size to correspond with the cross-section of the nail, the fiber of the iron running in the direction of the nail-strip, and also in such a strip corrugated or roughened, as hereinafter set forth.

Metallic nails or fastenings are commonly made from drawn brass wire, corrugated or screw-threaded; and for a certain class of shoes, when the nail is driven in a channel, drawn iron wire has been used, the surface of the wire being first corrugated or threaded. Other metallic fastenings used in nailing-machines have been cut from strips of metal of a width corresponding with the length of the nail to be made, and two or more strips of different widths are necessarily employed to furnish nails or fastenings of the proper length for a single shoe. The brass wire is very expensive, and the drawn iron wire is apt to be too hard; and when corrugating the surface of the brass or iron wire, such surfaces thereby assuming a somewhat oval shape, the edges of the oval wire are left smooth, failing entirely to afford a holding-surface to engage the leather of the shoe-sole opposite such edge. The fastenings, cut from the rolled strips as wide as the length of the fastening, have the fiber of the iron or metal at right angles to the length of the nail, making it more liable to break without clinching than is the ordinary iron wire.

It is well known that many of the most improved nailing-machines cut the nails automatically to a length to correspond with the thickness of the leather of the sole being operated on, and such machines use a long drawn metal wire from which the fastenings are cut, one at a time, one wire answering for nails of different lengths.

A sheet-metal nail-strip can be produced cheaper than a drawn-wire strip, and the proper degrees of hardness or softness of the metal for the nail or fastening can be more easily and uniformly attained in a rolled sheet-metal strip than can be attained in a drawn wire.

Figure 1 represents a sheet of rolled metal of proper or of as great length as can be readily procured; Fig. 2, a nail-strip cut from such sheet; Fig. 3, an end view of the sheet of metal shown in Fig. 1; Fig. 4, an end view of the strip; Fig. 5, a view of one pair of rollers or dies for shaping and corrugating the nail-strip; Fig. 6, a pair of rollers or dies to form the strip into a different shape; Fig. 7, an edge view of a roller-die; Fig. 8, a piece of the nail-strip prepared by the rollers or dies, Fig. 5; and Fig. 9, a piece of such nail-strip after being operated on by the roller or die, Fig. 6.

A sheet of iron, *a*, of the desired length and thickness, and with the fiber of the iron running in the direction of the length of the sheet *a*, is cut on the line *b* into narrow strips *c* of a length sufficient to form many nails, and of a width to correspond with the cross-section of the nail to be made. Such a strip is of even temper, the fiber of the iron runs with the length of the strip, and nails cut from it will readily clinch on an iron last or horn, and such a nail-strip is cheaper than a drawn circular wire, and at the same time it is better as to evenness of temper, and the angular form of the strip enables the production, when passed between rollers or dies, of a series of projections or notches on the extreme edges of the nail-strip, whereas the usual round wire, as now commonly used when passed between the corrugating rollers or dies, has its edges left substantially smooth.

This nail-strip *c* is passed between roller-dies, such as shown at *d* or *e*, such dies being, preferably, provided with corrugations, as shown at Fig. 7, dies *d*, Fig. 5, producing a diamond-shaped nail-strip, (see Fig. 8,) with projections or corrugations *f* extending out and projecting from the edge of the body of the nail-strip, affording a very effective holding-surface which embeds itself into the leather of the sole, whereas with a round or drawn wire the edges

are left smooth and without holding-projections.

If the nail-strip *c* is passed between the rollers or dies *e*, Fig. 6, having an oval opening between them, the nail will be caused to assume an oval form, and the corrugations of the dies will throw the projections or corrugations *f*, Fig. 9, beyond or to the edges of the strip, making the nail rough at its edges as described.

It is not desired to limit this invention to the exact shape of the projections so long as they constitute effectual holding-projections, and reciprocating dies may be used instead of rotary dies, and in such case one of the members *d* or *e* will be made to approach and recede from the other members *d* or *e*, a suitable feeding device moving the nail-strip between them.

These strips may be made of many yards length, and may be introduced into the nailing-machine in the usual way.

I claim—

As a new article of manufacture a sheet-metal nail-strip of many nails' length cut from rolled sheet metal, with the fiber of the metal running in the direction of the length of the strip, of a cross-section of substantially the section of the required nail, and corrugated, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EVERETT P. RICHARDSON.

Witnesses:

WILLIAM H. ABBOT,
W. A. McCRILLIS.