

(No Model.)

O. E. SEYMOUR.

WIRE FASTENING FOR BOOTS OR SHOES.

No. 364,779.

Patented June 14, 1887.

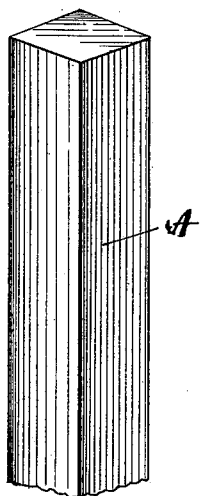


Fig. 2.

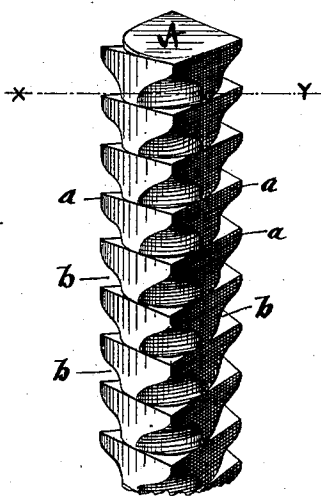


Fig. 1.

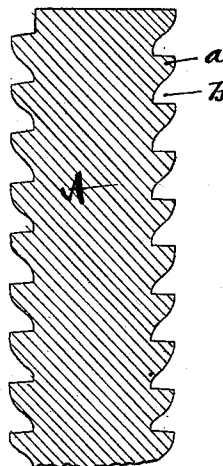


Fig. 3.

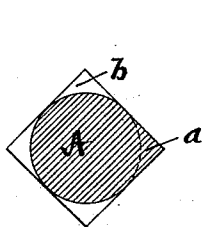


Fig. 4.

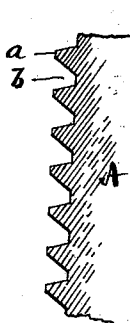


Fig. 6.

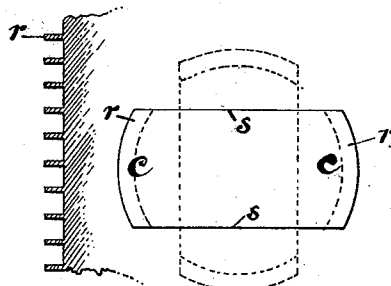


Fig. 5.

WITNESSES:

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UNITED STATES PATENT OFFICE.

OLIVER E. SEYMOUR, OF CINCINNATI, OHIO, ASSIGNOR TO THE WIRE GRIP FASTENING COMPANY, OF CHICAGO, ILLINOIS.

WIRE FASTENING FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 364,779, dated June 14, 1887.

Application filed October 26, 1885. Renewed December 21, 1886. Serial No. 222,174. (No model.)

To all whom it may concern:

Be it known that I, OLIVER E. SEYMOUR, a citizen of the United States, residing at Cincinnati, Ohio, have invented new and useful Improvements in Wire for Fastening Boots or Shoes, of which the following is a specification.

My invention relates to the construction of wire fastenings for uniting the soles and uppers of boots or shoes, and is applicable to that class of fastenings in which a continuous wire, properly prepared, is employed in a suitable driving-machine, by which it is fed forward as needed, driven through the material, and cut off after insertion.

Wire prepared in various ways has been heretofore used, but generally cut to lengths to form pegs or nails driven as such in the ordinary way by hammer. My improvement is designed, however, for a continuous wire to be fed into a properly-constructed machine and used as above indicated. Such wire so used has been prepared with rows of indentations forming teeth or spurs extending obliquely in opposite directions; also with two opposite plane surfaces with circumferential ribs upon the intervening cylindrical segments. Both of these forms are objectionable because of the tearing action of the ribs or teeth when driven into the material.

My invention seeks to remedy these disadvantages and provide a fastening which shall not cut away any portion of the material or destroy the fiber thereof, and not require the rotation of the fastening in the material to render it secure, but which shall simply displace the leather in such manner that it may subsequently expand approximately to its original position and set firmly against the fastening at all points, yet furnish a sufficient number of holding barbs or ribs to secure the material against ripping.

To this end my invention consists, primarily, in a continuous wire fastening having holding-ribs of wedge-shaped cross-section, preferably formed of a wire of angular cross-section, (triangular, square, or polygonal,) in which adjacent grooves or recesses are cut across the angles circumferentially, leaving intervening points or corners to stand as projections to secure the fastening in place when embedded in the leather.

The construction and function of the fastening will be more clearly understood by reference to the accompanying drawings, in which I have selected for illustrative purposes a fastening-wire of square cross-section.

Figure 1 is a perspective view of a portion of square-sectioned wire cut to form my improved fastening; Fig. 2, a perspective view of the blank before cutting; Fig. 3, an axial section of said wire fastening; Fig. 4, a cross-section of the fastening through one of the corner projections on the line xy of Fig. 1; Fig. 6, a partial vertical section showing a slightly different form of projection—that is, angular instead of curved in vertical section; and Fig. 5, a partial vertical section of the old style of fastening, showing the projection and form of the ribs, and a diagram showing the relative positions of the old-style fastening when first driven and when rotated into final position, indicating the vacant space left in the material.

In constructing a fastening according to my invention, I preferably take for a blank, A , a wire of angular cross section, such as triangular, square, or polygonal, but preferably square, as shown in Fig. 2. The blank is then cut away at the corners, as at b , at successive intervals, leaving the intervening points, a , projecting, as clearly shown in Figs. 1 and 3. The form of the groove or recess b is not material. For convenience and economy it is preferable to subject the wire to the action of rotary cutters, which cut spirally in relation to the axis of the blank, in a suitably-constructed machine, through which the wire is fed. I prefer, also, to so form the grooves or recesses b as to give to the under side of the projections a an upwardly and outwardly inclined surface, either curved, as indicated in Fig. 1, or angular, as shown in Fig. 3. In being forced into the leather the horizontal section of the projection a (clearly shown in Fig. 4) is such as not to actually tear away the leather, but to cause it to separate and be compressed away from the fastening and to resume its position by natural expansion into the grooves or recesses b after the fastening is in place. For this reason a rotation of the fastening is not necessary, although it may be given if thought desirable. When given, it will be obvious that

in no case can it exceed one-sixth of a revolution, (as in the case of triangular wire,) and in the present case it would be but one-eighth of a revolution. The nature and effect of this function may be better illustrated by a comparison with the function of the old-style fastening shown in Fig. 5, in which *r* designates the circumferential ribs, and *s s* the plane surfaces intervening between the ribbed cylindrical segments. Supposing, now, the fastening to be driven into the leather; it is obvious (and such is the fact in actual experience) that a portion of the leather extending the whole distance traversed by the fastening, and equal in cross-section to the rib *r* at each side, is literally torn away, so that a vertical line cutting across the outer margin of the ribs in the sectional view, Fig. 5, would represent the wall of leather remaining through the entire arcs of the ribs. Now, in rotating the fastening into the position indicated by dotted lines, the space marked *c* at each ultimate side of the fastening is a vacancy or hole which remains in the leather. Again, in rotating the fastening, the forward edges or ends of the ribs are so nearly at right angles to the line of movement that the leather is torn away and carried forward, leaving an insecure fastening-hold, and the holes *c* expose the leather to moisture at both sides of each fastening. Now, it will be obvious from the form of the projections *a* in my improved fastening (and such is the fact developed by actual experience) that in driving the leather will be simply parted or thrust aside temporarily as the projections pass into it and readily closes in behind such projections, filling the grooves completely. Moreover, if said fastening is then rotated, the angle of the forward edge of the projection is so great in relation to the line of movement as to produce the same effect and practically pushes aside the fibers. For these

reasons my improved fastening is far more secure and durable in actual wear, since it forces its way into the leather by compression, without tearing the fiber, and embeds itself far more securely. 45

It will be observed that to a certain extent the advantage of my invention will be derived with an ordinary cylindrical or square wire having ribs with their lower sides beveled across the line of thrust; but I prefer the construction more fully herein described. 50

I am aware that a shoe-nail is patented which exhibits angular corners cut by circumferential grooves; but such grooves are separated by an interval of straight vertical edge equal to or greater than the width of the groove, whence it will be obvious that a large proportion of the possible holding-surface is lost to use, in addition to that lost in pointing the nail. 55 60

Having described my invention, I claim and desire to secure by Letters Patent of the United States— 65

1. A metallic fastening for uniting the soles and uppers of boots or shoes, consisting of a wire provided with circumferential ribs of wedge form in cross-section, substantially as set forth. 70

2. A metallic fastening for uniting the soles and uppers of boots or shoes, consisting of a wire of angular cross-section having adjacent grooves or recesses cut circumferentially across the angular corners, substantially as set forth. 75

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

OLIVER E. SEYMOUR.

Witnesses:

L. M. HOSEA,
C. D. KERR.