B. F. STURTEVANT.

Sole-Fastening.

No. 162,970. Patented May 4, 1875.

Fig. 1.

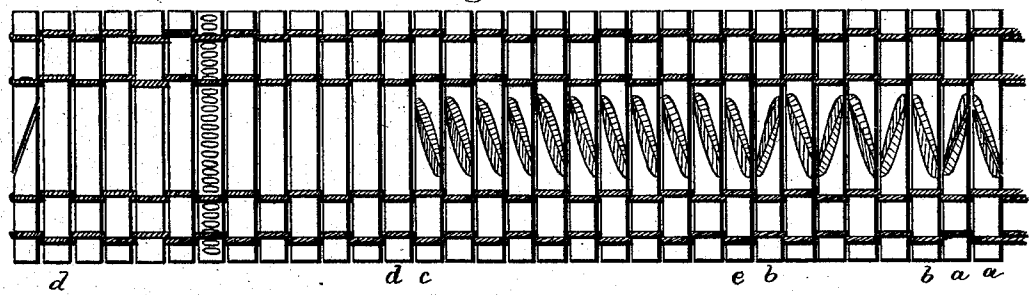


Fig. 2.

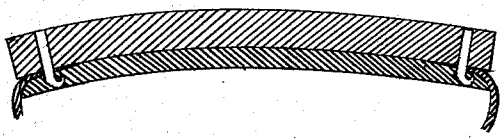


Fig 3.

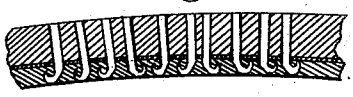
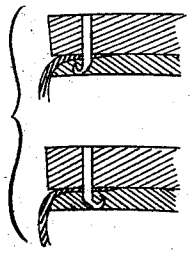


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

BENJAMIN F. STURTEVANT, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SOLE-FASTENINGS.

Specification forming part of Letters Patent No. **162,970**, dated May 4, 1875; application filed March 6, 1875.

To all whom it may concern:

Be it known that I, BENJAMIN F. STURTEVANT, of Boston, in the county of Suffolk and State of Massachusetts, have invented an Improvement in Sole-Fastenings, of which the following is a specification:

In sole-fastenings of metal, it is of importance that the points should clinch or turn and re-enter the inner sole in a direction the reverse of that which they have in first entering the sole.

In my patent dated February 16, 1875, and numbered 159,777, I describe sole-fastenings made into a strip or web, in which the said fastenings represent the woof parts of a web, which will, by the action of a feeding-mechanism, have a definite presentation with relation to the edge of a boot or shoe sole in a sole-nailing machine. This invention consists in giving to the points of the sole-fastenings in such a web such a definite and predetermined arrangement and relation to each other, to the web, and consequently to the line of the edge of the sole into which they are to be driven, that they will turn, or bend, or clinch in any given, determined, and desired direction, and also in the method or process of severing the web of fastenings by a diagonal cut to form clinching-points. It is generally required by boot and shoe manufacturers that the points of the fastenings shall, before clinching, turn in the direction of the line which the fastenings show upon the sole, though sometimes it is required that the points shall turn at right angles to said line, and it is also a matter of occasional requirement that the points shall turn alternately in reverse directions, and again all in the same direction, all of which requirements I am enabled to respond to without care or manipulation on the part of the operator of the nailing-machine, by the predetermined arrangement of the nail-points in my web, the machine which drives the fastenings into the sole being relieved of the duty and labor of forming or of directing such points.

In Figure 1 is shown in elevation a web of sole-fastenings, which is shown as partly divided to make two webs, the manner of division determining the form of the points, and their arrangement relatively to the web and to each other.

At *a a* the division of the wide web is shown as complete, and may be effected by cutters or chisels actuated by blows or pressure. It will be seen that the two points of the fastenings in the upper web would naturally turn from each other in striking a hard substance like a metal face of a last, or the end of an anvil, or horn of a sole-nailing machine, while the two points of the lower fastenings would, under the same circumstances, turn toward each other. From *b* to *b*, inclusive, the web is shown cut nearly through, and the arrangement of points is the same as at *a a*. From *c* to *c*, inclusive, the cut is shown as not extending quite through the material, but its direction is such that the points of the upper row would all bend in one direction and the points of the lower row would all bend in the opposite direction. From *d* to *d*, inclusive, the woof parts are shown as plain and as not yet cut, as is the case with the woof parts *e e*.

Fig. 2 is a cross-section of a sole, showing a fastening-point on one side bent from the sole-edge and clinched, while on the other side a point is seen bent toward the sole-edge and clinched.

Fig. 3 is a section taken through a series of fastenings parallel with a sole-edge. The points of all the fastenings seen in this figure are bent into the line occupied by the fastenings, but some of them are shown bent in one direction and others in the opposite direction, and all of them are clinched, the direction of the bending being predetermined by the arrangement of the points in the web of sole-fastenings.

Fig. 4 shows two cross-sections taken through the edge of a sole and intended to represent two adjacent fastenings, one being bent toward and the other from the same edge of the sole.

I claim—

1. A woven web of sole-fastenings the clinching-points of which are arranged to turn in positive and predetermined directions, substantially as described.

2. The process of forming a web of sole-

fastenings, having clinching-points to turn in a predetermined direction, consisting of first weaving the fastenings as a web, and then dividing the web by cutting through each individual weft diagonally, and at the same or opposite directions, substantially as described.

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

BENJ. F. STURTEVANT.

Witnesses:
J. B. CROSBY,
S. B. KIDDER.