

No. 640,755.

Patented Jan. 9, 1900.

J. DONAVAN.
SHOE FASTENER.

(Application filed Feb. 11, 1898.)

(No Model.)

Fig. 1.

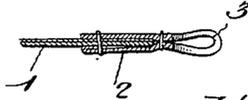
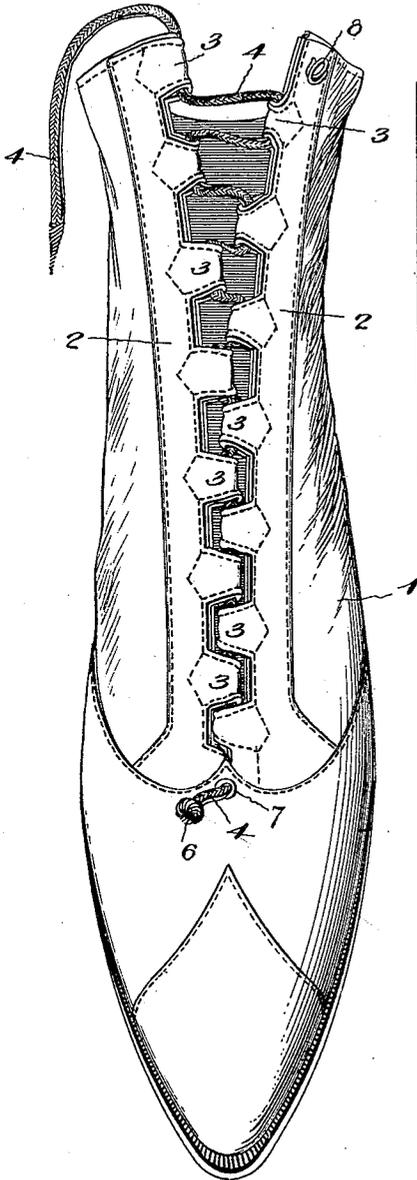


Fig. 2.

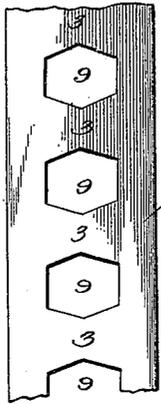


Fig. 5.

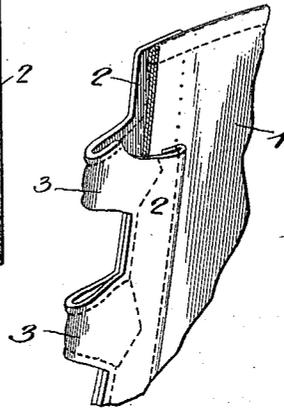


Fig. 3.

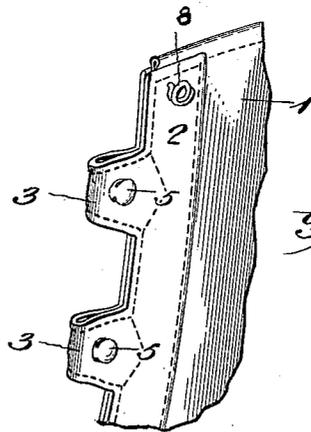


Fig. 4.

Witnesses
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By *his* Attorneys,

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UNITED STATES PATENT OFFICE.

JEREMIAH DONAVAN, OF CARLISLE, PENNSYLVANIA, ASSIGNOR OF ONE-HALF TO M. B. MILLER, OF SAME PLACE.

SHOE-FASTENER.

SPECIFICATION forming part of Letters Patent No. 640,755, dated January 9, 1900.

Application filed February 11, 1898. Serial No. 669,923. (No model.)

To all whom it may concern:

Be it known that I, JEREMIAH DONAVAN, a citizen of the United States, residing at Carlisle, in the county of Cumberland and State of Pennsylvania, have invented a new and useful Shoe-Fastener, of which the following is a specification.

My invention relates to laced articles, such as shoes, wherein separated edges or portions are connected by means of lacing; and the object in view is to provide lacing portions or loops forming seats for the lace which are adapted to interlock in contiguity, a single lace being employed to draw said portions or edges together, and which are adapted, in a slightly-separated arrangement of the connected edges, to allow spaces between the loops, through which the lace may extend without deflection from the plane of the loops, either inwardly or outwardly, and without causing the deflection of the edge portions of the loops, and also to provide in a device of this class such a construction of lacing-loops that when the connected edges are slightly separated and are disposed in a relatively oblique or divergent position the adjacent edges of said loops will not overlap, and hence will not cause the doubling of any portion of the article, with the consequent inconvenience to the wearer.

The second-named object of my invention applies particularly to the use of lacing in connection with shoes, wherein the separated edges of the upper usually occupy a more or less divergent relative position toward the top of the upper, and it is my aim, in connection with the lacing-loops forming the subject-matter of my invention, to provide such a construction that each loop will occupy a flat position, whether more or less interlocked with the adjacent loops on the opposite edge of the upper.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a front view of a laced shoe, showing fastening devices constructed in accordance with my invention applied in the operative position thereto. Fig.

2 is a detail section of one edge of the upper to show the reinforcing and loop-carrying strip or stay. Fig. 3 is a detail view in perspective of a portion of the upper, showing the reinforcing strip or stay applied thereto and partly broken away. Fig. 4 is a similar view showing auxiliary lacing devices applied to the projecting portions or loops of the reinforcing strips or stays. Fig. 5 is a detail plan view of a portion of the reinforcing strip or stay prior to folding for attachment to the edge of an article.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

In the article to which the fastening device embodying my invention is shown applied, 1 designates the upper, which is divided to form an opening, of which the edges are adapted to be arranged adjacent to each other to close the front of the shoe, and carried by these edges are inwardly-tapered loops 3, of which the inner closed ends form seats adapted for arrangement in alinement and designed to receive a single lacing 4. As in other devices of this class, the loops at opposite sides of the opening are disposed alternately or are zigzagged, whereby a tongue upon one edge is disposed opposite the interval between two adjacent tongues of the other edge. Inasmuch, however, as the tongues are tapered or reduced in width toward their inner or closed ends, where the strain of the lacing in drawing the edges of the upper together is applied, it will be seen that a loop upon one edge of the upper is adapted to pass freely into the inwardly-enlarged opening between two adjacent tongues on the other edge of the upper and that the separation of the edges of the opening in the upper causes a corresponding separation between the adjacent edges of the interlocked loops. Hence as the upper edges are separated to throw the lacing-seats of the tongues out of alinement the intervals between the adjacent edges of the tongues are enlarged to allow the lacing to pass from the seat of one tongue to that of the next upon the opposite side of the opening in the upper without overlying any portion of a tongue and without causing doubling, folding, wrinkling, or deflecting of any portion

of the edge of a tongue. In other words, the separation of the edges of the opening in the upper is accompanied by the widening of the intervals between the adjacent edges of the
 5 opposite tongues, the one being proportionate to the other, and therefore as the deflection of the tongues from a position in alignment increases, thus necessitating a greater extent of the lacing between a tongue on one
 10 side of the upper-opening and the next tongue above and below the other side of the opening, the vertical distance between the extremities of adjacent tongues is increased to allow the lacing to occupy an inclined position or
 15 an oblique position with relation to the edges of the upper-opening. This oblique disposition of the intermediate or connecting portions of the lacing provides for the effectual drawing together and interlocking of the
 20 tongues when the lacing 4 is strained at its upper end. In other words, when the lacing is strained the intermediate or loop-connecting portions thereof do not draw at right angles to the edges of the upper-opening, but
 25 obliquely with relation thereto. Furthermore, as the tongues at opposite sides of the upper-opening approach each other the intermediate or connecting portions of the lacing are not cramped or jammed between the
 30 contiguous edges of said loops. There is always a sufficient interval between the adjacent edges of the loops to allow the free feeding of the lacing until the seats formed by the closed ends of the loops are arranged in
 35 alignment to allow the lacing to occupy a position parallel with and midway between the edges of the upper-opening. Furthermore, the inwardly-tapered construction of the loops provides for bringing them into their inter-
 40 locked relation with facility and without causing the overlapping of the adjacent edges of loops upon opposite sides of the upper-opening, and particularly provides for said tongues lying in a common plane with the
 45 lacing when the edges of the upper-opening are obliquely disposed or diverge toward the top of the shoe-upper. It is well known that in many cases the edges of the opening in a shoe thus diverge from the vamp
 50 toward the top of the upper, and I have found that by tapering the tongues inwardly the edges of the upper are adapted to occupy this upwardly-divergent position without causing the overlapping of the tongues, and hence
 55 without causing that inconvenience to the wearer of the article which would result from the doubling of the thickness of the upper at any point, such doubling having the effect in practice of causing unequal pressure at different points of the upper upon the foot of the
 60 wearer.

In the construction illustrated the looped tongues 3 are constructed separate from the shoe-upper, being formed by a reinforcing strip or stay 2, doubled centrally between its
 65 longitudinal edges, with the folds secured, respectively, to the inner and outer surfaces of

the shoe-upper contiguous to the edge of the upper-opening, obviously one of said strips or stays being attached to each of the opposite
 70 edges of the upper and the separated or spaced inwardly-tapered tongues being extended beyond said edges of the upper or toward each other to interlock when the edges
 75 of the upper are arranged in the desired relative position. This reinforcing strip or stay may be stitched or otherwise securely fastened to the upper and may form a binding therefor by extending the inner edges of the
 80 folds of said strip or stay beyond the edges of the upper-opening and connecting said extended edges by stitching, as indicated in Fig. 2. By this arrangement the edges of the
 85 upper-opening are entirely protected and concealed by the reinforcing strip or stay and, furthermore, the sides of the loops are drawn together to lie in contact, as clearly shown in Figs. 2, 3, and 4.

In practice each reinforcing strip or stay may be struck from a single blank of suitable
 90 material, such as leather, and between the longitudinal edges of the blank may be formed a series of hexagonal openings 9, suitably spaced apart to leave the intermediate tongue
 95 portions 3 integral with the body portion of the strip, and when the strip is folded centrally of these openings 9 the desired inwardly-tapered construction of the tongues is secured. The hexagonal form of openings in the blank
 100 of the reinforcing strip or stay is preferred, for the reason that its opposite side edges may be arranged parallel with the side edges of the blank to form the inner sides of the outwardly-
 105 contracted spaces between the loops of the strip when the latter is doubled or folded upon itself, while the remaining angularly-disposed edges of said openings form the sides of the loops, which are tapered, as illustrated.

The lacing 4 extends at its lower end through an opening or eyelet 7 in the vamp of the shoe
 110 or upon a central line between the opposite edges of the upper-opening, and at its extremity said lacing is provided with an enlargement consisting, for instance, of a knot
 115 6 to form a grip when it is desired to loosen the lacing, and also to prevent the accidental upward displacement of the lacing when the upper end thereof is pulled to draw the edges
 120 of the upper together. To secure the upper end of the lacing when the edges of the upper are in the desired relative positions, I may employ any suitable fastening device, such as that indicated at 8, and when it is desired to
 125 unlace or loosen the shoe it is necessary simply to disengage the upper end of the lacing from the fastener 8, grasp the enlargement or grip 6, and draw downwardly upon the lacing to loosen the latter, when the edges of the upper
 130 will be separated by a movement of the foot. Furthermore, the tongues 3, particularly by reason of their inwardly-tapered construction, provide for forcibly drawing the edges of the upper together to form an approximately tight joint without pinching or

otherwise abrading the foot of the wearer, owing to the fact that the inner ends of said tongues are rounded by reason of the double or fold and also by reason of the fact that said inner ends of the tongues upon opposite sides of the upper-opening pass each other before the edges of the upper come close enough together to cause pinching, and when it is desired to draw the edges of the upper more closely together than can be accomplished by threading the lacing through the loops of the tongues auxiliary fastening devices, such as loops or hooks 5, may be attached to the tongues at intermediate points—namely, between the inner ends of the tongues and the edges of the upper, the lacing being rove through said fasteners 5 instead of passing through the loops of the tongues.

It will be understood that in practice various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having described my invention, what I claim is—

The herein-described reinforcing strip or stay for one of the separated edges of an article of wearing-apparel, consisting of a blank having parallel side edges and an intermediate longitudinal series of openings, the opposite end walls of each opening being intermediately deflected outwardly, whereby, when the blank is folded or doubled upon a line connecting the centers of said openings and parallel with the side edges of the blank, the portions of the blank between said openings form looped tongues tapered in width toward their closed ends.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

JEREMIAH DONAVAN.

Witnesses:

JNO. B. LANDIS,

JOS. B. HAVERSTICK.