

M. L. SEVERY.
 MEANS OF ATTACHING SOLES AND HEELS.
 APPLICATION FILED DEC. 26, 1911.

1,126,099.

Patented Jan. 26, 1915.

2 SHEETS—SHEET 1.

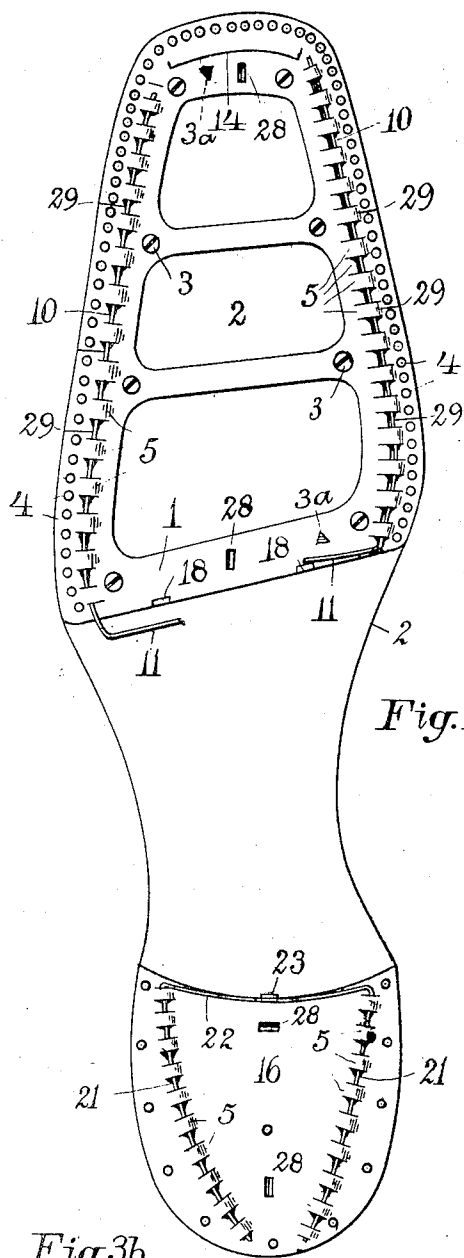


Fig. 1

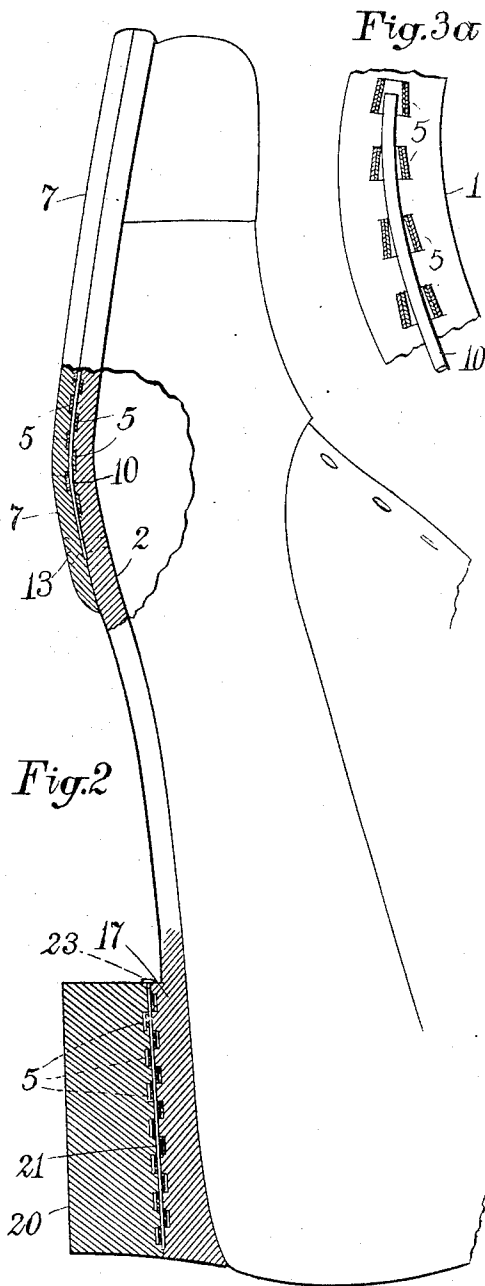


Fig. 2

Fig. 3a

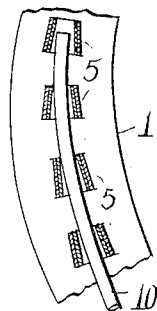


Fig. 3b

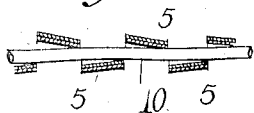
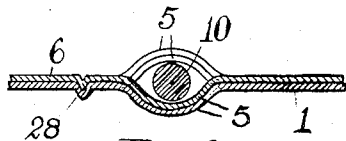


Fig. 3

Witnesses;

Joseph W. Ferguson
 E. J. Jilton.

Inventor,

Melvin L. Severy;

By A. B. Upham,
 Attorney.

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2 SHEETS—SHEET 2.

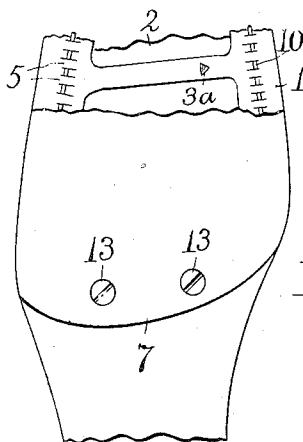


Fig. 5



Fig. 6

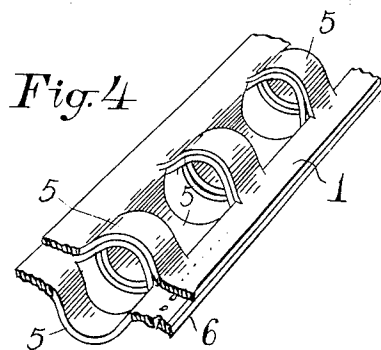


Fig. 4

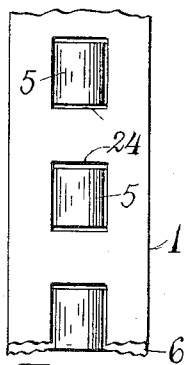


Fig. 7

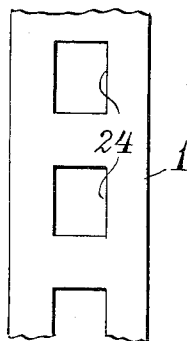


Fig. 8

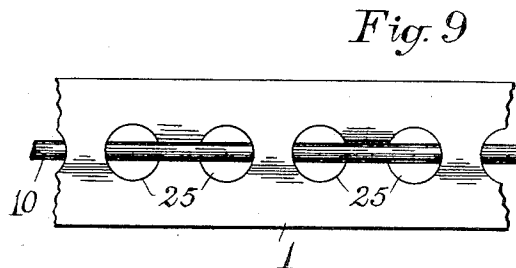


Fig. 9

Witnesses;
Joseph W. Ferguson
E. J. Jilton

Inventor,
 Melvin L. Severy;
 By *A. B. Upham*
 Attorney.

UNITED STATES PATENT OFFICE.

MELVIN L. SEVERY, OF ARLINGTON HEIGHTS, MASSACHUSETTS, ASSIGNOR TO SEVERY MANUFACTURING COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

MEANS OF ATTACHING SOLES AND HEELS.

1,126,099.

Specification of Letters Patent.

Patented Jan. 26, 1915.

Application filed December 26, 1911. Serial No. 667,949.

To all whom it may concern:

Be it known that I, MELVIN L. SEVERY, a citizen of the United States, and a resident of Arlington Heights, in the county of Middlesex and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Means of Attaching Soles and Heels, of which the following is a specification.

10 This invention relates to means for removably attaching soles and heels to boots and shoes and the like; and it comprises an engaging member for the insole, an engaging member for the outsole, and removable means for fastening said members together; similar means being adapted for the heel also.

15 In the drawings forming part of this specification, Figure 1 is an under view of a boot or shoe, showing the engaging members or plates fastened to the same. Fig. 2 is a side view of a shoe having its outsole and its heel attached thereto by means embodying the invention, parts thereof being represented as broken away. Fig. 20 3 is a cross section on an enlarged scale of parts of the engaging members and the removable means. Fig. 3^a is a sectional view of a line of attaching devices or bridges. Fig. 4 is a perspective view of said bridges. Fig. 5 is an under view of parts of a shoe and engaging members. Fig. 6 is a side view of two engaging members or plates, illustrating the toe-attaching devices. Fig. 7 is a plan view of part of a modified form of the engaging members or plates. Fig. 8 is a like view of one of said plates alone. Fig. 9 is a plan view showing another modified form of said plates.

40 Referring first to Fig. 1, the reference numeral 1 designates the engaging member or plate fastened to the outer surface of the insole of a boot or shoe, said plate being shown as more or less skeletonized for the sake of lightness and increased flexibility. This plate is first positioned on the insole by means of screws or nails 3, or by spurs struck up from the sheet metal itself, as at 3^a, and is then pegged or stitched in place in the usual manner through lines of perforations 4. As close to each of said lines 4 as practicable, is formed a line of engaging elements 5 struck up from the plane of said plate, and from a like plate 6 fastened

to the outsole 7 are similar lines of engaging 55 elements struck up from its plane, the elements of each plate extending into the plane of the other plate and so intermeshing and disposed as to permit a wire 10 to be thrust through each line of intermeshing elements. 60 As shown in Figs. 3 and 4, said engaging elements are in the form of arches or bridges 5, those rising from the surface of one plate nesting into the concavities of the corresponding bridges of the other plate. I 65 use the term "bridge" in contradistinction to an angular projection free at one end. In means for attaching soles and heels, it is imperative that the devices be at once strong and invisible, or at all events so nearly so 70 as not to injure the appearance of the shoe. If angles were used, the necessary strength would require that they be so large as to be prohibitive in many cases of finer grades of shoes, because dependence would have to be 75 had on the resistance of the metal to flexure. By using eyelets or bridges which are fastened at both ends, the strength is derived from the tensile strength of the metal, and therefore the construction can be so small 80 and neat as readily to be concealed. This lightness of construction can still further be made use of by having the bridges distributed near to and preferably in substantial parallelism with the edges of the shoe. 85 thus giving the requisite pressure upon the edges without the use of stiff and heavy plates. The wires 10 are introduced longitudinally through said bridges, and are made to pass freely from bridge to bridge 90 without meeting the abutments of the latter at curves and so refusing to move farther, by tapering the bridges as indicated in Fig. 3^a, so that the diameter the wire is entering is always larger than that from which the 95 wire is emerging. Consequently, such small diameter of each bridge guides the wire-end easily into the large diameter of the adjacent bridge, and hence assures no stop to the wire's travel until its complete introduction. This tapering or conical formation of the bridges performs another important 100 function, that of giving the plates a strong but resilient connection. One end of each bridge being thus larger than the diameter 105 of the wire 10, while the other end is more closely fitted thereto, there is a considerable distance along the wire between the points

where it is closely engaged by the bridges of one plate and by the bridges of the other plate. In other words, as illustrated in Fig. 3^b, the contacting semi-circle of a bridge at one side of the wire is at a distance from the contacting semicircle of each adjacent bridge at the other side of the wire. Consequently, by forcing the two plates apart, the wire must yield until it meets the larger diameters of the bridges, and is brought into a serpentine conformation, from which its resilience causes it to recover when the plates are released. By suitably limiting the heights of the bridges, the wires 10 can be forced to acquire such serpentine conformation as they are pushed into place, thus causing the plates to have a resilient pressure together. I may use two separate wires 10, as shown for the outsole in Fig. 1, or a single wire united by an intermediate section, as shown for the heel, and described farther on; but in each case I prefer to lock the wires in place by some suitable means, as by an elbow 11 adapted to be engaged by a spur 18 struck up from the plate 1. As it is hardly possible to force the wire or wires 10 about too pronounced a curve, I terminate the bridges 5 at the toe of the shoe, as shown in Fig. 1, and provide other attaching means thereat. This consists preferably of a slit 14 in the toe of one plate, as 1, and a fin 15 at the toe of the other plate 6, as indicated in Fig. 6; said fin being adapted to be inserted within said slit before the body of the plate 6 is brought up to engage its bridges with those of the other plate. In substantially the same manner as the plate 1, the plate 16 is pegged or otherwise fastened to the heel-end 17 of the insole, as shown in Fig. 1, and a corresponding plate is stitched or otherwise fastened to the heel 20, and said plates secured together by a wire 21 thrust through the two lines of bridges 5 projecting from said plates. Here I prefer to use a single wire, with an intermediate section 22 adapted to be engaged by a spur 23 struck up from the edge of said plate 16. The extremities of said wire may be arranged to be brought so near together, as shown in said drawing, that there is no need for the slit and fin 14, 15 above described.

It is evident that all that is necessary to do in order to remove a worn outsole or heel, is to withdraw their wires 10 or 21; first disengaging their parts 11 and 22 from the respective spurs 18 and 23. Then, in the same way as already described, fresh outsoles and heels can be applied; a supply of the latter being kept on hand, each with its plates permanently fastened thereto.

As shown in Fig. 5, the rear ends of the outsoles may be given an additional securing device, as the screws 13, but this is ordinarily unnecessary.

In the modification of my invention illustrated in Figs. 7 and 8, each plate is formed with openings 24 through which the bridges 5 of the associated plate can protrude. One of said plates, that shown in Fig. 8, is entirely flat, the other plate alone having the bridges 5. The main advantage of this is that but a single thickness of the metal overlies the wire 10, instead of the two thicknesses shown in Fig. 4. Another advantage is that such openings may be made sufficiently larger than the bridges to allow a slight play between the latter and the edges of said openings.

In Fig. 9 which is a fragmentary view similar to Fig. 1, I show a modified form of the device of Fig. 1. In this arrangement the bridges are separated by round holes instead of slits as in Fig. 1 so that the bridges are more widely spaced apart. The bridges are otherwise identical and the wire is inserted in the same manner. The wide spacing of the bridges contributes slightly to the resiliency of the connection.

To insure the register of each member of a pair of associated plates, I usually indent the same at one or more points, as at 28 in Figs. 1 and 3, in order that, the projection from one plate entering the recess of the other, assurance will be thereby given that the bridges of the two plates will accurately register. As shown in Fig. 1, the plates may be formed with slits 29 cutting through from the bridges 5 to the outer edge of the plate, in order to give the same increased flexibility.

What I claim as my invention and for which I desire Letters Patent is as follows, to wit:

1. A fastening for the soles and heels of shoes and the like, comprising two separable coating members, each having projections reaching into the plane of the other member, and a flexibly resilient elongated device engaging said projections and binding said members together, said projections and device being constructed to permit the latter to be pressed longitudinally into its engagement with the projections and to be put into transverse strain thereby.

2. A fastening for the soles and heels of shoes and the like, comprising two separable coating members each having a line of projections reaching into the plane of the other member, each line being curved, and a flexibly resilient elongated device engaging said projections and binding said members together, said projections and device being constructed to enable the latter to be pressed longitudinally into its engagement with the curved lines of projections.

3. A fastening for boot and shoe bottoms comprising two coating members formed with bridges arranged in substantial parallelism with the curved edges of the bottom

of the boot or shoe with which the same is used, the bridges of each member piercing the plane of the other member, and a laterally flexible locking factor adapted to be inserted into engagement with said bridges.

4. A fastening for the soles and heels of shoes and the like, comprising two separable coacting members each having a curved line of bridges intermeshing with a similar line of bridges projecting from the other member, and a flexibly resilient elongated device engaging said bridges, the latter and said device being constructed to enable the device to be pressed longitudinally into its engagement with the curved line of intermeshed bridges.

5. A fastening for boot and shoe bottoms comprising two separable coacting members formed with bridges, the bridges of each member piercing the plane of the other member, and each bridge being formed with a larger opening at one side than at the other, and removable means coacting with said bridges and openings for fastening said members together.

6. In a shoe, the combination with a pair of sole or heel parts, of a device for fastening said parts together, comprising a pair of plates interleaved therewith and secured, one to each part, each plate having engaging devices, and a longitudinally extending flexible resilient element engaging said devices and binding said plates tightly together, said devices and element being constructed for the longitudinal introduction of said element into its engagement with said devices, and to flex slightly said element within the limit of its set.

7. A fastening for the soles and heels of shoes and the like comprising two plates each having a non-rectilinear line of bridges rising slightly above its surface, the bridges of one plate coming between those of the other plate, and a wire or the like adapted to be longitudinally introduced into engagement with said bridges to lock said plates together, said bridges being constructed to direct said wire from bridge to bridge during its introduction into engagement with said bridges.

8. A fastening for boot and shoe bottoms comprising two plates each having a line

of bridges rising slightly above its surface, and a wire adapted to be introduced longitudinally into engagement with said lines of bridges, said bridges being vertically arranged for forcing the wire to slightly flex vertically in passing from one bridge to the next.

9. A fastening for boot and shoe bottoms comprising two plates, each having a line of bridges rising from its surface, and a flexible and resilient wire adapted to be introduced longitudinally into engagement with said bridges to bind said plates together, said bridges being so constructed and arranged that the line of bridges on one plate intermeshes with the line of bridges on the other plate and that said wire is given a slight zig-zag flexure when it is introduced into engagement with said bridges.

10. A fastening for the soles and heels of shoes and the like comprising two sheet metal plates having projections from each piercing the plane of the other, and a wire or the like adapted to engage said projections and thereby to lock said plates together, the plates being slit at certain points from said projections to the lateral edges thereof.

11. A fastening for the soles and heels of shoes and the like comprising two sheet metal plates each having projections piercing the plane of the other; a wire adapted to be longitudinally thrust into engagement with said projections to lock said plates together and having a laterally bent portion; and means adapted to engage said bent portion to lock said wire against withdrawal.

12. A fastening for the soles and heels of shoes and the like comprising a pair of coacting plates each having a line of loop-forming bridges intermeshing with the loop-forming bridges of the other plate, and a wire adapted to be longitudinally introduced through the loops of all of said bridges, each of said bridges being slightly tapered.

In testimony that I claim the foregoing invention, I have hereunto set my hand this 22nd day of December, 1911.

MELVIN L. SEVERY.

Witnesses:

A. B. UPHAM.

CHARLES W. CROCKER.