A. VAN WAGENEN.

Inner-Soles for Boots and Shoes.

No. 166,664. Patented Aug. 10, 1875.

FIG. I.

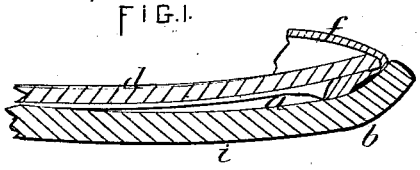


FIG. II.

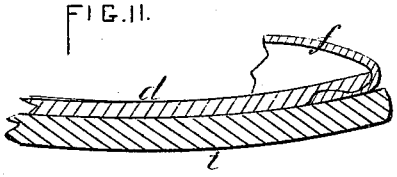


FIG. III.

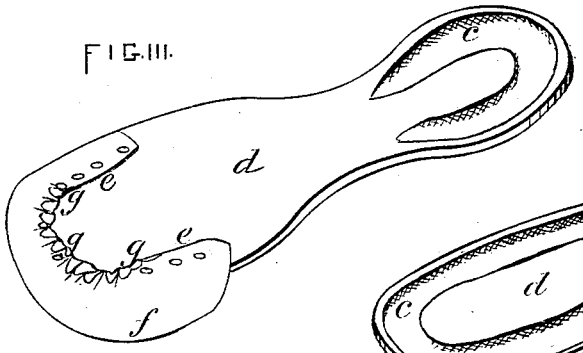


FIG. IV.

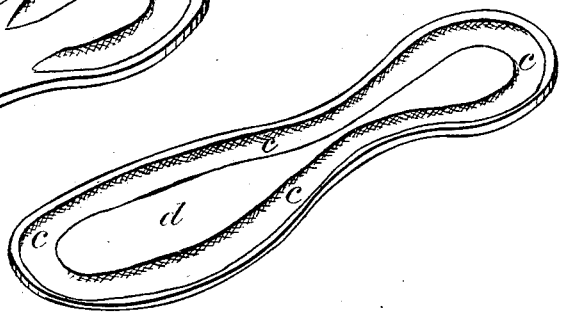


FIG. V.

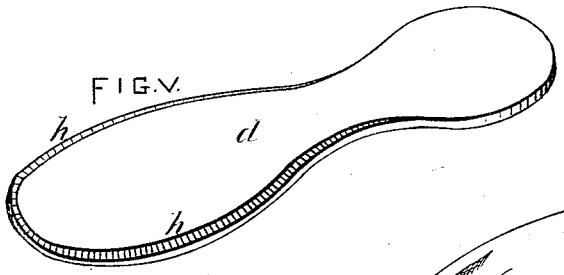
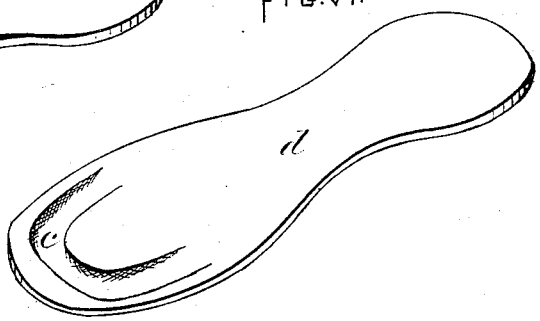


FIG. VI.



WITNESSES.

F. B. Townsend.

J. H. Rutherford

INVENTOR.

Albert Van Wagenen

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UNITED STATES PATENT OFFICE.

ALBERT VAN WAGENEN, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN INNER SOLES FOR BOOTS AND SHOES.

Specification forming part of Letters Patent No. **166,664**, dated August 10, 1875; application filed July 3, 1875.

To all whom it may concern:

Be it known that I, ALBERT VAN WAGENEN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Inner Soles for Boots and Shoes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing and to the letters of reference marked thereon, which form a part of this specification.

When shoes are lasted in the usual way there is formed, at the toe and heel especially, a bulky ridge, caused by folding or crimping in the surplus leather at those places or rounded ends. This can be partially avoided by cutting out notches in the upper; but even in this case the ridge is raised equal to the thickness of the upper, and the space left between the edges of the upper after the shoe is lasted must be filled in with leather or paper to make a solid bed for the outer sole. Still this does not get rid of the sharp curve in the sole outside of the ridge and toward the toe and heel, caused by the ridge made in lasting, and giving the toe somewhat the appearance of a Chinese shoe. This ridge causes the outer sole to assume somewhat the same appearance and form, and as the sole is thicker at this point than at others, it receives the first wear at this spot alone, and consequently wears through before the rest of the sole, besides being objectionable on account of looks.

To remedy this serious evil I have made an inner sole, grooved or channeled on its under side round the toe and heel, at a suitable distance from the edge, and of any desirable depth and form suited to the character of the shoe, and extending part or all the way round the entire sole, such depression being most desirable at the toe and heel. If carried the entire distance round the sole, less depth can be used along the sides than at the toe and heel, because such depression need only be equal to the thickness of the upper, whereas the depth of such groove or depression at the toe and heel must be such as to receive the folded and crimped portions of the upper at the rounded portions of these parts. The effect of this channel, excavation, or groove is to leave the outer surface of the inner sole nearly if not quite flat, and free from any ridge caused by the additional thickness of the upper. Without this form of inner sole, the folding of the upper round the toe and heel necessary to last the shoe would form a ridge. As all this thickness must lie below the plane of the inner sole, it must thereby form a space which must be filled up in order to make a solid and even bed for the outer sole to rest upon, which is troublesome, and unless done leaves a space for water to collect in damp weather.

The expense of forming this upper-receiving groove is comparatively nothing, and it can be done by circular cutters, or by a channeling-machine with knives adapted to suit the form of the groove required; or it may be made by pressure, reducing the thickness of the sole at that point, and of any desired depth, shape, and distance from the edge.

In lasting shoes by my method much labor and time will, it is thought, be saved to the manufacturer, besides giving the consumer a superior article without any increased cost.

In connection with the upper receiving-surface groove, I also bevel the upper edges of the inner sole to make the upper less exposed to wear where it is bent over the edge of the inner sole, and thereby make a very useful article of manufacture in an inner sole, having both its surfaces prepared with the advantageous features stated.

In the accompanying drawings, Figure 1 represents a section of a portion of the upper lasted in the usual way to an inner sole unreduced in thickness, and the outer sole attached to show the effect of the ridge on the outer sole and the space formed thereby between the inner and the outer soles; Fig. 2, a similar section, showing the inner sole lasted by my method, and in which the united edges of the upper have no projection beyond the plane of the outer surface of the inner sole, and therefore a solid bed for the outer sole is obtained which is of great importance in the wear of the shoe; Fig. 3, a view in perspective of the under side of an inner sole with a portion of the upper lasted thereto in the grooved outer surface, and showing also such groove in the heel portion; Fig. 4, an inner

sole having the upper-receiving groove in the lower surface round the edge throughout its length; Fig. 5, the upper surface of the outer sole with the edges beveled; and Fig. 6, the upper sole, showing only the toe countersink for the lasted upper.

The objectionable space *a* between the inner and outer soles, and the ridge *b* near the toe, produced by the method of lasting heretofore practised, is shown in Fig. 1; and the groove or depression *c*, which I form in the outer surface of the inner sole *d* to effect the advantages stated, is shown in section, Fig. 2, in which it will be seen that the two soles compact together with an even solid bearing-surface, and requiring, therefore, no filling or packing between the lasted edges *e* of the upper. The upper *f* is lasted within this groove *c*, as shown in Figs. 2 and 3, and by it the crimped portions *g* of the upper are embedded so as to be on a plane, or nearly so, with the surface of the inner sole.

This embedding of the lasted edges may be at the toe and the heel, or either, and also along the length of the sole to receive the entire edge of the upper; but in practice, and to obtain the greatest advantage, I rely mostly upon the groove in the toe portion of the inner sole, as at that part the greatest difficulty presents itself in lasting the upper, and such a grooved inner sole, whether the groove be partially or continuously formed, renders the article a new manufacture.

In connection with this channeling of the under surface of the inner sole, I deem it desirable to bevel or reduce the thickness of the upper edge of the inner sole round the toe and to the shank portion, as shown at *h* in Fig. 5, as this makes the upper less exposed to wear where it is bent over the edge of the inner sole. An inner sole, therefore, having these two features with their several advantages, constitutes a new article of manufacture not heretofore used in the trade to my knowledge.

The channel *c* should be of equal depth in its cross-section, with a flat bottom between its sides, whereby the edges are left the full thickness of the sole, which gives greater firmness thereto round the toe. The greatest depth of the channel should be at the toe, because at this point the crimped and folded portions of the upper are the thickest, and from this point the channel *c* may taper to the surface. Skiving or beveling the sole from the edge inward would not accomplish the purpose of my invention, as such skiving or beveling would leave the sole the thickest at the very point requiring the least thickness to obtain the advantages I aim at by my improvement.

I claim—

1. A shoe with an inner sole having a channel, *c*, on its under side at the toe and heel and back from its edges, to receive the folded and crimped portions of the upper, as and for the purpose set forth.

2. The combination, in a boot or shoe, of an inner sole, *d*, having an under surface groove or depression, *c*, partially or all the way round it, with the upper *f* lasted in said groove, and the outer sole *i* secured thereon.

3. As a new manufacture, an inner sole having a channel, *c*, on its under side at the toe back from its edges and lessening in depth, as described, and for the purpose set forth.

4. As a new manufacture, an inner sole having a channel, *c*, of varying depth on its under surface, and beveled edges on its upper surface, substantially as and for the purpose herein set forth.

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

ALBERT VAN WAGENEN.

Witnesses:
A. W. ADAMS,
W. VAN WAGENEN.