

*H.G. Tyler,
Rubber Shoe.*

N^o 68,398.

Patented Sep. 3, 1867.

Fig. 2.

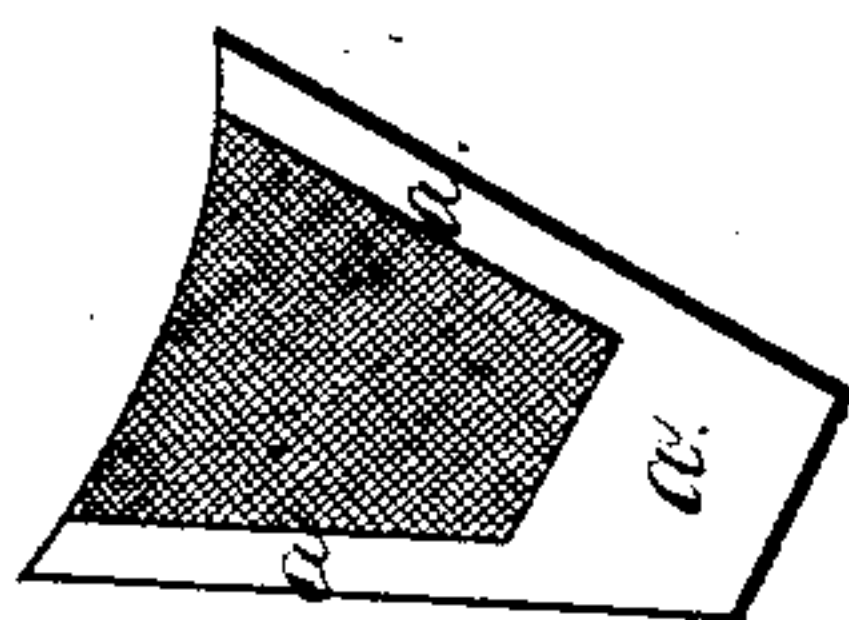


Fig. 4.

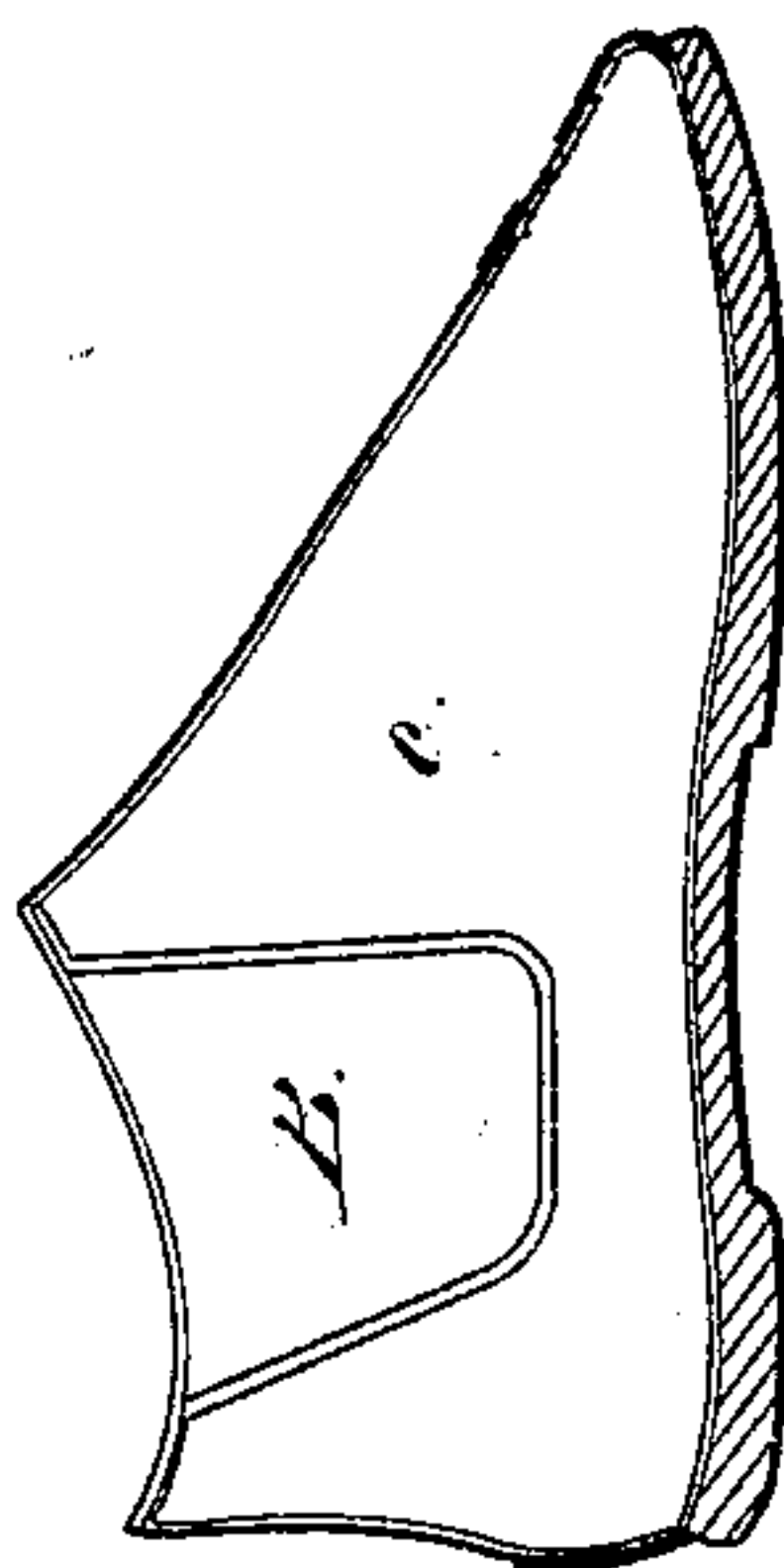


Fig. 1.

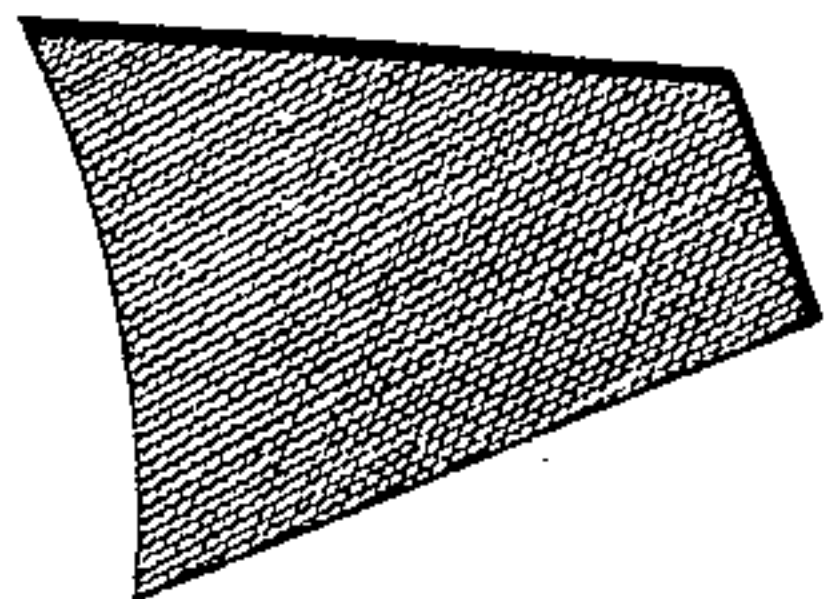
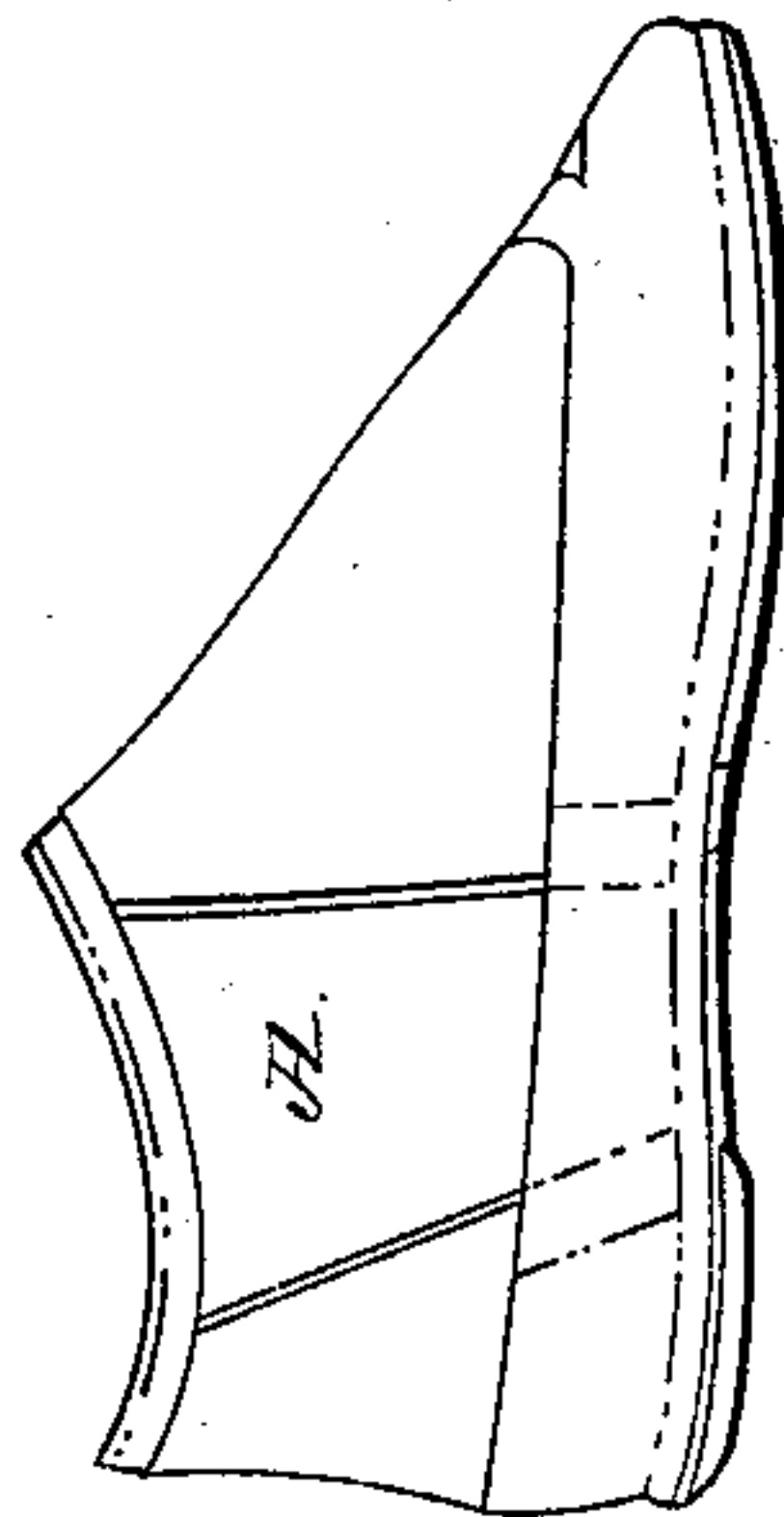


Fig. 3.



Witnesses:

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S. N. P. P. P.*

Inventor:

Henry G. Tyler

by his attorney

R. B. Cady

United States Patent Office.

HENRY G. TYER, OF ANDOVER, MASSACHUSETTS.

Letters Patent No. 68,398, dated September 3, 1867.

IMPROVEMENT IN OVER-SHOES.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL PERSONS TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, HENRY G. TYER, of Andover, in the county of Essex, and State of Massachusetts, have invented a new mode of manufacturing Over-Shoes or Boots, without straps, buckles, buttons, or other fastenings, whereby the drawing on or pulling off of such boots or shoes is greatly facilitated, a smooth and snug fit obtained, and all ugly additions harboring snow or mud are entirely avoided. Of the drawings herewith presented—

Figure 1 denotes a view of a trapezoidal piece of the gore-cloth to be used in the formation of the shoe.

Figure 2 represents such piece of cloth with cement applied to it about its edges.

Figure 3 is a side view of a shoe provided with elastic gores formed of elastic cloth and a vulcanizable material, one of such gores being shown at A.

Figure 4 is a longitudinal section of the shoe, showing where the inelastic lining is removed after vulcanization of the shoe, such removal being denoted at B, and for the purpose of enabling the elastic gore to be stretched as occasion may require.

The nature of my invention consists in the insertion of a vulcanizable gore or gores of elastic material in such part of the boot or shoe as may be most desirable during the construction of such boot or shoe, and before its vulcanization; the latter process being applied after the several parts composing the shoe are united, the same causing all the various pieces to become consolidated, and a perfect boot or shoe, with one or more elastic gores, to be the result.

To enable others skilled in the manufacture of rubber shoes to use my invention, I will proceed to describe the operation, selecting a gaiter boot or shoe as a prominent means of illustration.

I first prepare the lining *c*, (see fig. 4,) of flannel or other suitable material by coating the same with a vulcanizable cement of rubber or other adhesive, vulcanizable compound. After having reduced the lining, or the piece composing it, to shape, I draw or place it over a last and insole in the usual manner, so that the cemented side of such lining may be outward. I next procure a fabric of cloth with certain peculiarities of manufacture, capable of great lateral extension, preferring that known as "diagonal cloth," in which the threads of the warp cross those of the filling at acute angles rather than at right angles, such being as shown in fig. 1. I do not confine myself to any one particular fabric or material, using any, however manufactured or prepared, if elastic or capable of the necessary extension and contraction. I proceed to coat the material on one side with a vulcanizable rubber cement or composition, taking special care not to stretch the cloth in handling it. I next cut from the cloth so coated the insertion or gore-piece, of such shape as may be desirable. Next I apply India-rubber cement to the bottom and side edges of the gore, laying it thereon about three-eighths of an inch wide, and on the uncemented face thereof, the same being as shown in fig. 2, in which *a a a* denote the cement. Next I place the gore in its proper position on the lining, and with a strip of paper or cloth arranged between the gore and the lining in order to guard against their union except at the cemented edges of the gore in the after process of vulcanization. The object of retaining the lining whole or uncut at the gore is to prevent the lateral extension of the gore when the rubber is in a softened state during vulcanization. I next cut from a sheet of vulcanizable rubber or rubber compound, a piece of the same shape as the inner part of the gore before referred to, but somewhat larger, so that the edges may extend beyond the first piece when laid thereon and united thereto. Sometimes I spread a sufficient thickness of coating of rubber on the gore lining in the first instance, rendering the sheet just spoken of unnecessary, but I prefer that the lining and sheet gum should be distinct from each other. I next take strips of thin sheet rubber or rubber compound, say three-eighths of an inch wide, and turn and roll over one edge thereof for binding and making a neat finish entirely around the top of the boot and that of the gore, this binding affording additional strength to such part of the boot or shoe, it being that which has to resist the heavier strains. I next prepare the "diagonal cloth" or other elastic fabric which I intend using for the outside of the gore or insertion. This I do by cementing it precisely as hereinbefore described for the inner part or lining of the same, and cut it into similar shape to that, taking particular care in doing so that the threads of the warp and filling of the two pieces, when they are united, bear such relative positions to each other as to render both pieces capable of extension in the same direction, failing in which, the elasticity of the gore or insertion would thereby be in a great measure destroyed. After this outside piece may have been securely fastened in its proper position I proceed to finish the boot or shoe in such manner and style

as may be required; this, and the subsequent operation, being well known to India-rubber manufacturers, as well as the after vulcanization of the shoe or boot in a complete state. I finally cut away or remove the lining of the shoe in rear of the gore in order to allow the gore full freedom to expand.

I do not claim broadly the insertion of an elastic gore in a boot or shoe, such being an article of extensive manufacture at the present time; neither do I claim simply the formation of an elastic fabric, such being well known, and the subject of many patents; neither do I claim the lining of an India-rubber shoe with ordinary stockinet, such being daily manufactured; but what I do claim as my invention, and desire to secure by Letters Patent, is—

The new process described of making a vulcanized shoe with an elastic gore, the same consisting in the insertion within the shoe during the construction of it, and prior to vulcanization of it, of muslin, stockinet, or other equivalent fabric, (however such fabric may have been prepared,) in connection with the vulcanizable India rubber or India-rubber compound, placed on or between layers of the said fabric, and subsequently submitting the whole to vulcanization, and to a removal of part of the shoe lining, the whole being substantially as hereinbefore set forth.

HENRY G. TYER.

Witnesses:

R. H. EDDY,

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