

(Specimens.)

S. G. ALEXANDER.
COMBINED FELT AND KNIT FABRIC.

No. 325,808.

Patented Sept. 8, 1885.

Fig. 1.

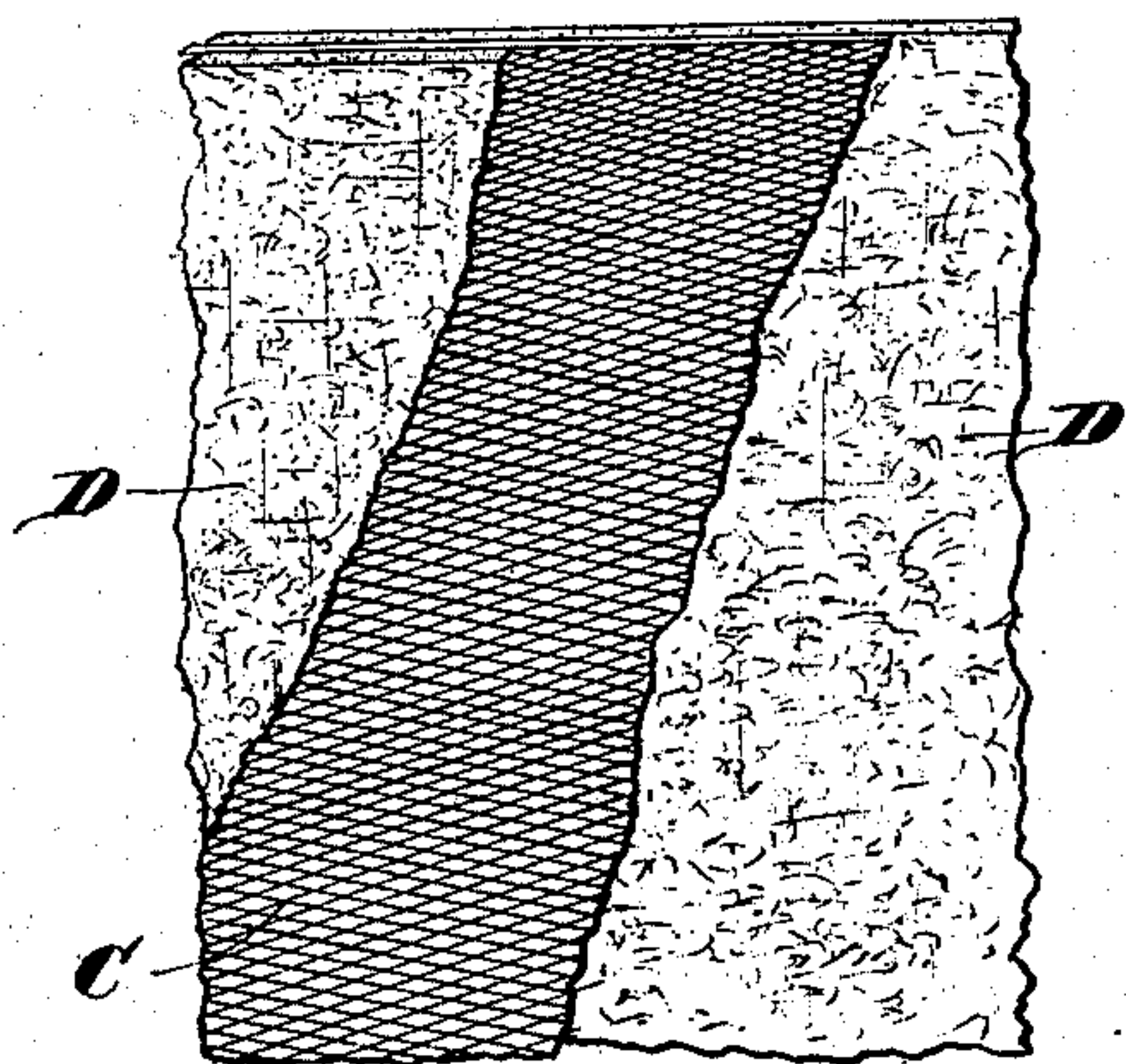


Fig. 2.

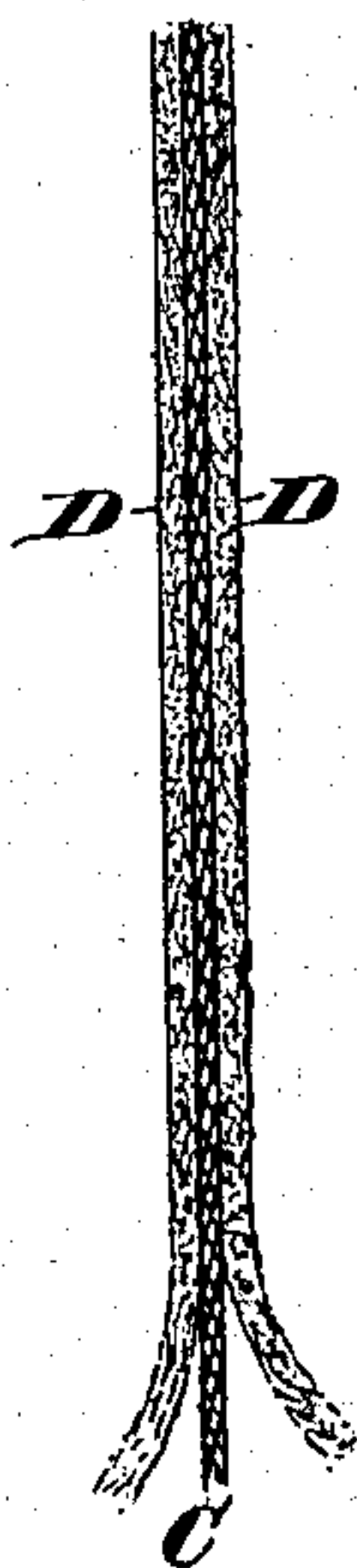


Fig. 3.



Fig. 4.

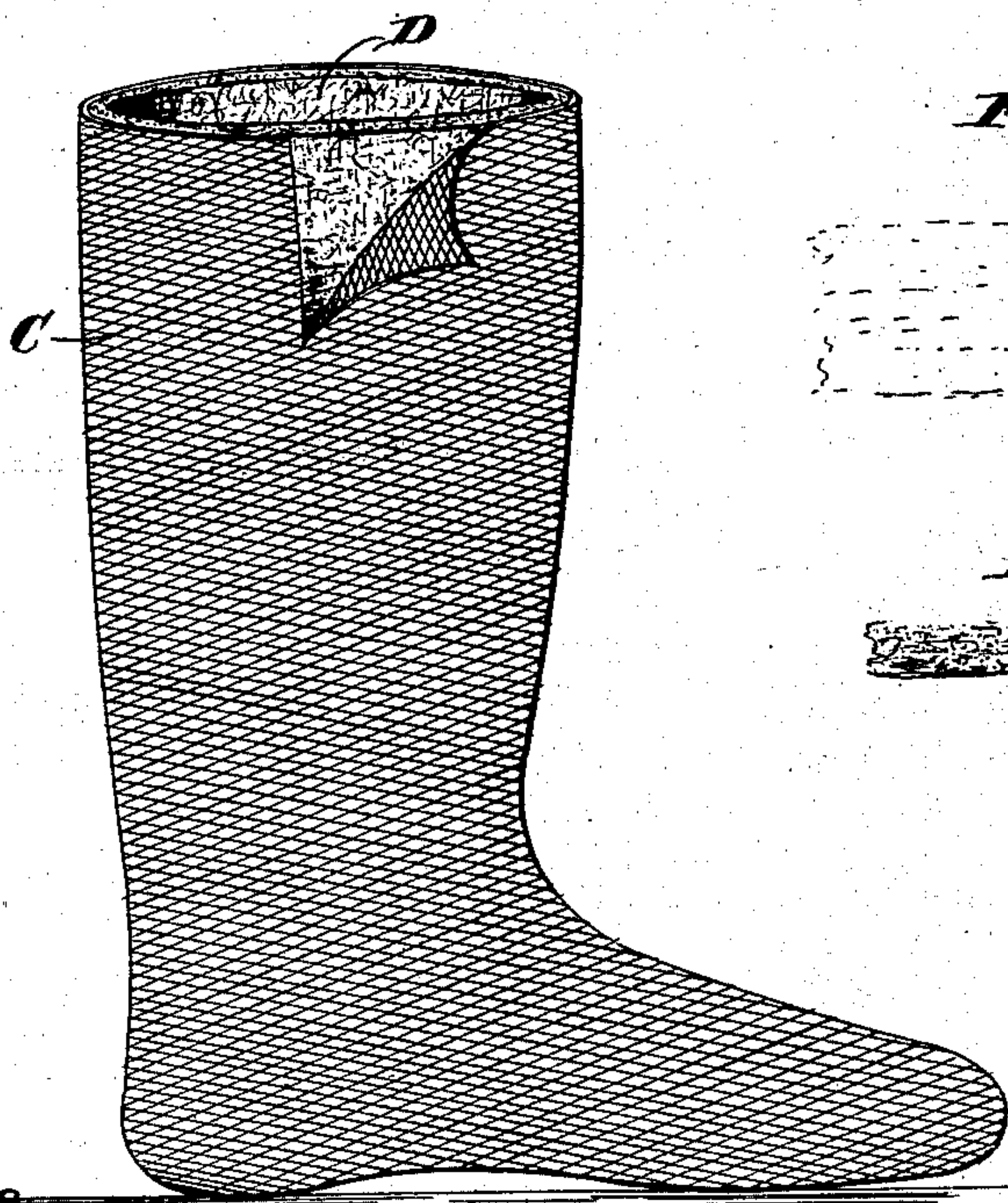


Fig. 5.

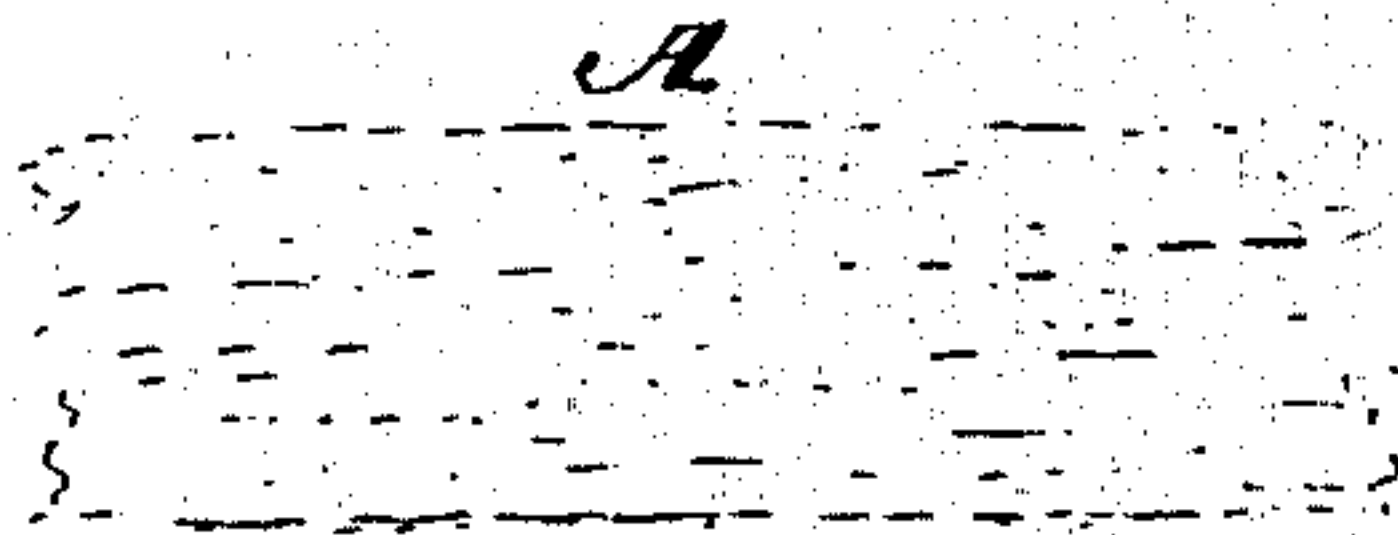


Fig. 6.



Witnesses:

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UNITED STATES PATENT OFFICE.

SAMUEL GEORGE ALEXANDER, OF DETROIT, ASSIGNOR TO C. E. WAKEMAN & CO., OF PONTIAC, MICHIGAN.

COMBINED FELT AND KNIT FABRIC.

SPECIFICATION forming part of Letters Patent No. 325,808, dated September 8, 1885.

Application filed April 3, 1884. (Specimens.)

To all whom it may concern:

Be it known that I, SAMUEL GEORGE ALEXANDER, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Combined Felt and Knit Fabrics; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to certain new and useful improvements in the manufacture of woolen boots and other similar felted goods wherein the resulting article is a combination of felt and knit or woven woolen fabric.

The invention consists, broadly, in using a knit or woven woolen fabric as the base, applying thereto one or more sheets of wool in the form of a bat that has been previously hardened or felted, then combining the felt sheet or sheets with the woven wool fabric by subsequent felting and fulling.

In describing the invention I will illustrate it as applied more particularly to a woolen boot, although it is applicable to horse-blankets and many other articles.

In the drawings, Figure 1 represents in elevation and section a piece of the knit or woven woolen fabric between two sheets of felt and combined therewith by subsequent felting and fulling. Fig. 2 is a cross-sectional view of the same. Fig. 3 is a similar sectional view where a felt sheet is applied only to one side of the knit or woven wool fabric. Fig. 4 represents a boot embodying the invention, the knit or woven wool fabric being on the exterior and the layer or layers of felted wool on the interior. Fig. 5 represents a bat of soft wool as it comes from the card. Fig. 6 is the same after it has been hardened by the felting process into a felt sheet ready to be applied to the knit or woven fabric.

A is a loose bat of soft wool as it comes from the card. B is a sheet of felt made by hardening the bat A by the felting process. C is a knit or woven wool fabric. D represents a sheet of felt like that shown at B, the felt and fabric having been brought together and subsequently united by the felting and fulling process.

In making a boot I take a loose knit or woven woolen article which has the shape required for the boot, but of very much larger dimensions. This I usually turn wrong side out and stretch it upon a corresponding form. To prepare the wool for application to the fabric, I take a bat, A, of suitable thickness as it comes in soft from the cards. This bat is put into a felting-machine and reduced to the form of a felt sheet, B. This hardens the wool and produces a sheet of considerable strength and tenacity, such as can be well stretched upon and made to conform to the form. I then apply this sheet of felt to the surface of the fabric, scarfing and lapping the edges so as to produce a surface of uniform thickness, and I then generally turn over the form and apply a sheet in like manner from the opposite side, so that the sheets shall be of double thickness to break joints with each other. I then generally re-enforce the toe and heel with a third sheet. I then confine the bat to the fabric by a suitable wrapper. I then put the package into a felting-machine and felt the sheets of felt and the knit fabric firmly together, and subsequently reduce and incorporate them more intimately by the fulling process. It is then shaped or finished on a suitable last in the usual way.

I am aware that a similar but imperfect article may be made by laying the loose bat A of soft wool directly upon the knit fabric and incorporating the two directly by the felting and fulling process; but inability to handle and properly stretch the loose bat upon the fabric and its form, and inability to properly confine this loose bat to a form by a wrapper, causes the soft wool to shift and squeeze away from its proper position during the process of felting, leaving it of ununiform thickness, the layer being scant at some places and too thick or crowded out to form a thick welt at other places. An article so made I do not claim. A boot or similar article consisting of a knit or woven fabric and one or more sheets of wool laid thereon, the two subsequently united and incorporated by the felting and fulling process, I do not broadly claim; but that which I employ is a sheet of felted wool laid upon the knitted or woven wool fabric and then incorporated by felting and fulling. It is thus seen that my

invention here described and claimed embodies the broad feature, in the manufacture of boots or similar articles, of the employment of a sheet of wool which has been first hardened
5 down into a felted sheet before it is applied and incorporated with the knit or woven wool fabric in contradistinction to the employment of simply a sheet of wool which is applied in loose form without previously being hardened
10 or felted.

In articles embodying my invention the layer of felt is uniformly combined with the fab-

ric, so as to present a regular and even thickness of felt over the entire surface.

What I claim is—

A boot or similar article consisting of a knit or woven wool fabric and one or more layers of woolen felt, the two subsequently united and incorporated by felting and fulling, substantially as described.

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Witnesses:

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