Dec. 12, 1950 G. W. GOTTSCHALK 2,533,453

RUBBER-COATED STOCKING-FOOT BOOT

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Fig. 1.

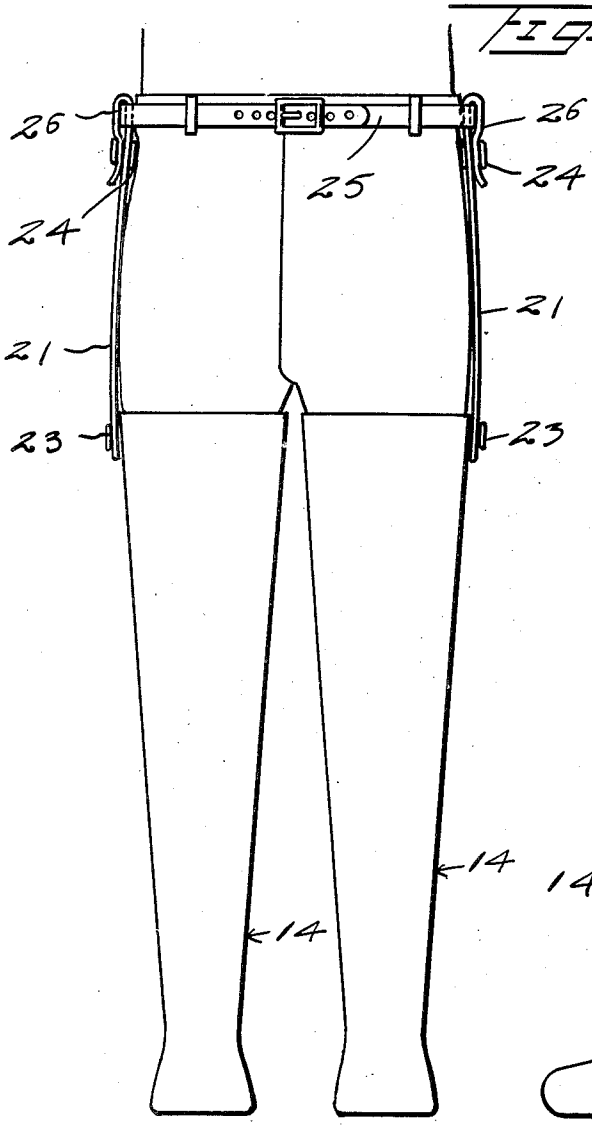
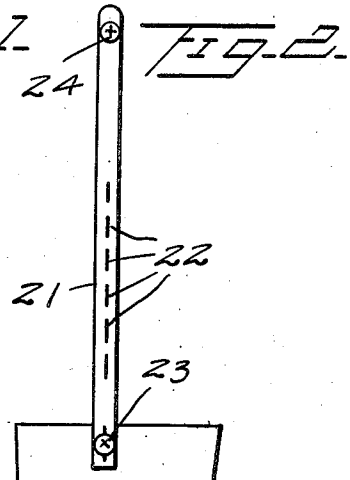


Fig. 2.



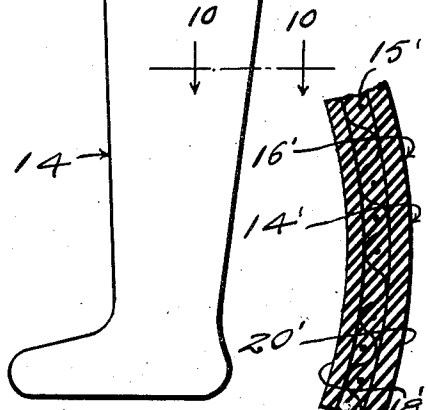
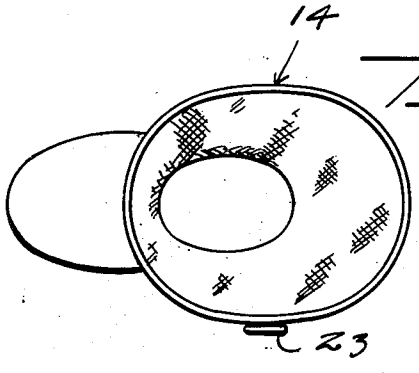


Fig. 4.

Fig. 3.



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RUBBER-COATED STOCKING-FOOT BOOT

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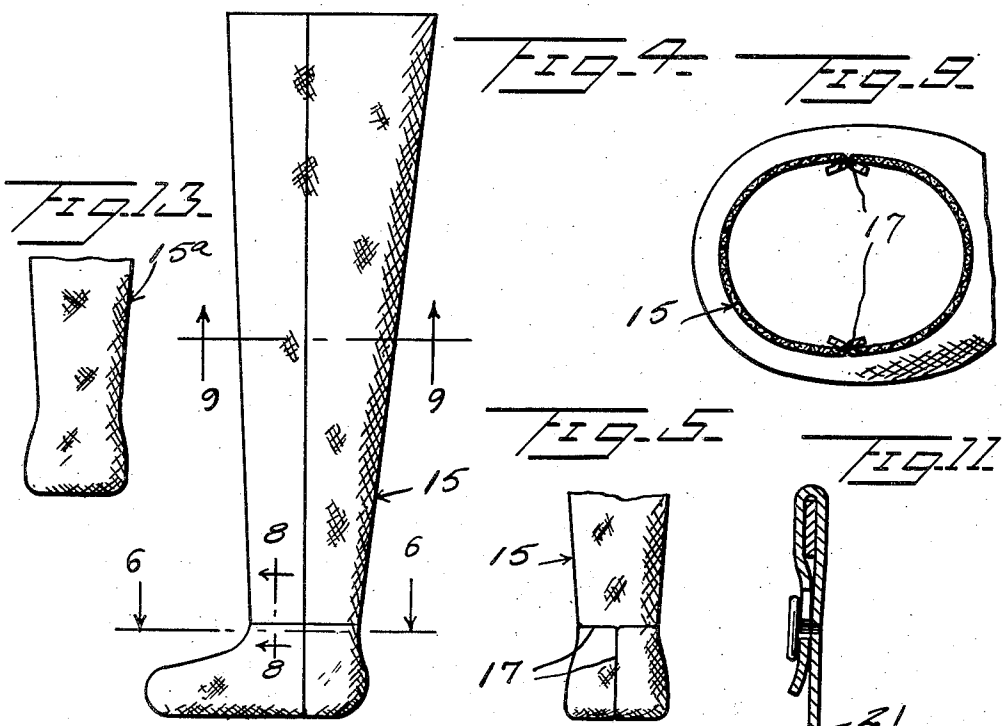


Fig. 13.

Fig. 9.

Fig. 5.

Fig. 11.

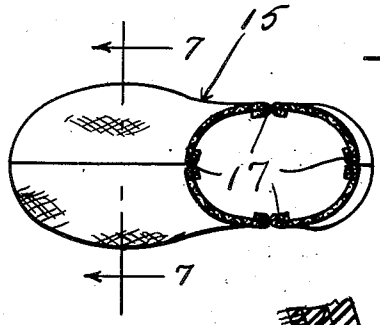


Fig. 6.



Fig. 7.

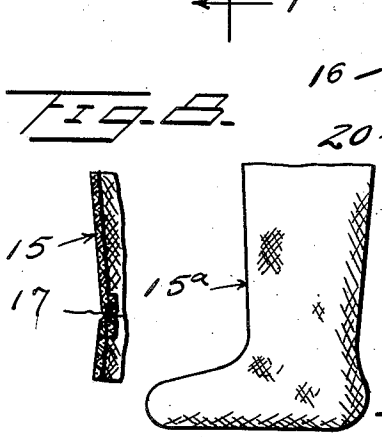


Fig. 8.

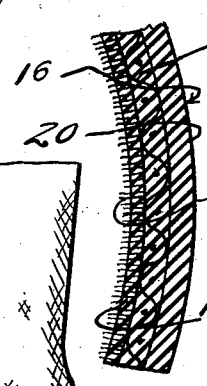


Fig. 10.

Fig. 12.

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RUBBER-COATED STOCKING-FOOT BOOT

Gordon W. Gottschalk, Iron Mountain, Mich.

Application April 11, 1947, Serial No. 740,851

1 Claim. (Cl. 36—10)

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This invention relates to an improved construction of waterproof boot especially adapted for use by sportsmen as a wading boot and which is adapted to extend the full length of the leg.

A primary object of the present invention is to provide a wading boot of much lighter weight than conventional wading boots so that it may be worn for a long period of time without tiring or causing discomfort to the wearer.

Another and particular object of the invention is to provide a boot having a thin, flexible foot portion of the same gauge as the remainder thereof and which is adapted to be worn within a shoe so that the shoe will afford proper support for the arch which is lacking in conventional boots and which will further enable the boot to be worn for long periods without tiring the wearer.

Another object of the invention is to provide a boot which is extremely light in weight and extremely flexible so that it may readily be rolled into a compact form when not in use for storage or carrying and which is capable of being turned entirely inside-out, including the foot portion thereof, for quickly and thoroughly drying the interior of the boot.

Another object of the invention is to provide a boot which may be economically manufactured and sold, which will be relatively snag proof, and which, in its finished form, constitutes a unitary structure containing an internal exposed nap of an absorbent material such as flannel or other fabric, constituting a part of the body portion thereof and which may afford warmth to the wearer.

Still a further object of the invention is to provide an improved adjustable fastening means for attaching the upper end of the boot to the waist belt of the wearer for retaining the boot in an extended position on the leg for increasing the wearing comfort thereof and the extent of coverage of the boot.

Other objects and advantages of the invention will hereinafter become more fully apparent from the following description of the drawings, illustrating the preferred embodiments of the invention, and wherein:

Figure 1 is a front elevational view showing a pair of boots, constructed in accordance with the invention and shown in an applied position;

Figure 2 is a side elevational view of one of the boots;

Figure 3 is a top plan view thereof;

Figure 4 is a side elevational view showing the fabric body portion of the boot, formed of a

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plurality of sections, stitched or otherwise joined together;

Figure 5 is a fragmentary rear elevational view of the lower portion of the body;

Figure 6 is a cross sectional view thereof taken substantially along a plane as indicated by the line 6—6 of Figure 4;

Figure 7 is a cross sectional view through the foot portion, taken substantially along a plane as indicated by the line 7—7 of Figure 6;

Figure 8 is a longitudinal sectional view taken substantially along a plane as indicated by the line 8—8 of Figure 4;

Figure 9 is a cross sectional view taken along a plane as indicated by the line 9—9 of Figure 4;

Figure 10 is an enlarged sectional view through a portion of the completed boot, taken substantially along a plane as indicated by the line 10—10 of Figure 2;

Figure 11 is a fragmentary longitudinal sectional view through a portion of the supporting strap;

Figure 12 is a fragmentary side elevational view of the lower portion of a seamless boot body;

Figure 13 is a rear elevational view thereof, and

Figure 14 is a view similar to Figure 10, illustrating a slight modification or construction of the boot.

Referring more specifically to the drawings, each of the improved boots, a pair of which is illustrated in an applied position in Figure 1, is designated generally 14 and is formed by providing a body portion or stocking, designated generally 15, as seen in Figure 4, of a suitable absorbent fabric such as flannel and applying a cured latex composition thereto, as seen at 16 in Figure 10, so that a cured, tough laminate is obtained.

The body member or stocking 15 may be formed of any number of pieces of fabric, as illustrated in Figures 5, 6, 7, 8 and 9, cut from patterns suitable to produce the desired size and thereafter secured together as by stitching, as seen at 17; or, the body or stocking may be of seamless construction as indicated at 15a in Figures 12 and 13.

The stocking or body 15 or 15a is then drawn over a form, not shown, of any desired type and which will function to hold the body extended so that the surface thereof will be smooth and taut. The latex composition 16 is then applied in several coats, preferably three, each coat being permitted to dry or partially dry before the next coat is applied. The first coat of the latex 16 is completely absorbed by the fabric body 15 or 15a so as to wet the inner surface thereof

as well as the surface of the form on which said body is held extended, so that on removal, after drying, a thin coating or layer of the latex will be disposed on the inner side of the body 15 or 15a and to just below the nap, thus forming a durable laminate which can not be separated. The subsequent coating or coatings of the latex which are applied after the first impregnating coating has dried or partially dried, are likewise applied to the exterior of the first coating and will, accordingly, not penetrate the fabric body or stocking and will therefore produce a thicker layer, composed of the various coatings, externally of the body than will exist internally thereof.

The latex composition, which is cured in the latex state before application may be either a natural or a synthetic rubber or a plastic latex. An example of such a composition, especially suitable for the purpose, is as follows:

	Parts
Rubber latex, 60%	35.4
Casein dispersion, 10%	0.525
Sulphur, 50%	1.08
Agerite white dispersion, 50%	0.268
Mineral oil, 70%	0.932
Ethyl zimate, 50%	0.216
Zeinite, 40%	0.541
Water	1.579

Each of the ingredients constitutes a dispersion or suspension in water, the percentage following each ingredient representing the percentage by weight of the active ingredient and the balance constituting water, i. e., sulphur 50% by weight and water 50% by weight.

The tensile strength of a composition of this sort is extremely high on drying to a film, since, it will be noted, the rubber is not loaded with extending fillers. Latex compositions in general have greater tensile strength when not thus loaded too heavily.

It will thus be readily apparent that the finished boot 14 has the same cross sectional composition throughout and is of substantially the same thickness throughout and with the latex, composed of the several coatings, intimately secured to the body 15 or 15a will afford a relatively thin layer 18 on the inner side thereof from which the nap 19 of the body 15 or 15a protrudes, and a substantially thicker layer disposed externally of the fabric body 15 or 15a, as indicated at 20 in Figure 10. Obviously, the latex saturated construction of the boot 14 makes the fabric body 15 or 15a inseparable from the latex coating to thus render the boot 14 extremely snag resistant.

The boot 14 is constructed by the simple operation of coating the single sturdy fabric body 15 or 15a with the latex composition, preferably rubber, so that the latex penetrates the fabric to produce an integral unit without requiring layering or employing a rubber cement or bonding medium, thus eliminating the hazard of volatile solvents. Furthermore, the boot 14 can be constructed without molding or curing since the molding occurs during the drying of the latex and the latex, as applied, is pre-cured, so that upon drying it forms the cured boot, thus providing a time and labor saving method of manufacture and which is extremely safe.

Each boot 14 is provided with a supporting strap 21 which may be made of fabric or of a rubberized fabric and which is provided with longitudinally spaced, longitudinally disposed

slits 22, extending substantially the length thereof. The supporting strap 21 is adapted to be connected at one end thereof to the outer side of the upper end of its boot 14 by engaging a slit or button hole 22, located adjacent an end of said strap 21 with a button 23, secured to the outer side and upper end of the boot 14, as seen in Figures 1 to 3.

The opposite end of the supporting strap 21 is provided with a button 24, and said end is adapted to be passed around the waist belt 25 of the wearer, as seen in Figure 1 and engaged with one of the slits or button holes 22 of the strap 21 to form a loop 26 around the melt 25 for supporting the boot 14 in an extended position on the leg of the wearer. It will be readily apparent that the button 24 can be selectively engaged with the slits or button holes 22 for adjusting the length of the strap 21 for holding the boot 14 in an extended position.

The boot 14 is adapted to be worn with the foot portion thereof contained within a shoe so that the foot of the wearer will be provided with a normal arch support which is essential where the boot 14 is to be worn for a long period of time, as in wading stoney streams and where comfort is essential if the boots are to be worn without tiring the user, which is not possible with conventional wading boots which do not afford proper support to the arch and which, due to their thick and bulky construction, are heavy and awkward to wear, whereas the boots 14 fit snugly about the foot and ankle, similar to a stocking, and are relatively thin and flexible and of light weight to enable the wearing thereof with the utmost of comfort and a minimum of effort. The boot 14 is enlarged from the ankle to the upper end thereof to accommodate normal wearing apparel such as trousers legs and socks. As the boot 14 is of substantially uniform thickness throughout its length and because of its great flexibility, said boot can be readily turned completely inside out for quickly drying the interior thereof and may be compressed flat and rolled or folded into extremely small bundles for storage or carrying. Further, the boot 14 is much lighter in weight than conventional boots affording a distinct advantage in either carrying or wearing.

Figure 14 illustrates a slightly modified construction of the boot and wherein the body 15' is contained completely within the molded latex composition 16' and in which the internal coating of latex 18' is sufficiently thick so that no portion of the body 15', such as the nap 19 as illustrated in Figure 10, will protrude from the surface thereof. The internal layer 18' may be increased in thickness by applying one or more additional coatings of the latex thereto after the external coatings 20' have been applied and permitted to dry, and this is accomplished by thereafter removing the partially formed boot 14' from its form, not shown, turning the boot inside out and reapplying it to the form so that the additional thickening coatings can be applied to the boot for thickening the layer 18'.

Various modifications and changes are contemplated and may obviously be resorted to, without departing from the spirit or scope of the invention as hereinafter defined by the appended claim.

I claim as my invention:

In a waterproof foot and leg covering of the character described, a fabric, stocking-like body portion including a foot and leg portion, said leg portion being of a length to encase the leg to

above the knee, and a latex composition intimately combined therewith and penetrating said fabric body and forming a relatively thin layer on the inner side thereof and a thicker layer on the outer side, said covering being relatively thin and flexible throughout and being adapted to fit snugly over the foot and ankle and to be worn with the foot portion thereof within a shoe.

GORDON W. GOTTSCHALK.

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