Dec. 7, 1948. F. F. OLSON 2,455,801

CLOSE FITTING BOOT

Filed Feb. 18, 1946

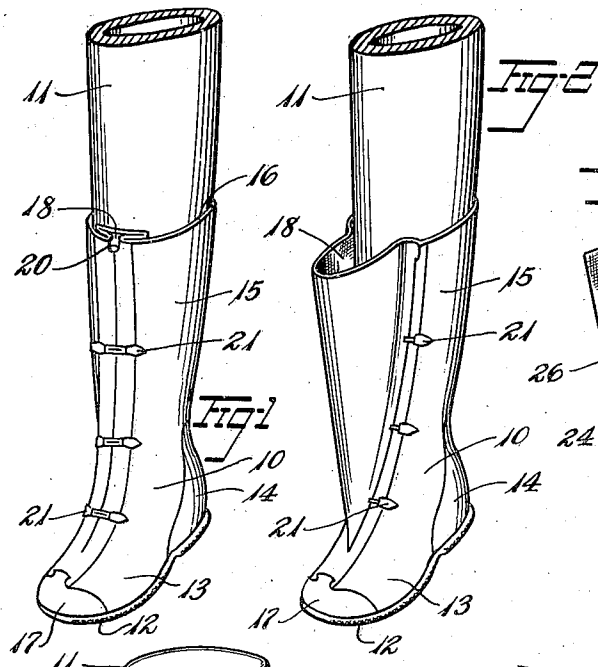


Fig. 1

Fig. 2

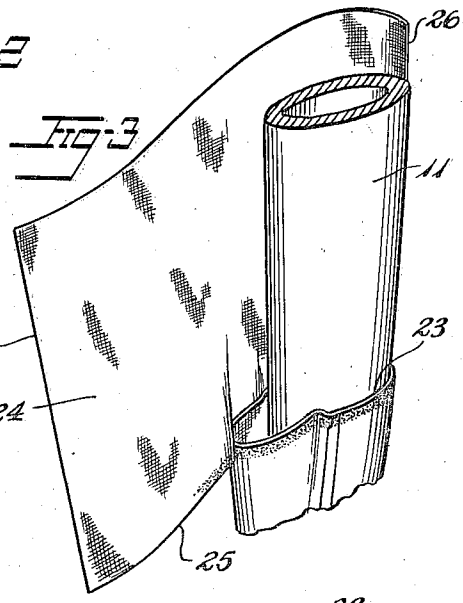


Fig. 3

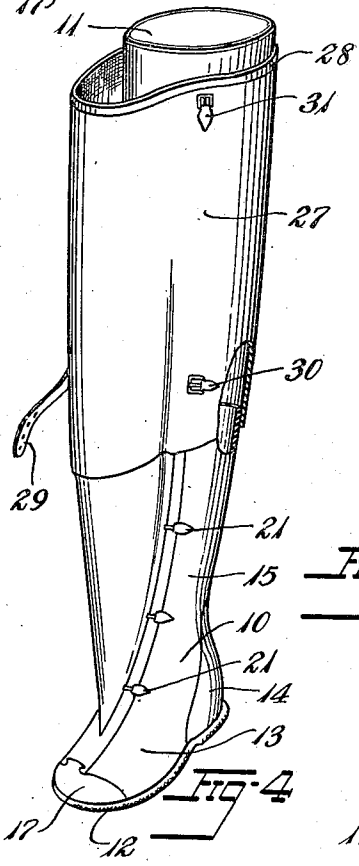


Fig. 4

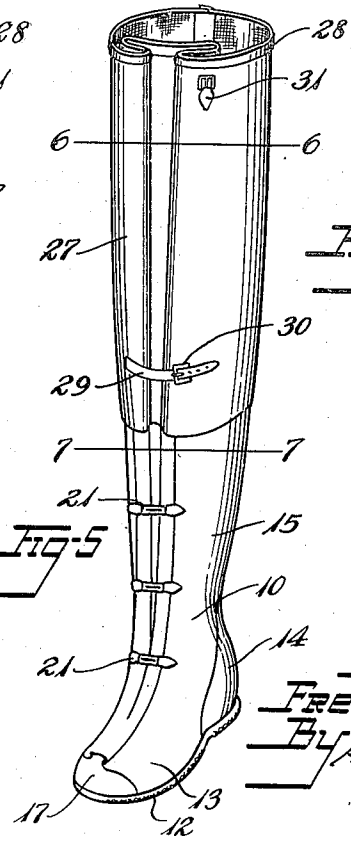


Fig. 5

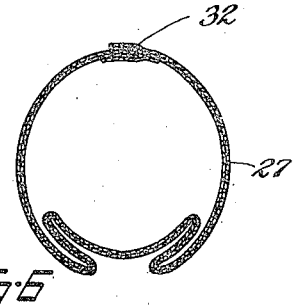


Fig. 6

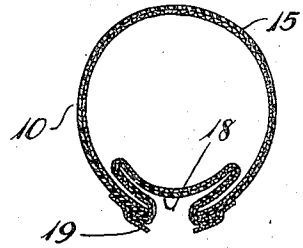


Fig. 7

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CLOSE-FITTING BOOT

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Application February 18, 1946, Serial No. 648,285

2 Claims. (Cl. 36—4)

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This invention relates to close-fitting boots, and specifically to a close-fitting high-top boot of the wader type.

The principal objects of this invention are to provide a waterproof boot, particularly of the high-top or wader type, which has ample fullness for ease in donning and doffing and which fits closely about the leg while being worn; to construct such a boot in a minimum number of simple operations and with an economical use of materials; to construct the boot so that it will bend easily at the knee without the use of a construction which might fail upon repeated flexing; and, generally, to provide a serviceable, practical boot of good appearance.

Of the accompanying drawings:

Fig. 1 is a perspective view illustrating an early step in the manufacture of a boot in accordance with the invention and showing a gaiter-like article in the course of construction on a last;

Fig. 2 is a similar view showing the same article following an operation in which the joiner strip is slit and the attached bellows pocket fully expanded;

Fig. 3 is a fragmentary perspective view illustrating a further step in the manufacture and showing the operation of attaching a boot top element to the top of the expanded gaiter-like article;

Fig. 4 is a perspective view showing the boot after complete attachment of the boot top element to the gaiter-like article, a portion of the structure being shown broken away and sectioned for clarity of illustration;

Fig. 5 is a similar view showing the boot with the bellows pocket in the collapsed condition desirable during vulcanization as well as in the finished boot as worn;

Fig. 6 is a horizontal sectional view taken on line 6—6 of Fig. 5; and

Fig. 7 is a similar view taken on line 7—7 of Fig. 5.

In the manufacture of a typical boot embodying the invention, as illustrated in the drawings, a gaiter-like article of the waterproof type, indicated generally by the numeral 10, is constructed in the usual way on a last 11. The gaiter-like article 10 is constructed by assembling the usual constituent parts including rubber outsole 12 and vamp 13, quarter 14 and leg-encircling portion 15 preferably formed of sheet rubber or similar flexible waterproof material lined with the usual cotton fabric, although unlined rubber or similar material also may be used for these parts. The leg-encircling portion 15 extends well above the ankle and desirably to the region of the knee and

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is divided on a median line down the front of the gaiter-like article from its upper margin 16 downward to the region of the instep. A toe cap 17 is attached to the vamp 13.

The opening formed by the divided leg-encircling portion 15 is then completely closed by a bellows pocket 18 which is attached to the contiguous vertical edges of the divided leg-encircling portion 15. The bellows pocket 18 consists of the usual triangularly shaped piece of rubber or rubber backed with fabric. The pocket blank is cut large enough so that the longitudinal edge portions may be turned into S-shaped folds which provide the fullness necessary for an expandable bellows pocket. The attached bellows pocket 18 extends upward to a common height with the upper margin of the gaiter-like article 10.

The pocket is folded into a collapsed condition with the excess material taken up by the folds described above. The contiguous vertical edges of the divided leg-encircling portion 15 are then held in abutting position by the application of a joiner strip 19 over the abutting edges. The joiner strip 19 desirably consists of a strip of rubber-coated fabric and extends from the toe cap 17 of the vamp 13 upwardly toward the upper margin 16 of the leg-encircling portion 15.

For insuring a waterproof construction, the top center region of the joiner strip desirably should be cut-out at least in the zone between the vertical edges of the leg-encircling portion to provide, for example, a U-shaped aperture as shown at 20. Otherwise the boot top which is attached thereover would be joined to a section of the joiner strip which would not be attached to the bellows pocket beneath it and a channel for leakage would result. A similar result together with a reduction in bulk at the joint with the boot top also may be achieved by terminating the entire joiner strip short of the top margin of the gaiter-like article and below the line to which the boot top will extend.

The joiner strip 19 holds the leg-encircling portion 15 closely about the last to approximate the shape the article would have if being worn. In the next operation, buckles 21, 21 or other suitable closure means are positioned and attached to the gaiter-like article so as to extend across the joiner strip 19. The gaiter-like article is normally constructed of unvulcanized rubber material which is preferably left unvulcanized until a later stage in the construction. The joiner strip is next slit vertically 22 from the top of said strip downwardly to the region of the instep with the slit 22 ending just about the lower end of the attached bellows pocket 18.

The bellows pocket 18 is then fully expanded through the slit opening 22 in the joiner strip 19 as shown in Fig. 2, the upper margin 16 of the leg-encircling portion and the upper margin of the expanded bellows pocket 18 forming a circumferentially continuous margin as indicated by the numeral 23 (Figs. 2 and 3).

There is next provided a boot top element 24 comprising a sheet of rubber, preferably unvulcanized, backed with fabric although rubber alone may be used. The material comprising the boot top element is cut so that the lower margin 25 is of the same length as the circumference of the continuous margin 23 formed by the gaiter-like article with the attached pocket fully expanded and the boot top element is then marginally attached around the entire circumference of the continuous margin 23. In attaching the boot top element 24, the material conveniently is joined beginning at the back of the gaiter-like article so that when the element is entirely attached it forms a generally cylindrical element extending upwardly from the gaiter-like article as indicated by the numeral 27 of Fig. 4. The vertical edges 26, 26 of the boot top element abut at the back of the boot to form a vertical seam. In order to obtain a smooth, unwrinkled, watertight seam between the gaiter-like article and the boot top during this attaching operation the continuous margin 23 of the gaiter-like article is pulled taut and the boot top element is cemented on and, if desired, further secured by a rubber dam strip around the entire circumference.

Seam reinforcements, indicated by the numeral 32 of Fig. 6, are applied to the seam formed by the abutting vertical edges 26, 26 of the boot top element 24. The upper margin of the boot top is finished by applying a binder strip 28 around the entire circumference. A strap 29 and buckle 30 are then attached to the cylindrical boot top 27 somewhat above the knee zone, their circumferential positions being determined (Fig. 4) by extending an imaginary line through the rows of buckles on either side of the joiner strip of the gaiter-like article. A snap 31 is attached near the upper margin of the boot top for fastening the top of the boot to the wearer's belt as is customary with wader boots.

If, as in the preferred procedure, the rubber material in the assembly is still unvulcanized, the bellows pocket of the gaiter-like article is collapsed and at the same time a frontal zone of the boot top extending upwardly from the pocket is similarly collapsed to provide a continuous bellows pocket extending from the region of the instep to the top of the boot. The buckles 21, 21 and the strap 29 are then fastened to maintain the bellows pocket in the collapsed condition and the entire assembly is then subjected to vulcanization in the usual way. By vulcanizing the pocket in the collapsed condition, a permanent set is imparted to the rubber which causes the pocket to tend to retain its collapsed condition and so facilitates fastening the boot closely about the leg.

Before the boot is vulcanized with the pocket in the collapsed condition, the folds of the pocket are usually insulated from each other to prevent adhesion during vulcanization. This insulation may be effected in any of several known ways such as by dusting the contiguous surfaces with soapstone, talc or similar dusting material, or by placing a layer of holland cloth or vellum or similar separating material between the folds, or by lacquering the surfaces prior to collapsing.

Alternatively, it is possible to vulcanize the assembled boot with the pocket expanded as shown in Fig. 4 and thereafter to collapse the pocket as described to the condition shown in Fig. 5.

It will be understood that the finished boot is donned and doffed while the pocket is expanded much as is shown in Fig. 4 while the boot ordinarily will be worn with the pocket collapsed as in Fig. 5.

The boot comprises one integral unit which is entirely waterproof. It provides fullness for facilitating donning and doffing, yet fits closely about the leg while being worn. The boot bends easily at the knee, but since the boot top comprises one piece of material and the bellows pocket is merely a folded portion of that piece, flex failures are minimized.

The operations involved in the construction are all quite simple and involve low cost factors. The entire assembly is neat in appearance with no bulky portions where the gaiter-like article and the boot top are joined. The boot may be held closely about the wearer's leg with a minimum use of closure means, hence the boot may be quickly and easily donned and fastened.

This invention may be embodied in various types of high-top close-fitting boots where fullness is desirable for donning and doffing. A boot constructed according to the method may be easily donned over shoes or worn without shoes.

While the invention has been described in considerable detail with reference to a particular embodiment, it will be understood that variations and modifications may be effected in the boot and the method of construction as described without departing from the spirit and scope of this invention as defined in the appended claims.

I claim:

1. A boot of vulcanized flexible rubbery material comprising a lower gaiter-like member having a divided frontal zone extending from the region of the instep of said gaiter-like member to the top thereof and having opposed vertical margins normally in contiguous relation, and upwardly directed leg-encircling member having its lower margin secured around the extent of the upper margin of said gaiter-like member, and a normally collapsed expandable bellows pocket extending continuously across the juncture of said members from the region of the instep to the top of the boot, the lower portion of said bellows pocket comprising a pocket member marginally secured to the opposed margins of said divided frontal zone and extending to the top of said gaiter-like member where said pocket member is marginally secured to the lower margin of said leg-encircling member, the upper portion of said bellows pocket comprising a frontal zone of said leg-encircling portion biased toward a folded condition forming a normally collapsed extension of said lower pocket member, said normally collapsed bellows pocket being of substantially uniform cross-sectional configuration throughout its vertical extent.

2. A boot of vulcanized flexible rubbery material having a normally collapsed expandable bellows pocket of generally uniform cross-sectional configuration throughout substantially its entire vertical extent, said boot comprising a lower gaiter-like member and a leg-encircling upper member having its lower margin secured to the upper margin of said gaiter-like member

around the circumferential extent thereof with said bellows pocket extending continuously across the juncture of said members, said gaiter-like member having a divided frontal zone extending from the region of the instep to the top of said member and having opposed vertical margins normally in contiguous relation, the portion of said bellows pocket in said gaiter-like member being marginally secured to the opposed margins of said divided frontal zone and normally lying in generally S-shaped folds with the opposed margins of said zone in contiguous relation, the portion of said bellows pocket in said leg-encircling member being a similarly S-folded vertical zone of said member itself biased toward the folded condition forming a continuous uniform normally collapsed extension of the portion of the bellows pocket in said gaiter-like member, said bellows pocket extending from the region of the instep to the top of the boot.

FREDERICK F. OLSON.

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Certificate of Correction

December 7, 1948.

Patent No. 2,455,801.

FREDERICK F. OLSON

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows:

Column 4, line 47, claim 1, for the word "and" read *an*;

and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22nd day of November, A. D. 1949.

[SEAL]

THOMAS F. MURPHY,
Assistant Commissioner of Patents.