

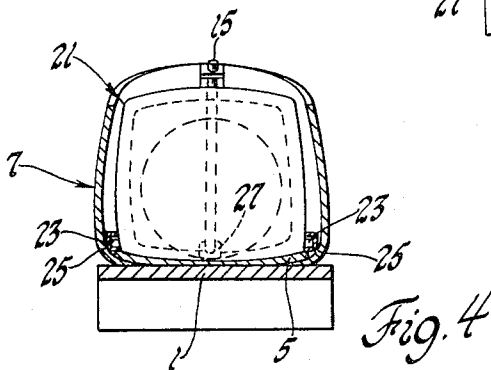
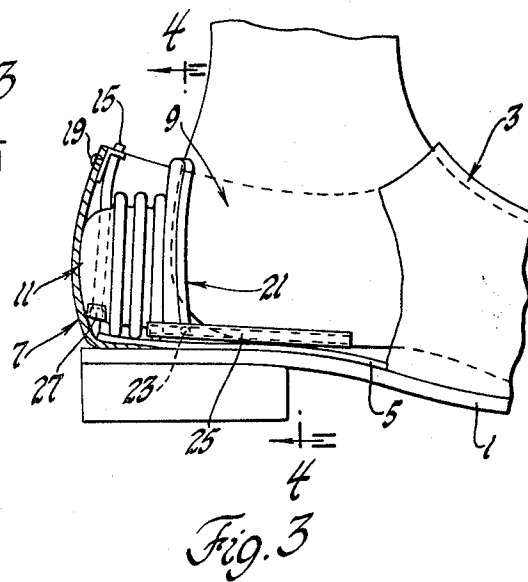
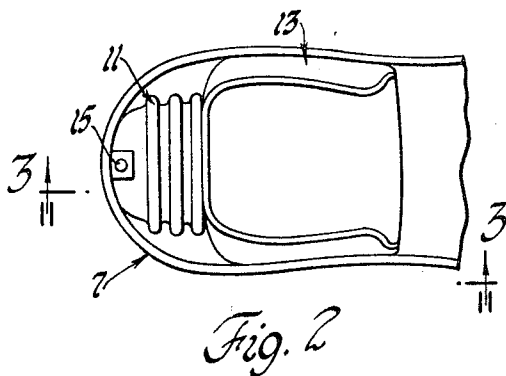
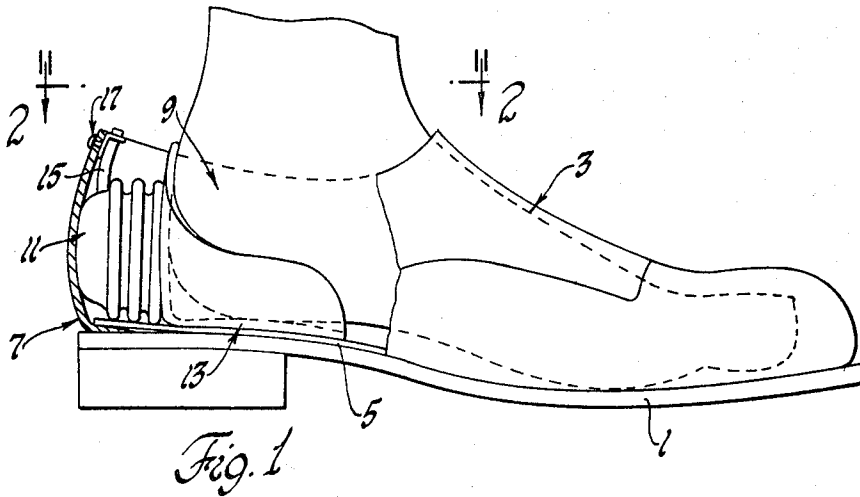
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SHOE WITH FIT ADJUSTMENT MEANS

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SHOE WITH FIT ADJUSTMENT MEANS

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4 Claims 5

ABSTRACT OF THE DISCLOSURE

Oversized boots and shoes are made to accommodate different foot sizes or growing feet by an invention comprising filling the empty space between the counter of the shoe and the wearer's heel with an expandable bellows.

This invention relates to foot coverings such as boots, shoes and the like. More particularly, it is concerned with providing boots and shoes with means to assure a tight and snug fit, said means comprising broadly an expandable bellows disposed in the counter area.

Background of the invention

It is a matter of common knowledge and experience that ill-fitting boots or shoes lead to disabling foot problems, especially blisters. Well known is the tendency in too large shoes to rub up and down against the heel at the counter area causing irritation, pain and in many cases infection. Often, the simple expedient of tightening laces in the boot or shoe will force the heel back against the counter and prevent rubbing. However this is not entirely satisfactory since in many cases where the shoes are even slightly oversized there is a tendency for the laces to work loose again during walking and it is necessary for the wearer frequently to relace them tightly. It will be recognized at once that even this largely unsatisfactory expedient is unavailable to infant wearers of laced boots and shoes, the said infants being too young to tie their own laces and to the wearer of boots and shoes such as the so-called loafers and pumps, which are not fitted with laces.

It is also desirable to provide boots, shoes and the like in a minimum number of sizes. The problem of supplying military needs for footwear should be noted, for example. Millions of pairs of shoes and boots are required for the use of the armed forces and, because there has not been up until now a satisfactory means to accommodate in one or two basic width-sizes of shoes a great variety of foot fittings, it is necessary to manufacture and inventory, then ship all over the world, shoes of many sizes. The economic advantage of stocking fewer shoe sizes in a minimum number of width-sizes is also evident for establishments which accommodate their patrons by furnishing, often at rental, special types of shoes such as bowling shoes, ski boots and the like.

Special mention is also made of the well known tendency for young children to find their shoes to be outgrown before they've had enough use to wear them out. Until now there has been no really satisfactory means to accommodate the fit of the same shoe to one whose foot size is changing so rapidly due to rapid growth, and it is customary wastefully to discard such outgrown footwear while there is substantial useful life remaining in it.

A primary object of the instant invention is to provide an improvement in boots and shoes which insures that the foot of the wearer is maintained in firm contact with the insole of the boot or shoe. A further object is to eliminate the need to tighten laces unduly and periodically. A further object is to provide improved fit in boots or shoes which are not even closed by laces at all, such as loafers and pumps. Still a further object is to provide

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shoes and boots of a given width-size designed to accommodate a variety of foot fittings, thus permitting a substantial decrease in the number which must be inventoried for military, sports rental, and like uses. Yet another object is to provide boots and shoes with integral means to accommodate any changes in the foot size of the wearer, especially that of a growing child.

Description of the invention

With these objects in view the invention consists, essentially, in providing a shoe having a sole and an upper with a means for preventing the wearer's foot from rising above the insole of said shoe during walking, said means comprising an expandable bellows disposed between the counter of said upper and the heel of said wearer's foot.

The invention consists also in certain details of construction and novelties of combination, all of which will be fully described hereinafter and pointed out in the claims.

The drawing forms a part of this specification and illustrates typical embodiments of the invention.

FIG. 1 is a view of a shoe constructed in accordance with this invention, partially in section to show a bellows and a human foot outlined therein.

FIG. 2 is a horizontal section on the line 2—2 of FIG. 1.

FIG. 3 shows a view through the rear portion of a shoe constructed in accordance with another embodiment of this invention partially in section to show a bellows and the rear portion of a human foot outlined therein.

FIG. 4 is a transverse section on the line 4—4 of FIG. 3.

Description of the preferred embodiments

In FIG. 1 is shown an embodiment which is as unlaced "loafer" or "slip-on" type shoe including a sole 1 and an upper 3. The upper conventionally is fabricated from stitched leather and the sole from polymeric material, leather and the like. Also visible is insole 5 which normally is fabricated from leather or polymer-coated woven or non-woven fabric and counter 7 which is the heel engaging and encircling portion of upper 3 and is conventionally constructed from the same materials. Disposed between the heel of the wearer's foot 9 and counter 7 is expandable bellows 11 and shown attached there to is a scoop-like member 13 shaped to accommodate and partially encircle the wearer's heel. Member 13 is seen to fit between wearer's heel 9 and insole 5. Also visible is valve conduit 15 communicating with the inside of bellows 11 and a riveted anchoring bracket 17 therefor attached to counter 7. FIG. 1 shows the general position assumed by the bellows and scoop-like member after inflation assuming that the wearer's heel is present. The bellows useful in this invention can be constructed of any material flexible enough for repeated expansion and contraction. Illustrative of useful materials are semi-rigid rubber and plastics or thin, tough metals. Polyolefinic plastics such as polyethylene are especially useful. It has been found that polyethylene, for example, when fabricated into a bellows has special advantages in lightness, lack of corrosivity, ease of deformation and restorative response (compared to metallic bellows) and will not tend to undergo ozonolysis degradation (compared to rubber). In use, the wearer's foot is placed in the shoe with his heel engaging scoop-like member 13. If inflation or pressurization is necessary because of the nature of the materials used to fabricate the bellows (as will be obvious, some bellows are naturally spring-like and need no inflation to expand), air is forced into valve conduit 15 either by a pump or from a pressure vessel or by similar obvious

means (not much pressure is required) until the bellows expands and forces the wearer's instep snugly against the vamp or instep of the shoe. Of course, as would be obvious, so much pressure as to cause an adverse effect on the circulation is not employed—merely enough is used to insure that the wearer's foot is prevented from rising above the insole of said shoe or boot during walking or similar activities such as skating, skiing and the like. When it is desired to remove the shoe, the pressure is released by venting valve conduit 15 and the foot is lifted out.

An especially important advantage of the embodiment shown in FIG. 1 is the facility to change easily from one set of shoes to another merely by removing the bellows-heel piece combination as a unit and fitting it into the alternate shoe.

In FIG. 3 is shown an embodiment which is a shoe with a bellows adapted to slide back and forth in slots fixed to the sides of the shoe heel area. In this embodiment, bellows 11 terminates at its toeward end in a moveable heel-receiving member 21 which can be fabricated from leather, plastic, metal or similar semi-rigid materials. As is shown in FIG. 4, heel-receiving member 21 is provided with a plurality of slot-engaging fingers 23 and on both sides of the heel of upper 3 there are fixed slot-like tracks 25 which accommodate fingers 23. The fingers 23 thus are projecting pieces brought into contact with slots 25 with an object to effect, direct and channel the motion of heel-receiving member 21 only toward the toe (toewardly) and toward the heel (heelwardly) in this embodiment. This embodiment as shown also includes a valve conduit 15, and optional fastening means 19 therefor, which terminates in an internal air valve means 27, seated in the bottom of bellows 11. Slots 25 can be fabricated as metallic tracks, or they can be cut into the shoe heel material or can be constructed in any obviously equivalent manner. If tracks are used, it is preferred to terminate their heelward ends somewhat short of counter 7 so that the bellows can be removed, if desired, by compression until the fingers clear the track then lifting the bellows out.

Sturdy constructions within the scope of this invention are provided if the bellows in both the embodiments in FIG. 1 and in FIG. 3 optionally are anchored at their rearward extreme to the counters of said shoes. This can be done by cementing, stitching, riveting or the like, depending on the materials of construction. If a removable fastener, such as a threaded nut and bolt arrangement is used to anchor the bellows, the advantages of sturdier construction and transferability from the shoe to another are combined.

The term "shoe" when used herein and in the appended claims is to be interpreted in its broadest and most classical sense. "Shoe" thus includes within its scope the familiar low shoes, such as oxfords, as well as high shoes, often commonly called boots.

The high top shoes (used in the sense of ankle high, not knee high) use a lead-in hose for ease of inflation. In one

such embodiment, a military boot, the space in the back of the boot above the bellows is used to carry extra dry socks in moisture tight containers, said socks being very useful to prevent any tendency to chafe, due to flapping. In addition, the higher shoes can be fitted with a foam rubber quarter-moon-accommodation-collar attached at the top of the rear of the boot and extending about one-third of the circumference of the top port. To aid in ventilation of the boot, a plurality of holes can be provided communicating downwardly through the said collar into the boot.

It will be understood that there may be various other possible embodiments of the invention, and that the invention should not be limited to the specific constructions herein shown or described except to the extent which may be required by the scope of the appended claims.

I claim:

1. In a shoe having a sole and an upper, means for preventing the wearer's foot from rising above the insole of said shoe during walking, said means comprising a valve-vented, closed, expandable bellows extending from the back of the counter portion of the upper and wherein said bellows means terminates in a scoop-like member adapted to engage the wearer's heel.

2. A device according to claim 1 wherein said bellows means is anchored to the counter of said shoe.

3. In a shoe having a sole and an upper, means for preventing the wearer's foot from rising above the insole of said shoe during walking, said means comprising a valve-vented, closed, expandable bellows extending from the back of the counter portion of said upper and wherein

(a) the bellows terminates at its toeward end in a movable heel receiving member, said member including a plurality of slot-engaging fingers and wherein

(b) the upper includes a plurality of finger-accommodating slots disposed on both sides of the heel of said upper, said heel receiving member being engaged in said slots and movable toewardly therein.

4. A device according to claim 3 wherein said bellows is anchored to the counter of said shoe.

References Cited

UNITED STATES PATENTS

1,282,584	10/1918	Hunter	36—58.5
1,954,122	4/1934	Fiori	36—71
2,774,152	12/1956	Alber	36—71
3,258,862	7/1966	Minor et al.	36—58.5

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US. Cl. X.R.

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