Dec. 22, 1931. G. W. BLAIR 1,837,518

SHOE

Filed Aug. 11, 1924

Fig. 1.

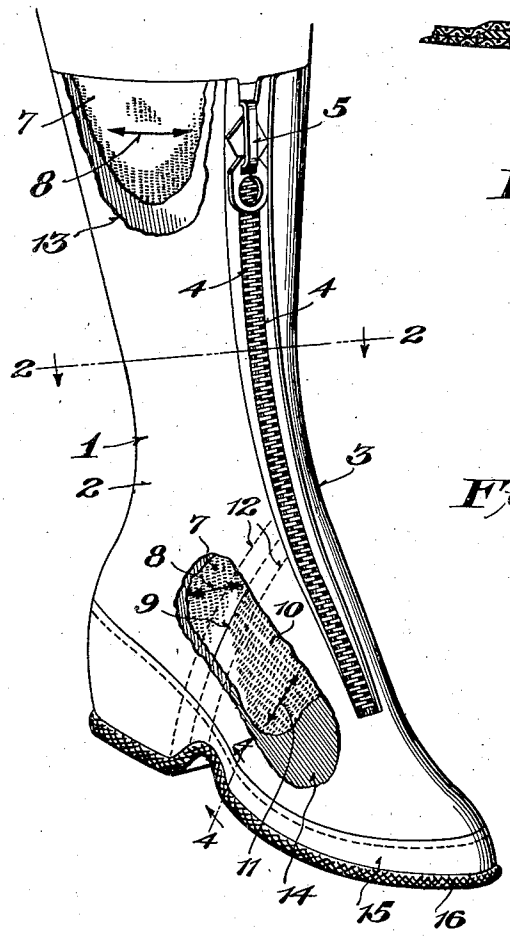


Fig. 3.

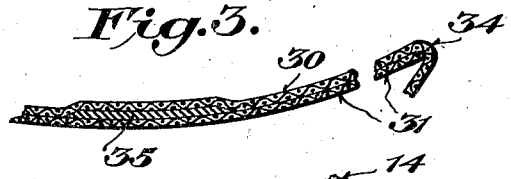


Fig. 4.

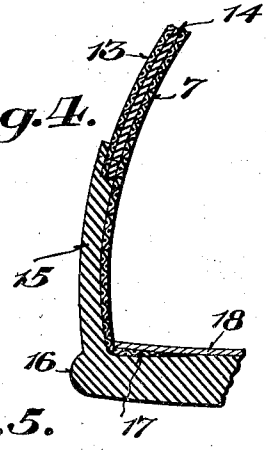


Fig. 5.

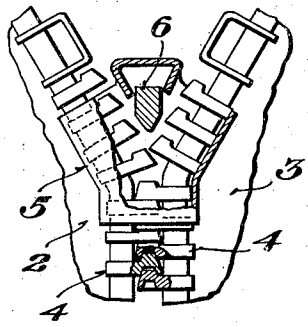
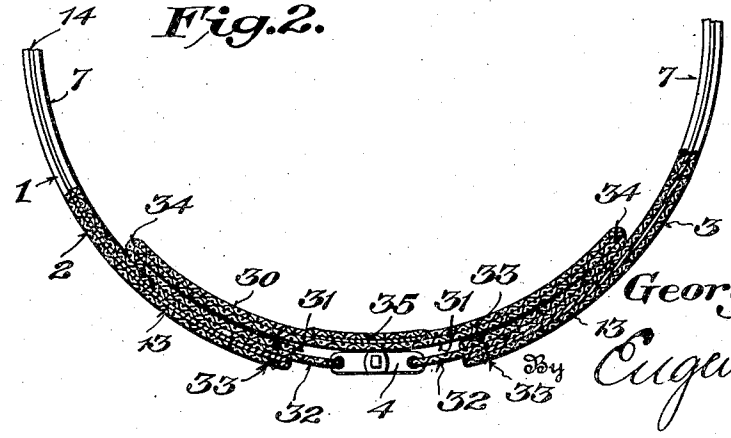


Fig. 2.



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UNITED STATES PATENT OFFICE

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SHOE

Application filed August 11, 1924. Serial No. 731,262.

My invention has reference more particularly to a shoe, with a non-adjustable quick operating fastener, wherein the upper or a portion thereof is expansible to insure a proper fit, and also includes provision for facilitating the operation of the slider or operating member of the quick operating fastener, it being understood that I use the term "shoe" in a broad sense to include not only what are commonly called shoes but also overshoes, boots and the like.

Shoes and particularly overshoes have been made heretofore with a quick operating fastener consisting of a series of fastener elements on the forward edges of the two sides of the upper which are adapted to be interlocked and released by movement of a cam slide therealong. Such a fastening, while desirable because of its convenience and saving of time in applying and removing the shoe, has the disadvantage that it is not adjustable to vary the size of the upper, and shoes or overshoes utilizing this fastener often times do not fit properly.

With my invention I overcome this disadvantage by constructing the portion of the shoe along the instep, ankle and leg with elastic or extensible material which is arranged to afford elastic expansion of the upper part of the shoe so that it will fit insteps, ankles and legs of various sizes, and compensate for heels of different heights.

Moreover, in cases where the shoe or overshoe fits somewhat snugly over the instep and around the leg, as it does in my present construction, the cam slide operates in close contact with the tongue which is usually provided under the fastening, and in my invention I have further constructed the tongue so as to avoid any irregularity in the surface of the tongue which would impede the operation of the slider.

The principal objects of my invention are to provide a shoe with a quick operating fastener which is adapted to fit legs and insteps of various sizes; to form the upper portion of the shoe with elastic material properly located to permit enlargement or expansion over the instep and around the ankle and leg, to apply the lining in a relaxed condition so that it is highly extensible in the completed shoe and does not restrict enlargement of the upper; to arrange the lining so that it is particularly capable of stretching over the instep as well as around the leg; to provide a foxing around the lower edge of the upper which affords additional elasticity; to construct the tongue or flap under the slider so that it will maintain a smooth surface over which the slider operates; to reinforce the tongue or flap so that it remains extended and does not readily crease or fold along the line of operation of the slider; and in general, to provide an improved shoe structure with a quick operating fastener which is adapted to fit legs, ankles and insteps of different sizes and also compensates for heels of different heights and wherein the objections and disadvantages present in shoes of this character now on the market are avoided.

On the drawings:

Fig. 1 is a perspective view of an overshoe, in the closed position, embodying my improvements and with portions broken away to disclose details of construction;

Fig. 2 an enlarged sectional view, taken substantially on the line 2—2 of Fig. 1;

Fig. 3 an enlarged fragmentary detail view of the bellows tongue shown in Fig. 2;

Fig. 4 a fragmentary sectional view substantially on the line 4—4 of Fig. 1, showing the construction of the foxing; and

Fig. 5 a detail view, partly in section of portions of the interlocking members and the cam slider for interlocking and releasing same.

Referring to the drawings in which I have shown my invention applied to an overshoe, although it is to be understood that the invention is not limited thereto, the reference numeral 1 indicates the upper, which is divided down the front to form separable side portions 2 and 3, each of which has a series of fastener elements 4 along the forward edge, which are adapted to be interlocked and released by a cam slide 5, which is flared at the upper end and provided with a tapered spreader 6 extending from front to back, so as to form divergent channels or guides for progressively drawing together and interlock-

ing the opposed series of elements 4 or releasing and separating same as the slider is moved up and down the front of the shoe.

This type of fastener however, is not adjustable to vary the size of the upper part of the overshoe, and it frequently occurs that shoes employing this type of fastener do not fit properly over the instep and around the leg and ankle. This is not only due to the fact that the size of the leg, ankle and instep of persons having the same size foot varies greatly, but also on account of heels of shoes being made of various heights so that the leg, ankle and instep is raised more or less in the overshoe. Consequently, even though the overshoe may fit a person properly when wearing a shoe with a certain style of heel, it will not fit with a shoe having a heel of different height. This lack of fit results in some cases in the overshoe being entirely too loose for comfort and neat appearance, and in other cases too tight, and in the latter case not only imposes an excessive strain on the overshoe but seriously interferes with or prevents the operation of the slider for opening and closing the overshoe. To avoid this objectionable feature, I have made the upper portion of the shoe with elastic material suitably arranged to permit expansion of the portion of the upper over the instep and around the leg, and thus cause the shoe to fit properly over insteps and around legs of various sizes, and with heels of different heights.

This result may be accomplished in various ways, for example as shown in Figs. 1 and 2, by constructing the upper of the shoe in a manner so that it is freely extensible. In overshoes, it is customary to form the upper of a facing and a lining with a coating of suitable material on the inner and outer surfaces respectively thereof which serves to secure the facing and lining together and form a thin sheet of waterproofing therebetween. Heretofore in assembling the upper, the lining and facing have been stretched around the last and secured together while stretched and without regard to the arrangement thereof to afford expansibility, with the result that in the completed article there is very little if any stretching capability which will permit the overshoe to shape itself to accommodate legs, ankles and insteps of different sizes and compensate for heels of different heights.

In my construction I place the lining 7 around the last, merely stretching same sufficiently so that it fits smoothly and leaving it capable of stretching to a considerable further extent. The lining consists of a fabric, usually knitted so that it stretches very little in the direction of its length, but is quite extensible transversely, and I arrange the lining which constitutes the main portion of the two sections so that the lesser degree of stretching is in the up and down direction, while the greater degree of stretching is in a direction around the upper as indicated by the arrows 8 in Fig. 1, so as to make the upper capable of circumferential enlargement. Moreover, the lining constituting the main portion of the two sections is not continued along the instep but is terminated at both sides of the shoe approximately along the line 9, and the lining of the instep and toe portion of the shoe is formed of a separate piece 10 which is arranged so that the lesser degree of stretching is from front to back, while the greater degree is in a direction across and over the instep as indicated by the arrow at 11 in Fig. 1. The juncture line of the two parts 7 and 10 of the lining may be lapped or covered by a tape as indicated by the dotted lines at 12, and this tape is of extensible material and arranged similarly to the part 10 so that it is capable of stretching in substantially the direction indicated by the arrow 11.

The facing 13, which is likewise a rather extensible material, usually knitted so that it stretches quite readily crosswise, is preferably made of one piece laid over the toe and drawn over the last so that at all points it stretches most readily in a direction crosswise of the line of opening down the front of the shoe, that is, in the direction indicated by the arrow 11 over the instep and in the direction indicated by the arrows 8 around the upper, the goods being swung somewhat out of line to accomplish this result. This facing however, is laid over the last without stretching to any greater extent than is necessary to properly shape same and cause it to lay smoothly, to the end that the facing like the lining in the completed shoe, is capable of stretching to a considerable extent.

The facing and lining are provided with a coating on the inner and outer surfaces respectively and secured together by means of this coating or otherwise combined so as to provide a thin layer 14 of rubber or other suitable material which serves as a waterproofing, and preferably has special elastic properties. When using rubber for this purpose, it is of a special compound in which very little mineral pigment is used so that the rubber itself not only has ample elasticity to permit required stretching of the upper so as to permit enlargement of the leg, ankle and instep portions as may be required to fit legs, ankles and insteps of various sizes, but also has better aging qualities.

The portion of the upper over the instep usualy requires a greater degree of extensibility than the rest of the upper, in view of the fact that variations in the height of the heels of the shoes over which the overshoe is worn, materially changes the elevation of the instep and in order to obtain additional extensibility at this point the foxing 15 around the lower edge of the upper is made elastic. Heretofore it has been the practice to use a non-elastic

friction strip around the shoe between the lower edge of the facing and the sole and cover same with a thin coating of rubber so that there was practically no stretch to the foxing. In my construction this friction strip is omitted as shown in Fig. 4, and a rather heavy layer 15 of rubber or other material which is quite elastic, is interposed between the lower edge of the facing 13 and the sole 16 directly over the lining, and as the lining 10 which extends over the instep and is brought down and turned in as at 17 between the outer sole 16 and inner sole 18 stretches readily in the direction of the arrow 11, the foxing is likewise extensible in the proper direction to afford additional enlargement over the instep.

In overshoes of this character it is customary to provide a flap on the inside of the overshoe extending from the upper to the lower end of the opening between the separable side portions of the overshoe, this flap being preferably in the form of a bellows tongue 30, which is folded back along each side, as at 34, and has the forward edges secured respectively to the forward edges of the side portions 2 and 3 of the overshoe. The fasteners 4 in practice are attached to tapes 32 which are cemented or otherwise secured to the inner faces of the forward edges of the side portions 2 and 3, and the forward edges of the inturned portions 31 of the bellows tongue 30 are preferably secured directly to the inner faces of the respective tapes 32 as indicated at 33 in Fig. 2, and the lining 7 being preferably terminated adjacent the inner edges of the tape and back of the point of connection of the edges of the side portions 31 of the tongue with the tape.

In view of the fact that with an elastic structure such as I have hereto described, the overshoe fits snugly over the instep and around the leg, the slider 5 operates in close contact with the outer surface of the tongue 30, and it follows that wrinkling or folding of the tongue is likely to interfere with the proper operation of the slider. To avoid such interference and insure a smooth surface along which the slider may operate, the tongue 30 is preferably formed with a strip of reinforcing which extends from end to end of the tongue midway between the side folds 34 so as to be positioned directly under the path of movement of the slider 5. This reinforcing may be applied in any manner, as for example, by inserting a strip of rubber or other stiffening material 35, having sufficient flexibility so as not to interfere with the proper functioning of the tongue, between two layers of fabric of which the tongue is composed. This strip of reinforcing material 35, it will be observed, serves to hold the tongue sufficiently extended so as to avoid any folding or creasing of the tongue along the line of movement of the slider, and insures a smooth surface over which the slider may operate. This strip of reinforcing material may be of any suitable width and may, if desired, be extended out to the folds 34 so that the entire portion of the tongue between the side flaps is reinforced or stiffened.

While I have shown and described my invention in a preferred form, I am aware that various changes and modifications may be made without departing from the principles of my invention, the scope of which is to be determined by the appended claims.

I claim as my invention:

1. The combination of a shoe divided down the front to afford separable side portions, the latter having a non-adjustable connection comprising a series of locking elements on the opposed edges thereof and adapted to be interlocked and released by moving a cam member therealong, said side portions composing a continuous covering of elastic material extending from one series of locking elements around the leg to the other series of locking elements, said covering being highly extensible around the shoe transversely thereof.

2. The combination of a shoe divided down the front to afford separable side portions, the latter having series of locking elements on the opposed edges thereof and adapted to be interlocked and released by moving a cam member therealong, said side portions comprising a knitted fabric arranged to stretch to the greatest extent along lines substantially at right angles to the line of division down the front of the shoe and extending continuously from one series of locking elements around the leg to the other series of locking elements.

3. The combination of a shoe divided down the front to afford separable side portions, the latter having series of locking elements on the opposed edges thereof and adapted to be interlocked and released by moving a cam member therealong, said side portions consisting of inner and outer layers of knitted fabric with an interposed elastic material and wherein the said inner and outer fabrics are arranged to stretch to the greatest extent along lines substantially at right angles to the line of division down the front of the shoe, said layers of knitted fabric and the interposed elastic material being continuous around the leg from one series of locking elements to the other series of locking elements.

4. The combination of a shoe divided down the front to afford separable side portions, the latter having series of locking elements on the opposed edges thereof and adapted to be interlocked and released by moving a cam member therealong, said side portions being elastically expansible around the leg and over the instep and comprising a correspondingly expansible one piece outer covering of facing material over the toe, vamp and around the leg portion of the shoe.

5. In a shoe, the combination of an upper with separable portions and consisting of inner and outer substantially unstretched layers of extensible fabric with a layer of elastic material interposed therebetween to afford a circumferentially expansible upper, and a quick operating fastener for connecting the separable portions of the upper, said fastener comprising a series of interlocking elements on the edges of said portions, and a sliding member for interlocking and releasing same.

6. In a shoe, the combination of an upper having separable portions and composed of an extensible facing and an extensible lining secured together in a substantially unstretched condition, and a quick operating fastener for connecting the separable portions of the upper, said fastener comprising a series of interlocking elements on the edges of said portions, and a sliding member for interlocking and releasing same, said sliding member comprising a cam which serves to gradually stretch the elastic upper over the instep and around the leg.

7. In a shoe, the combination of an upper comprising a facing and a lining, the facing being extensible to permit enlargement of the upper around the leg and ankle and over the instep, and the lining comprising a main portion and a front portion, the former of which extends around the back of the shoe and up and down the leg portion thereof and is extensible circumferentially around the upper, and the front portion of which is arranged at an angle to the main portion of the lining and is extensible across and over the instep, said shoe being divided down the front and having an opposed series of fastener elements on the edges of the divided portions adapted to be interlocked and released by movement of a cam member therealong.

8. In a shoe, the combination of an upper and a sole and a foxing interposed between the upper and the sole, said foxing comprising elastic material adapted to yield in a direction to permit raising and lowering of the instep portion of the upper, and a correspondingly extensible lining secured to the inside of the foxing, said shoe being divided down the front and having an opposed series of fastener elements on the edges of the divided portions adapted to be interlocked and released by movement of a cam member therealong.

9. In a shoe, the combination of an upper comprising elastic material adapted to expand circumferentially around the upper and to expand across and over the instep, a sole, and a foxing of elastic material interposed between the upper and sole and adapted to expand in a direction to augment the expansion of the portion of the upper over the instep, said shoe being divided down the front and having an opposed series of fastener elements on the edges of the divided portions adapted to be interlocked and released by movement of a cam member therealong.

10. In a shoe, the combination of a highly elastic upper with separable portions, a quick operating fastener comprising a series of interlocking elements on the adjoining edges of said portions and a sliding member for interlocking and releasing the same, and a flap inside the shoe having a reinforcing member extending lengthwise thereof under the meeting edges of the separable portions of the upper to form a bearing surface for the sliding member, said flap being secured along at least one lateral edge to the upper so as to locate the said reinforcing member under the path of the said sliding member.

11. In a shoe, the combination of a highly elastic upper with separable portions, a quick operating fastener for connecting said portions comprising a series of interlocking elements on the adjoining edges of said portions and a sliding member for interlocking and releasing same, and a bellows tongue in the shoe having portions at each side folded inwardly over the front and secured to the edges of the separable portions and having the intermediate portion of the tongue between the side folds thickened so as to stiffen the portion of the tongue between the folded side portions and afford a smooth surface along which the sliding member operates.

12. In a shoe, the combination of an upper with separable side portions, a tape secured to the inner face of each of said portions adjacent the edge thereof, a series of interlocking elements on each tape, a sliding member for interlocking and releasing the same, a bellows tongue in the shoe having a portion at each side folded forwardly thereover, with the forward edges thereof extending over and secured to the inner surface of the corresponding tape, and a lining extending around the interior of and secured to the inner surface of the upper and terminating at the rear of the overlapped and connected portions of the upper, tape and bellows tongue.

13. An overshoe of highly flexible, appreciably elastic and substantially waterproof construction and having its upper formed with an expansion opening, a tongue underlying the opening and attached to the upper, and means for effecting a continuous, flat, edge-to-edge union of the margins of the upper at the expansion opening, the said means comprising a row of interlocking elements secured at each margin of the opening to the upper and a cam slide engaging the elements of both rows and movable longitudinally thereon to lock and to unlock said elements, said upper being composed of stretchy, fabric assembled in a substantially

unstretched condition with a layer of rubber composition and arranged to stretch freely along lines transverse to the expansion opening.

14. In a shoe the combination of a close fitting upper having separable elastic portions, series of interlocking elements along the opposed edges of said separable portions, a member in the shoe with a portion thereof adapted to be positioned at the meeting edges of the separable portions and reinforced there along, and a cam member operable along the aforesaid series of elements and bearing against the reinforced portion of said first mentioned member to stretch the separable elastic portions of the upper and progressively interlock the opposed series of elements.

15. In a shoe the combination of a close fitting upper having separable elastic portions, series of interlocking elements along the opposed edges of said separable portions, a tongue in the shoe with a portion thereof adapted to be positioned at the meeting edges of the separable portions and said tongue having an elongated strip of reinforcing incorporated therewith along said meeting edges, and a cam member slidable along said strip of reinforcing to stretch the said separable elastic portions of the upper and progressively interlock the opposed series of elements.

16. In a shoe the combination of a close fitting upper having separable elastic portions, a series of interlocking elements on the opposed edges of said separable portions, a tongue in the shoe having a facing and a lining with an elongated feather edged strip of flexible reinforcing interposed between said facing and lining and adapted to be positioned at the meeting edges of the separable portions of the upper, and a cam member operable over said elongated strip of reinforcing to progressively interlock the opposed series of elements.

17. In a shoe the combination of a close fitting upper with separable portions having a lining of stretchy fabric assembled in a substantially unstretched condition with a layer of rubber composition thereover so as to have appreciable elasticity along lines transverse to the line of separation of the aforesaid separable portions of the upper, a quick-operating fastener for connecting the separable portions of the upper, said fastener comprising a series of interlocking elements on each of said portions with a cam member operable therealong for interlocking and releasing same, and a member in the shoe positioned at the meeting edges of the separable portions of the upper and over which the said cam member operates.

18. The combination of a shoe having an upper divided down the front into separable portions, and a non-adjustable connection therefor comprising a series of fasteners on each portion which interlock with the series of fasteners on the other portion, said upper being composed of layers of fabric and rubber composition extending therearound and both highly extensible transverse to the front opening and affording a substantial amount of enlargement of the upper.

19. The combination of a shoe having an upper divided down the front into separable portions, and a non-adjustable connection therefor comprising a series of fasteners on each portion which interlock with the series of fasteners on the other portion, said upper being composed of layers of highly stretchy fabric and highly elastic rubber composition extending therearound and vulcanized together with the fabric in a substantially unstretched condition so as to permit stretching of the upper to substantially larger sizes.

20. A combined stocking protector and overshoe comprising a foot fitting portion, an attached ankle encircling portion, the major part of which is of light weight elastic material and having a longitudinal slit, and a plurality of closely spaced fastener elements along each side of said slit, the fastener elements on one side interlocking with the elements on the other whereby, when closed, the edges of the slit are adjacent and the ankle encircling portion is stretched to effect the desired fit.

21. The combination of a shoe having a rubber composition sole and an upper of highly flexible appreciably elastic and substantially waterproof construction, extended down to the sole, said upper being formed with an expansion opening and a tongue in the shoe at said opening, a non-adjustable connection for the side edges of said opening comprising a series of interlocking elements along each edge of the expansion opening and a cam member operable along the series of interlocking elements and over the tongue to progressively lock and unlock said elements, said upper being highly extensible around the shoe transversely thereof.

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