United States Patent

Lown

[15] **3,705,463**

[45] **Dec. 12, 1972**

[54] CONSTRUCTION FOR SHOE, SLIPPER OR THE LIKE

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[73] Assignee: **Northeast Shoe Company**, Pittsfield, Maine

[22] Filed: **Dec. 30, 1969**

[21] Appl. No.: **889,074**

[52] **U.S. Cl.** **36/25**, 36/43, 36/46.5

[51] **Int. Cl.**.....**A43b 13/00**, A43b 23/00

[58] **Field of Search**.....36/46.5, 45, 2.5 R, 43, 19, 36/19.5, 28, 47, 25

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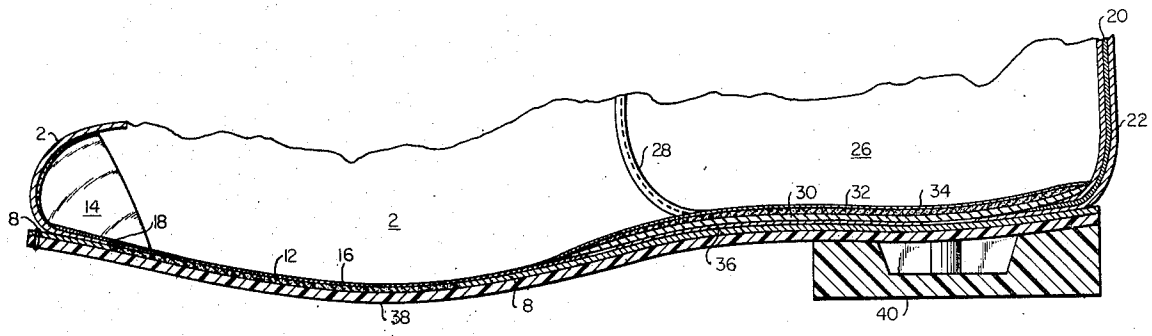
Primary Examiner—H. Hampton Hunter

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[57] **ABSTRACT**

An improved shoe having a front upper provided with a pair of opposing side edges which are turned under, and flexible elastic bridging means joining the side edges to each other underneath the upper. A rear upper member is secured adjacent its forward edge to the rear portion of the front upper. A midsole member is secured to the front upper and to the rear upper member and has recess means for positioning therein cushion means of a relatively soft compressible material. A rigid toe insert member is secured to the front upper forwardly of the bridging means and a rigid heel insert member is secured to the front upper rearwardly of the bridging means and to the rear upper member. Outersole and heel members are secured to the midsole member, and the cushion means underlies the bridging means and is adhesively secured thereto.

4 Claims, 19 Drawing Figures



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SHEET 1 OF 3

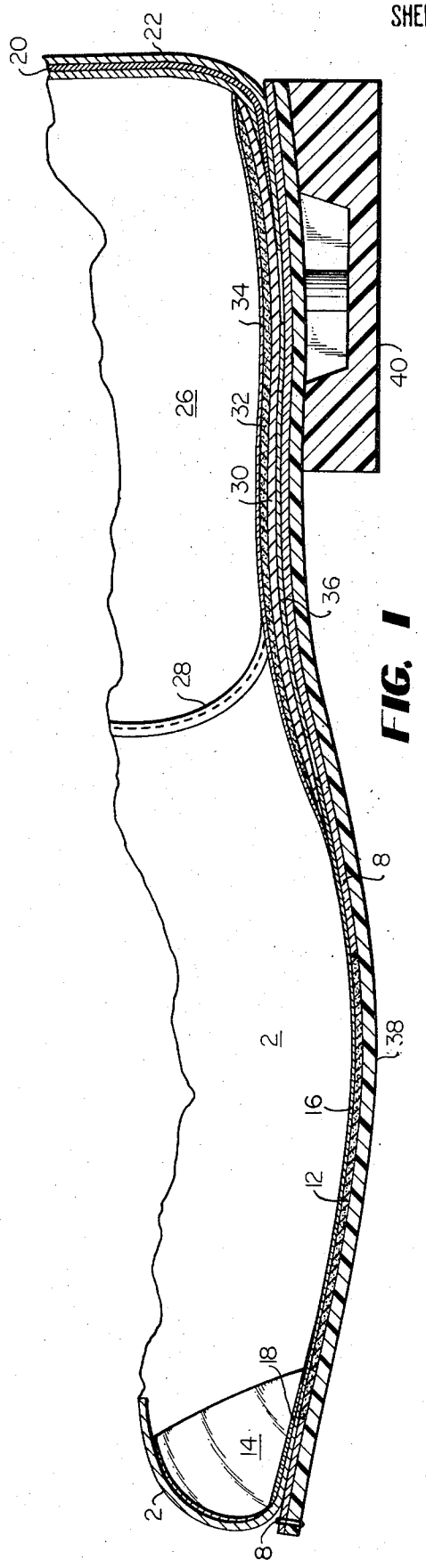


FIG. 1

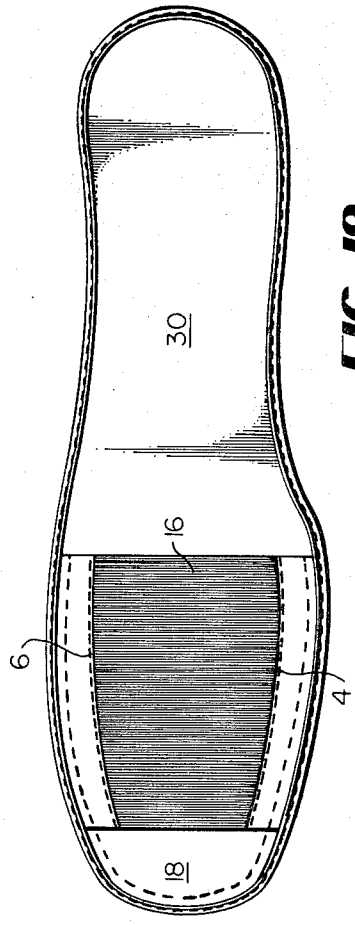


FIG. 19

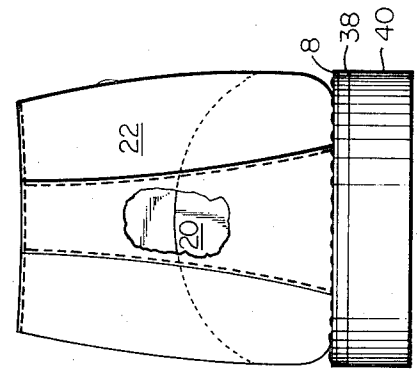


FIG. 18

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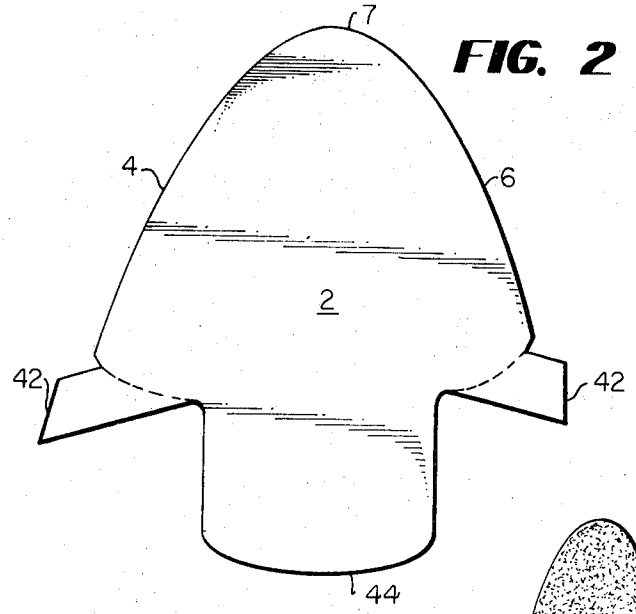


FIG. 2

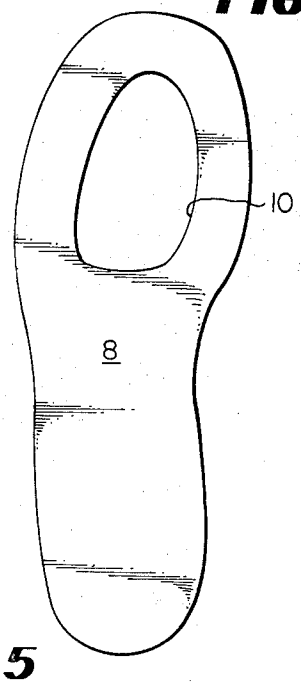


FIG. 3

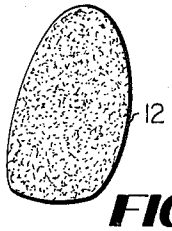


FIG. 5

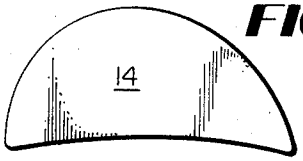


FIG. 4

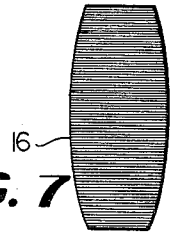


FIG. 7

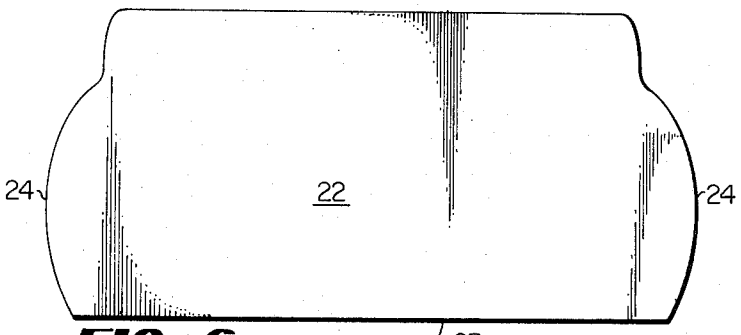


FIG. 6

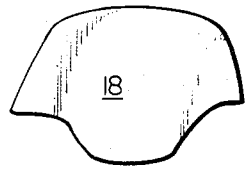
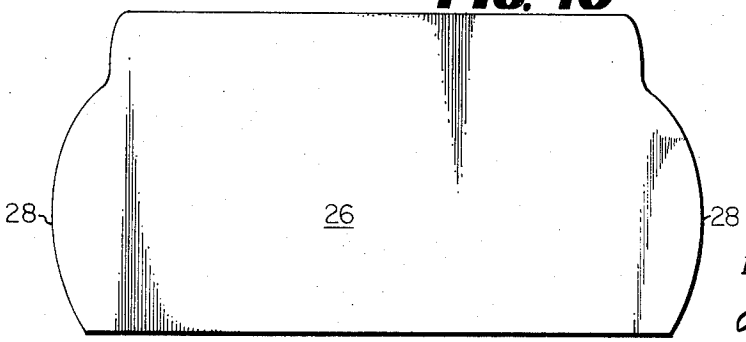


FIG. 8

FIG. 10



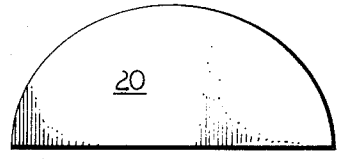


FIG. 9

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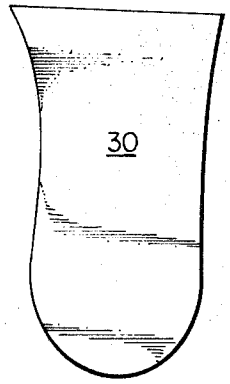


FIG. 11

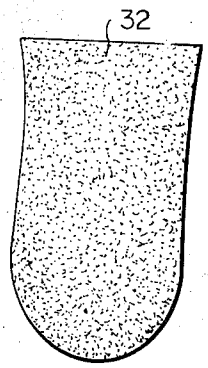


FIG. 12

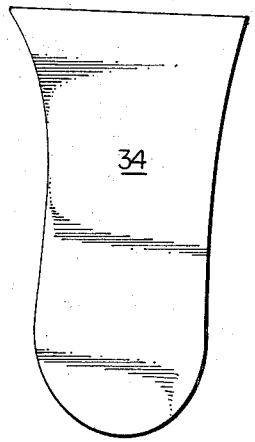


FIG. 13



FIG. 14

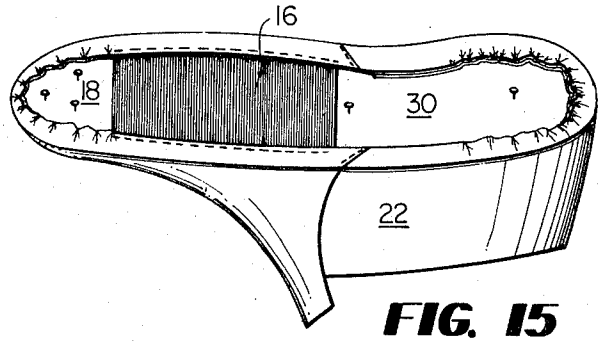


FIG. 15

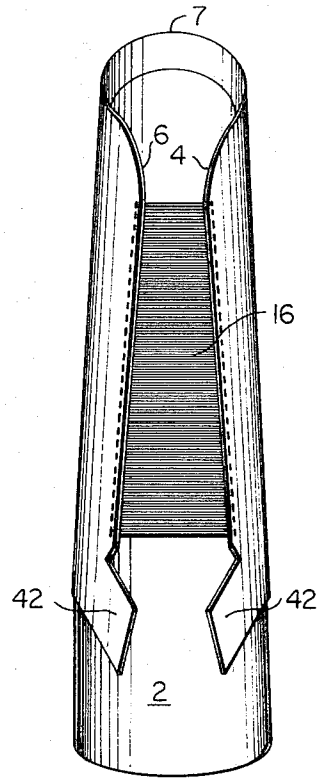


FIG. 17

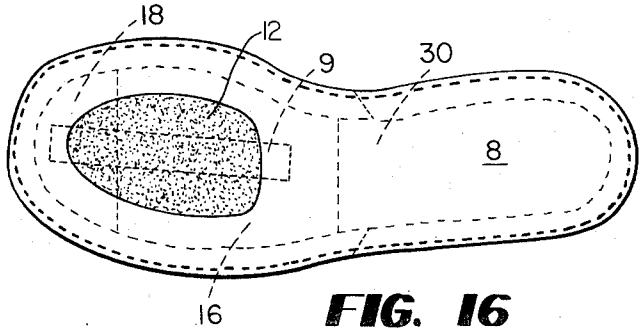


FIG. 16

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CONSTRUCTION FOR SHOE, SLIPPER OR THE LIKE

BACKGROUND

This invention relates generally to a shoe construction, and particularly to a shoe or the like having a cushioned midsole and a flexible upper.

Conventionally, shoes of known construction are manufactured by turning under the side edges of an upper and securing these edges along the side edges of an innersole. The upper and innersole are then placed on a shoe last and joined to a midsole by cementing or the like, the last shaping the soles and upper to their desired finished shape to conform with the shape of the human foot, as is well known in the art. Following this step, the assembled innersole and midsole are removed from the last and stitched together and the shoe is then finished by sewing sock linings within the shoe and an outer sole and heel to the midsole by cementing and/or stitching, usually a combination of both.

Inasmuch as the innersole of the above described construction is generally formed of a single rigid piece of material such as leather or the like, the assembled midsole and innersole of known shoe constructions are not free to yield to conform to flexing movements of the foot, except to a highly limited degree.

SUMMARY OF THE INVENTION

With the above background in mind, it is an object of this invention to provide a novel shoe construction in which the upper and midsole have flexible portions incorporated therein to permit flexing to conform with movements of the foot.

It is a further object of the invention to provide such a shoe construction which eliminates the convention one-piece innersole and substitutes therefor small forward and rearward rigid inserts.

It is yet a further object of the invention to provide such a shoe construction, as well as a method of forming the same, which can be utilized in conjunction with conventional shoe lasts, and existing shoe uppers and midsoles with but a single modification to said uppers and midsoles.

It is still a further object of the invention to provide such a shoe construction wherein a single stock upper can be used in any case of a range of shoe sizes.

These as well as other objects which will become apparent as the description of the invention proceeds, are implemented by the instant invention which is characterized by the provision of a shoe construction comprising an upper having its side edges turned under and joined to each other by an elastic gore section, small toe and heel rigid insert members, and a midsole having a cutout portion removed from the forepart thereof and replaced by a pad-like cushion insert member of a soft compressible material such as foam rubber. The rigid insert members are sewed and/or otherwise secured temporarily to a conventional last, and the upper is then placed upon the last with the elastic gore piece extending between and somewhat overlapping the toe and heel inserts. The midsole is adhesively secured to the upper, with the pad-like cushion insert underlying and adhesively secured to the elastic gore piece.

After the adhesive has set, the assembled midsole and upper are removed from the last and retain their lasted shape due to the rigidity of the toe and heel inserts and the comparative rigidity of the midsole. The midsole is then stitched to the rigid inserts and the upper, and the shoe is finished in known manner by attaching thereto sock linings and an outersole and heel.

The invention itself will be better understood and additional advantageous features thereof will be appreciated from the following detailed description of a preferred embodiment of the invention, such description referring to the accompanying sheets of drawing, wherein:

BRIEF DESCRIPTION OF THE DRAWING

FIG. **1** is a vertical section view of the finished shoe of this invention taken generally along the longitudinal axis thereof;

FIG. **2** is a plan view of the blank used to form the upper;

FIG. **3** is a plan view of the blank used to form the midsole;

FIG. **4** is a plan view of the blank forming the toe and sock liner portion;

FIG. **5** is a plan view of the pad-like cushion insert member for the midsole;

FIG. **6** is a plan view of the blank used to form the rear upper member;

FIG. **7** is a plan view of the elastic gore insert for the upper;

FIG. **8** is a plan view of the toe rigid insert member;

FIG. **9** is a plan view of the heel reinforcing member;

FIG. **10** is a plan view of the blank used to form the rear upper liner member;

FIG. **11** is a plan view of the rear rigid insert member;

FIG. **12** is a plan view of the pad-like cushion member used in the heel;

FIG. **13** is a plan view of the heel sock liner;

FIG. **14** is a plan view of the shank stiffener;

FIG. **15** is a perspective view showing the partially assembled upper in position on a last, with the toe and heel rigid insert members secured thereto;

FIG. **16** is a bottom plan view of the partially assembled upper and midsole, with the vertically extending portions of the upper removed for clairty, showing the pad-like cushion insert in place in the midsole;

FIG. **17** is a bottom view of the upper showing its side edges folded under and the elastic gore section attached therebetween;

FIG. **18** is a rear elevational view of the finished shoe partially broken away to show the heel reinforcing member; and

FIG. **19** is a top plan view of the partially assembled upper and midsole, corresponding to FIG. **16**, showing the elastic gore section and showing the toe and rear rigid insert members.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to FIG. **1**, a shoe is shown constructed according to the present invention comprising an upper **2**, a midsole **8**, a rear upper member **22** having a liner **26** therein, and an outer sole and heel **40**. As shown more clearly in FIG. **2**, the upper **2** has a pair of opposing side edges **4** and **6** which are generally arcuate in configuration and extend forwardly to meet each other in a continuously smooth arc at the forward edge **7** of the upper. The rear central portion of the upper **2** has a

rearwardly extending tab **44** forming a tongue, as is conventional. The upper **2** may also have adjacent to the rearward ends of side edges **4** and **6**, and extending outwardly to either side therefrom, wing tabs **42**, although these are not essential to the invention and may be omitted if desired, as shown in the dotted lines. The side edges **4** and **6** of the upper are turned downwardly and under the upper, as shown in FIG. **17**, and are joined to each other by means of flexible bridging means in the form of an elastic gore piece **16**, shown in FIG. **7**, which is stitched or otherwise secured along its opposing side edges to the side edges **4** and **6** of the upper **2**. The rear upper member **22** is shown in FIG. **6**, having a main body portion and end tab portions **24** extending outwardly from the opposite ends of rear upper member **22**, and a substantially straight lower edge **23**. The rear upper member **22** is turned forwardly upon itself, as perhaps best seen in FIG. **15**, and the end tab portions **24** thereof are secured to the rear edges of upper member **2** adjacent the rear thereof, as is known in two-piece upper construction.

A midsole member **8** is shown in FIG. **3**, having an outer contour corresponding generally to the desired finished contour of the shoe sole. This midsole member **8** has a recess or cutout portion **10** removed from the forward portion thereof, and a pad-like cushion insert member **12** is inserted therein. The pad-like cushion member **12** is preferably of a soft compressible material, such as a fine-pore foam rubber or foamed plastic or the like, and is substantially identical in contour to the contour of recess or cutout portion **10**, and is also preferably of substantially equal thickness to the midsole **8**, so that when inserted into the recess or cutout portion **10** it forms a substantially smooth and continuous extension of the midsole member **8**. After insertion of the pad-like cushion member **12** into the recess **10** of midsole member **8**, it is temporarily secured thereto by any suitable means, such as one or more strips of common cellophane tape **9** as shown in the dotted lines in FIG. **16**.

A forward or toe rigid insert member **18**, shown in FIG. **8**, is temporarily secured to the bottom surface of a conventional last adjacent the front end thereof by means such as tacks, lasting nails or the like, and a rear or heel rigid insert member **30**, shown in FIG. **11**, is similarly temporarily secured to the undersurface of the last adjacent the rearward end thereof. As shown, these rigid insert members generally conform with the contours of the finished shoe, and are of such a length as to extend forwardly and rearwardly, respectively, of the elastic gore member when in assembled relation, and overlapping the gore member slightly. These rigid insert members **18** and **30** are preferably made of a rigid compressed paper material or the like. A conventional shank stiffener member **36**, shown in FIG. **14**, comprising a narrow elongated rigid strip of steel or similar material, is cemented or otherwise secured to the under-surface of the heel or rear rigid insert member **30** generally along the longitudinal axis thereof. The partially assembled upper **2**, rear upper member **22**, and elastic gore member **16**, are placed upon the last overlying the rigid insert members, with the elastic gore piece **16** extending between and slightly overlapping the toe and heel rigid insert members **18** and **30**, respectively. The edge portions of the upper **2** and rear upper member **22** forwardly and rearwardly of the gore piece **16** are then folded over the respective rigid insert members and secured thereto by an adhesive, preferably a conventional permanent bond cement. The midsole member **8**, with the pad-like cushion insert member **12** secured thereto, is then positioned upon and adhesively secured to the bottom surface of the partially assembled upper members **2** and **22**, and rigid insert members **18** and **30**, with the pad-like insert member **12** underlying the elastic gore member **16** and being secured to the elastic gore member by adhesive.

When the adhesive has set, the assembled parts are then removed from the last, and retain their lasted shape due to the rigidity of the toe and heel rigid insert members **18** and **30**, respectively, and the comparative rigidity of the midsole member **8**.

Following removal from the last, the midsole member **8** and the upper members **2** and **22** are stitched together around their edges in known manner, securing the toe and heel rigid insert members **18** and **30** therebetween. The shoe is then finished in essentially conventional manner by securing a heel cushion member **32**, shown in FIG. **12**, to the interior or upper surface of the rear or heel insert member **30** and overlying the shank stiffener **36**, as by adhesive or the like, and thereafter securing a conventional rear or heel sock lining member **34**, shown in FIG. **13**, to the upper surface of the heel cushion member **32**, and a toe sock lining member **14**, shown in FIG. **4**, to the interior of the toe portion of the shoe. A conventional outersole member **38** is then attached to the bottom of the midsole **8** by any suitable means, as by cementing or stitching or a combination of both, and a conventional heel member **40** is secured to the outersole member **38** adjacent the rear end thereof.

It will be appreciated that as a result of the construction described above, wherein the compressible insert member **12** underlies the elastic gore member **16**, the assembled upper and midsole in the forward portions thereof have a considerable degree of both vertical compressibility and longitudinal elasticity, so that the assembled shoe is free to follow the flexing movements of the wearer's foot to a much greater degree than has been heretofore possible. It is obvious that such flexing freedom will result in greater and longer comfort in wearing the shoe of this invention. The use of an elastic gore piece in combination with the underlying pad-like cushion insert in the midsole lends to the finished shoe a great degree of flexibility to conform with the movement of the foot as compared with prior known shoes.

It will also be noted that inasmuch as the elastic gore piece is free to stretch in a lateral direction (e.g., towards the side edges of the upper), a single upper together with its elastic gore piece may be used in the construction of any one of a number of shoe sizes in a given range without alteration of the upper. While it is recognized that different size uppers are required where the upper blank varies in length, but within a particular upper blank of a pre-determined width, various widths of a foot could be accommodated by virtue of the fact that the elastic gore piece compensates for same since it is free to stretch in a lateral direction.

Although the preceding discussion has been directed to preferred aspects of the preferred embodiment of

the invention, it is to be understood that the invention is not necessarily so limited. For example, in certain types of footwear, it may be desirable to form the same without a rear upper piece. Moreover, for certain purposes, the respective sole members might be modified whereby, for example, the pad is embedded in a recess in the outsole rather than being disposed in the midsole. In either of such events, however, it will be appreciated that the soft pad member is disposed in underlying relation to the elastic gore member to provide the desired flexibility. Moreover, with any modifications of this type utilizing the basic arrangements of the invention, there is an obvious saving in leather over that which would otherwise be required with the moccasin type arrangement, and the upper of one general size can be utilized for purposes of making different size shoes depending on, for example, the width of the last.

Having described the above preferred embodiment of the instant invention, it is evident that all of the objects set forth in the introduction have been successfully fulfilled.

Accordingly,

What is claimed is:

1. In an improved shoe or the like, having a front upper provided with a pair of opposing side edges, said edges being turned under, flexible elastic bridging means joining said side edges to each other underneath said upper, a rear upper member secured adjacent its forward edge to the rear portion of said front upper; the improvement comprising a midsole member secured to said front upper and to said rear upper member and having recess means, cushion means of a relatively soft compressible material and of substantially equal thickness to said midsole in the forward portion of said midsole positioned in said recess means, a rigid toe insert member secured to said front upper forwardly of said bridging means, a rigid heel insert members secured to said front upper rearwardly of said bridging means and to said rear upper member, outersole and heel members secured to said midsole member; said cushion means underlying said bridging means and being adhesively secured thereto, whereby a relatively flexible and comfortable supporting structure is provided for said shoe.

2. A shoe as defined in claim 1, wherein said bridging means comprises an elastic gore piece having opposing side edges, said side edges being secured to the respective side edges of said front upper.

3. A shoe as defined in claim 3, wherein said recess means in said midsole member comprises a cutout portion removed from the forward portion thereof, and said cushion means comprises a pad-like insert member generally conforming with the contour of said cutout portion.

4. A shoe as defined in claim 3, wherein said insert member is formed of foam rubber.

* * * * *