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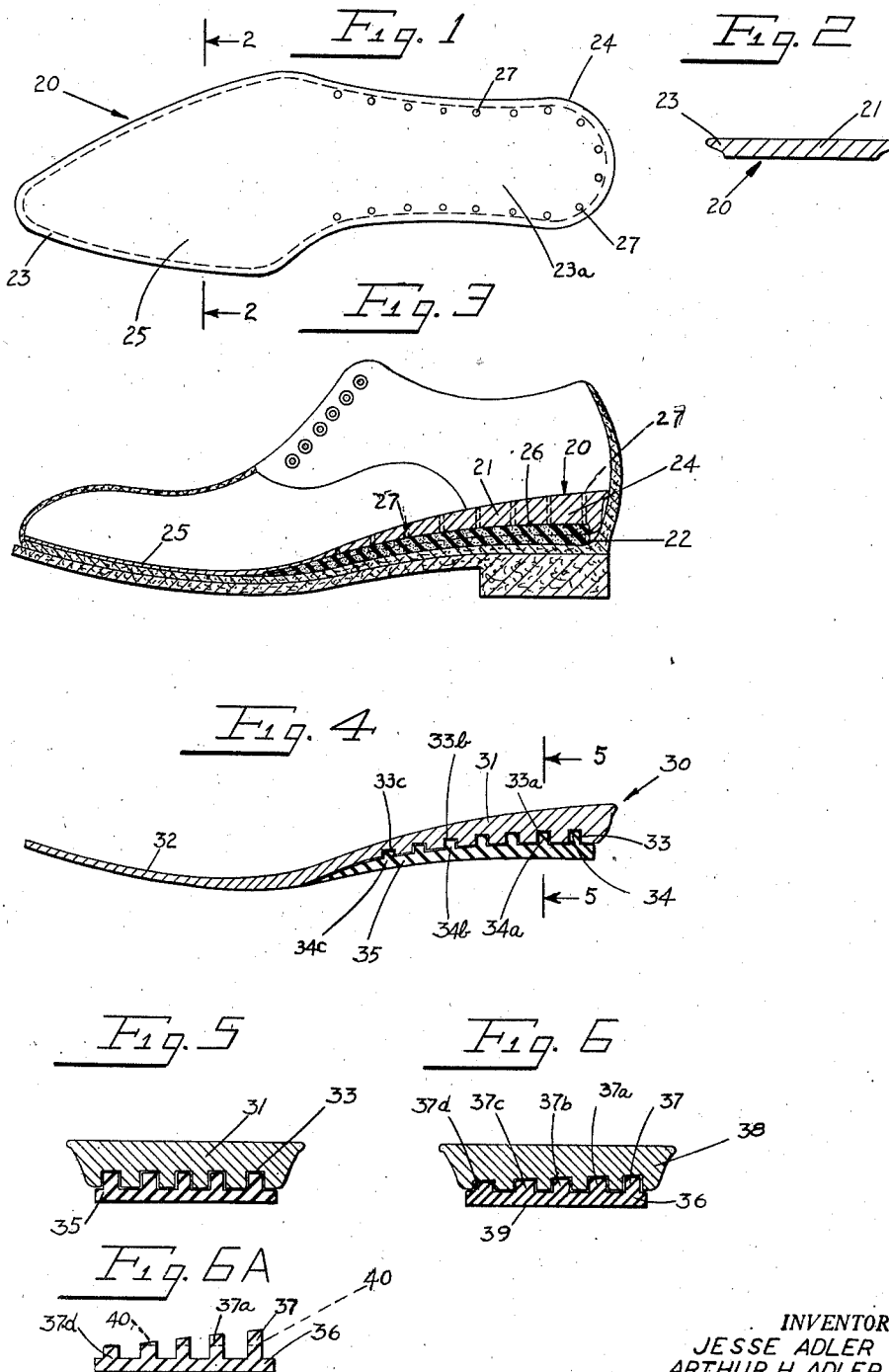
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2,433,329

HEIGHT INCREASING DEVICE FOR FOOTWEAR

Filed Nov. 7, 1944

3 Sheets-Sheet 1



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3 Sheets-Sheet 2

Fig. 7

Fig. 8

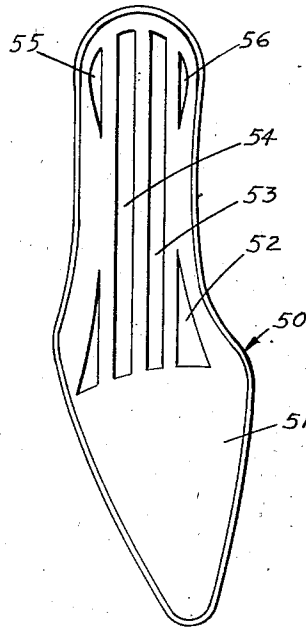
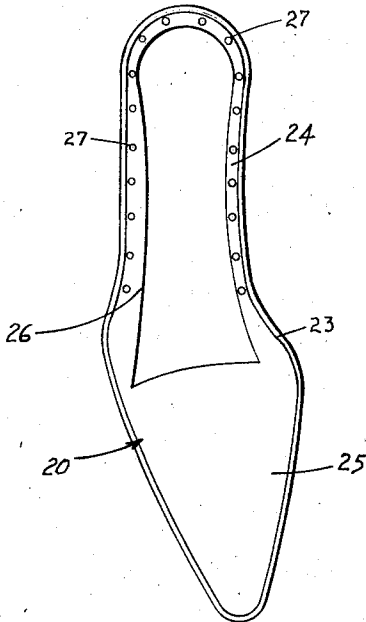
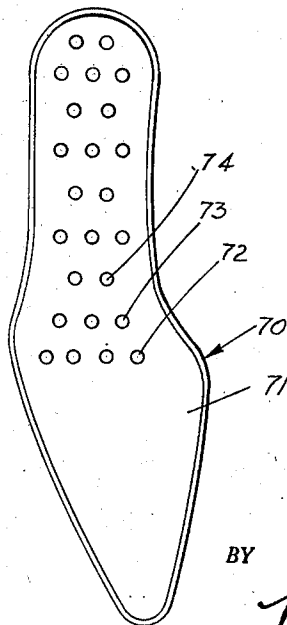
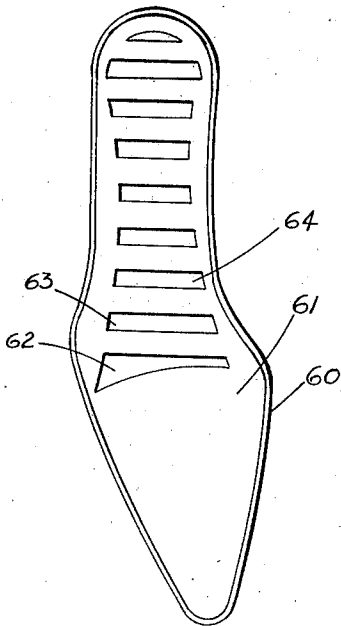


Fig. 9

Fig. 10



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3 Sheets-Sheet 3

Fig. 11

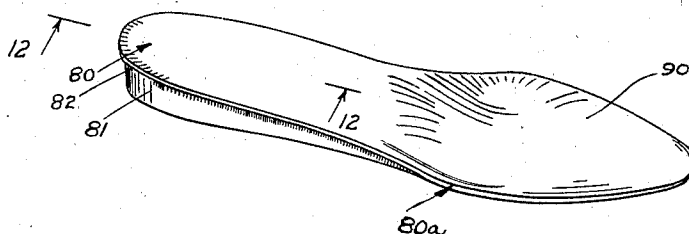


Fig. 12

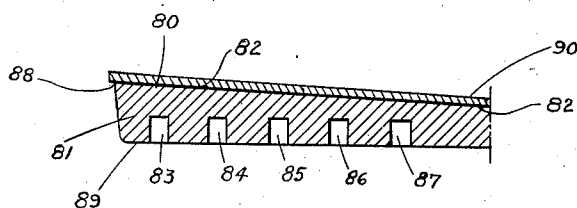


Fig. 13

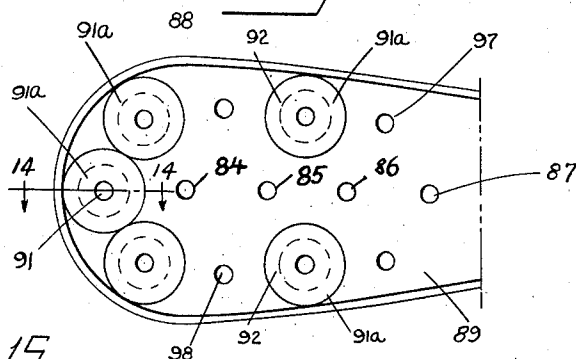


Fig. 15

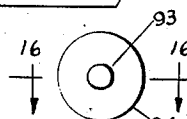


Fig. 16

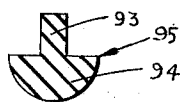
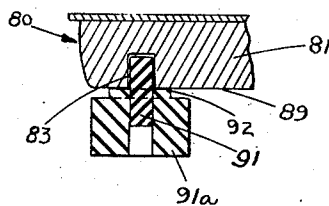


Fig. 14



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UNITED STATES PATENT OFFICE

2,433,329

HEIGHT INCREASING DEVICE FOR FOOTWEAR

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4 Claims. (Cl. 36—71)

1

This invention relates to novel shoe structures, and more particularly to shoes having incorporated or inserted therein height increasing or height changing devices.

It is one of the objects of this invention to provide a shoe with height increasing means which are simple in construction, easy to manufacture and to assemble, and very efficient in operation.

It is another object of this invention to provide a shoe including means affording ready regulation of the height of the insole of the shoe and forming also a shock-absorbing cushion therefor to facilitate easy and comfortable walking conditions for the foot of a person when wearing the shoe.

It is a further object of this invention to provide means connectable with the insole of a shoe, which means will fit or may be readily changed to correspond to various sizes of shoes.

A still further object of this invention is the provision of means which may be subjected to cleaning and washing to obtain a substantially germ-free foot support, effect ventilation for the latter and afford resiliency as well as level adjustment for the foot of the wearer.

Yet another object of the present invention is to provide means which may be easily adapted for use in any type of height increasing foot wear, such as shoes, slippers, boots, etc.; and which causes many other advantages, namely, of being light in weight, resistant to heat and perspiration, and not altering its given shape or configuration after long wearing time.

Still another object of this invention is to provide means which permit easy alteration and adjustment of resiliency for the height increasing device employed in shoes, and also ready change of the area with which said device is in contact for support thereon.

These and other objects and advantages of the invention will appear from the following disclosure thereof together with the attached drawings which illustrate certain forms of embodiment thereof. These forms are shown for the purpose of illustrating the invention since the same has been found in practice to give satisfactory and reliable results, although it is to be understood that the various parts of which the invention consists can be variously arranged and organized and that the invention is not limited to the precise arrangement and organization of the instrumentalities as herein shown and described.

2

In the drawings:

Fig. 1 is a top plan view of the height increasing device made in accordance with this invention.

Fig. 2 is a cross-sectional view taken along line 2—2 of Fig. 1, shown on an enlarged scale.

Fig. 3 is a longitudinal sectional view of the device shown in Fig. 1, placed in a shoe.

Fig. 4 is a longitudinal sectional view of the device, as seen in Fig. 3, but in modified form.

Fig. 5 is an enlarged cross-sectional view taken along line 5—5 of Fig. 4.

Fig. 6 is an enlarged cross-sectional view similar to that of Fig. 5, but in modified form.

Fig. 6A shows a detail of Fig. 6 in section.

Figs. 7 to 10 show bottom plan views of four height increasing devices in modified forms according to the present invention.

Fig. 11 shows a height increasing device, made in accordance with this invention, and shown in perspective.

Fig. 12 is an enlarged cross-sectional view taken along line 12—12 of Fig. 11.

Fig. 13 is a bottom plan view of the device shown in Fig. 12, having applied to the underface thereof supporting elements.

Fig. 14 is a fragmentary cross-sectional view taken along line 14—14 of Fig. 13.

Fig. 15 is a top plan view, and

Fig. 16 is a cross-sectional view taken along line 16—16 of Fig. 15, and illustrates another form of a supporting element employable in this invention.

Referring now more particularly to the drawings, there is shown in Figs. 1 to 3 a height increasing device 20 embodying the invention. Device 20 comprises the foot support or body 21, the resilient insert or pad 22 and flange 23 extending along the upper circumference of body 21 (Fig. 2).

As can be seen in Fig. 3, the body 21 may be conformed to the shape of the foot of the wearer and may be preferably made of any known resinous material, which may be molded or thermoplastic in character. According to this invention, a resinous material may be used which is light in weight, resistant to perspiration and the effects derived from the temperature of the human foot.

Body 21 has a reinforced rearward portion 24 which tapers into relatively thin forward portion 25, as can be realized from Fig. 3. The rearward portion 24 has at its underface a recess 26 (Fig. 7) for the insertion of a pad 22, which is resilient and may be made of soft rubber, rubber composition or sponge rubber. Recess or cut-

3

out 26 is preferably so shaped and disposed that pad 22 will be nested therein under tension in order to prevent removal of the pad from said recess. If desired, the upper surface of pad 22 may be adhesively connected with the walls of said recess 26. As can be seen from Figs. 3 and 7, pad 22 extends up to a location substantially below the arch of the foot.

Fig. 1 indicates a relatively thin flange or rim 23 which is positioned to extend along and to project beyond the outer edge of the upper face (tread surface) of the device, thus overhangs the underface of the latter, whereby it lends itself to being easily shaped and conformed to the size of the shoe to which the device is applied.

To this end, flange 23 may be filed or otherwise shaped to reduce the area of the upper tread surface 23a of device 20, so that the same will fit various shoe sizes, as will be well understood.

Adjacent the inner end of flange 23, there is positioned a plurality of openings or channels 27 which may be coextensive with the length of pad 22 and serve the purpose of facilitating air circulation from pad 22 at the underface toward the upper tread surface of foot support 21.

Fig. 4 shows a modification of the device illustrated in Figs. 1 to 3. The height increasing device 30 has a one-piece elongated support or upper body 31 made from any suitable resinous material which may assume a form, which indicates a curved part at the heel and arch portions above the plane of the forward toe portion 32 (Fig. 3). The forward portion 32 may be molded to conform the same to the shape of the wearer's foot. The underface of device 30 may be shaped or curved at the heel and arch portions and may have a plurality of recesses 33, 33a, 33b, 33c, etc. into which fit projections 34, 34a, 34b, 34c, etc. of a pad 35 placed underneath body 31. The upper surface of pad 35 conforms to the underface of support 31. Pad 35 is preferably made from soft rubber and may be held in position by any appropriate means. The underface of pad 35 and the underface of the support 31 at the forward portion 32 form a continuous surface for contact with the insole of the shoe.

Fig. 5 shows a cross-sectional view along line 5-5 of Fig. 4 illustrating the upper body or support 31 and the engagement of the projections of pad 35 within the recesses 33 of body 31.

Fig. 6, in somewhat modified form, shows that pad 35 may be equipped with projections of different lengths 37, 37a, 37b, 37c, 37d. The recesses of body 38 are made of substantially equal depths so as to bring about an inclination of body 38 with respect to the base 39 of pad 36. This serves the purpose of regulating the level of body 38 and, thereby, to correct the posture of the foot of the wearer.

Fig. 6A shows pad 36 with projections 37, 37a, etc.; the same may be cut to the same length as projection 37d, by cutting the same below the dotted line 40.

Figs. 8 to 10 show further modifications of the rubber or like yieldable inserts in the resinous body of the height increasing device. Fig. 8 illustrates device 50 having the underface 51 and a plurality of recesses 52 to 56. These recesses substantially extend lengthwise of the underface 51 of the device and may receive corresponding sponge rubber inserts or pads, as hereinabove mentioned. These inserts are made to project somewhat beyond the underface 51. Fig. 9 shows device 60 with underface 61 and a plurality of transversely directed recesses 62, 63, 64, etc.,

4

which serve a purpose similar to that of recesses of Fig. 8. Fig. 10 shows the device 70 having at its underface 71 a plurality of perforations 72, 73, 74, etc., which may be arranged in transverse and lengthwise directions of underface 71. These perforations may be used to engage with projections similar to those shown in Figs. 4 to 6A which projections may either form parts of a pad or may constitute individual elements, such as shown in Figs. 15 and 16.

Fig. 11 shows a height increasing device 80 having the upper tread surface 90 molded to correspond to the shape of the foot of the wearer. The device 80 may be composed of a sheet 80a made of resinous, thermoplastic material, to which is adhesively attached at 82 pad 81, either made from plastic or from resilient material, such as rubber, cork or any other composite material.

It will be observed from Fig. 12 that sheet 80a projects laterally beyond pad 81 to provide thereby a flange 88 for facilitating shaping of the boundary of sheet 80a so as to accommodate said device 80 in various sizes of shoes. The underface 89 of portion 81 (made of resinous material) may have rows of recesses, lateral recesses 97 and 98 and a median row of recesses 93 to 97, respectively, which are arranged in a predetermined distance to each other. These recesses are adapted to receive resilient or rubber knobs or elements 91 (Fig. 14) or knobs 95 (Fig. 16) which may project beyond the lower surface 89 of portion 81 to bring about a resilient supporting surface for the device 80 when the same is placed in position within the interior of a shoe.

Rubber knobs or elements, such as designated by numeral 95, possess a shank 93 and a hemispherical base 94, and may be inserted under friction by means of said shank 93 in corresponding perforations, disposed at the underface 89 of portion 81 (Figs. 12 and 13). In order to further provide for a different degree of resiliency, rubber members 91a may be used to engage frictionally with cylindrical elements 91, thereby providing a larger surface for the support of device 80 and effectuating a further height increase, as can be realized from Fig. 14. Each rubber member 91a has a collar or extension 92 for position between the underface 89 and rubber member 91a proper. As can be realized from Fig. 13, a plurality of rubber members 91a may be disposed at underface 89 in any appropriate manner and as required for the purpose just referred to.

It is well understood that the height increasing devices hereinabove disclosed may be attached to the underface of the insole of the shoe and may be secured in position within the shoe by any appropriate means, such as adhesive means, stitching, etc.

It will thus be seen that in accordance with this invention there has been provided a new and efficient height increasing and foot posture correcting device which possesses many desirable advantages and which principally consists of a rigid foot-engaging support adapted to overlie heel and arch portions of a shoe and which is combined with resilient means seated in the underface of said support to project therebeyond, said resilient means being connectable with additional elements to vary the increase of height and the area of contact with the inside of the shoe at said heel and arch portions.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to various embodiments, it will be understood that various substitutions

and changes in the form and details of the devices illustrated and their operation may be made by those skilled in the art without departing from the spirit of the invention.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. A height increasing device for insertion in a shoe or like footwear and for position at the insole thereof comprising a one-piece elongated support made of resinous material including heel and arch portions and a forward toe portion so as to extend the entire length of the interior of said shoe, said support being provided with a foot engaging tread surface tapering from said heel portion toward said forward toe portion, a wedge-shaped pad of yieldable material associated with said support, the upper surface of said pad extending only below said heel and arch portions of said support and being shaped to engage with the underface of said support thereat, whereby the underface of said pad together with the underface of said forward toe portion of said support form a continuous surface for position at said insole of said shoe, a flange forming rim at said tread surface and overhanging the underface of said support, said flange being conformable to and engageable with the interior of said shoe to prevent shifting of said support within said shoe, and interfitting formations, respectively, provided in the underface of said heel and arch portions of said support and on the surface of said pad for engagement of said pad with said support and for removal therefrom.

2. A height increasing device for insertion in a shoe or like footwear and for position at the insole thereof comprising a one-piece elongated support made of resinous material including heel and arch portions and a forward toe portion so as to extend the entire length of the interior of said shoe, said support being provided with a foot engaging tread surface tapering from said heel portion toward said forward toe portion, a wedge-shaped pad of yieldable material associated with said support at said heel and arch portions thereof, the upper surface of said pad being shaped to engage with the underface of said support, so that the underface of said pad together with the underface of said forward toe portion of said support form a continuous surface for position at said insole of said shoe, a flange forming rim at said tread surface, said rim projecting beyond the underface of said support and being engageable with the interior of said shoe to prevent shifting of said support within said shoe, the underface of the heel portion of said support being provided with a plurality of recesses having different depths, and projections on the upper surface of said pad and engageable with said recesses, respectively, for maintaining said tread surface of said support in predetermined angular position relatively to said insole.

3. A height increasing device for insertion in a shoe or like footwear and for position at the insole thereof comprising a one-piece elongated support made of resinous material including heel, arch and forward toe portions so as to extend the entire length of the interior of said shoe, said support being provided with a foot engaging tread surface tapering from said heel portion toward

said forward toe portion, a wedge-shaped pad of elastic rubber material associated with the heel and arch portions of said support, the upper surface of said pad being shaped to engage with the underface of said support, whereby the underface of said pad together with the underface of said forward toe portion of said support form a continuous surface, a flange forming rim at said tread surface and tapering toward the underface of said support, said flange being engageable with the interior of said shoe to prevent shifting of said support within the shoe, and means arranged to engage with the underface of said pad and adapted to adjust height and inclination of said tread surface relatively to said insole.

4. A height increasing device for insertion in a shoe or like footwear and for position at the insole thereof comprising a one-piece elongated support made of resinous material including heel and arch portions and a forward toe portion so as to extend the entire length of the interior of said shoe, said support being provided with a foot engaging tread surface, said tread surface being provided at said heel and said arch portions with a curved part extending above the plane of said toe portion, wedged-shaped means of rubber material engageable only with said heel and arch portions of said support at the underface thereat, whereby the underface of said wedged-shaped means together with the underface of said forward toe portion of said support are substantially in alignment for position at said insole of said shoe, a flange forming rim extending along said tread surface and tapering toward the underface of said support, said flange being conformable to and engageable with the interior of said shoe to prevent shifting of said support within said shoe, the underface of said wedged-shaped means being recessed at predetermined locations thereof, and means made of rubber material and engageable with said recessed underface for regulating the position of said tread surface in perpendicular as well as in horizontal directions to said insole.

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