Dec. 24, 1963 S. A. MURAWSKI 3,114,981

MOLDED SHOE

Filed May 18, 1962

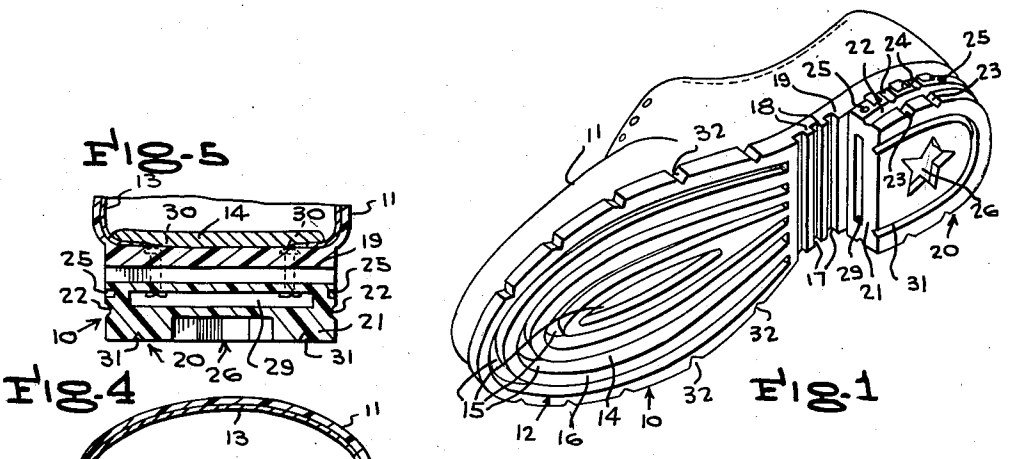


FIG. 1

FIG. 5

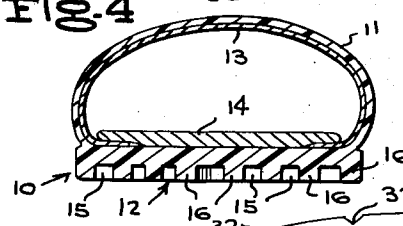


FIG. 4

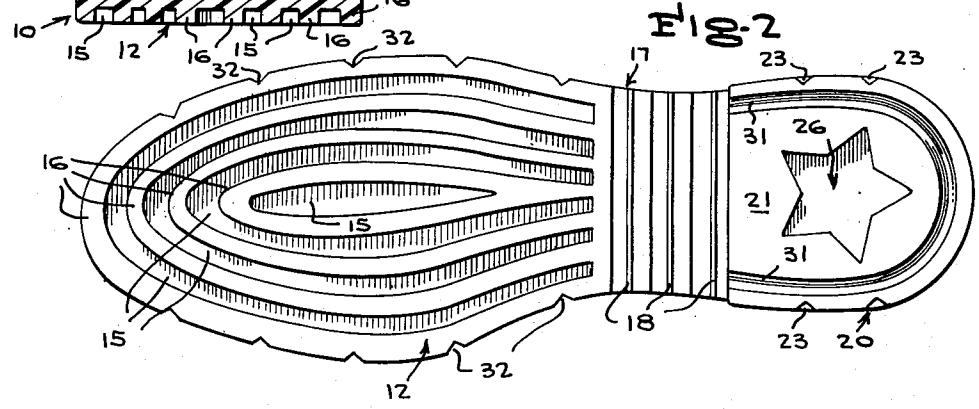


FIG. 2

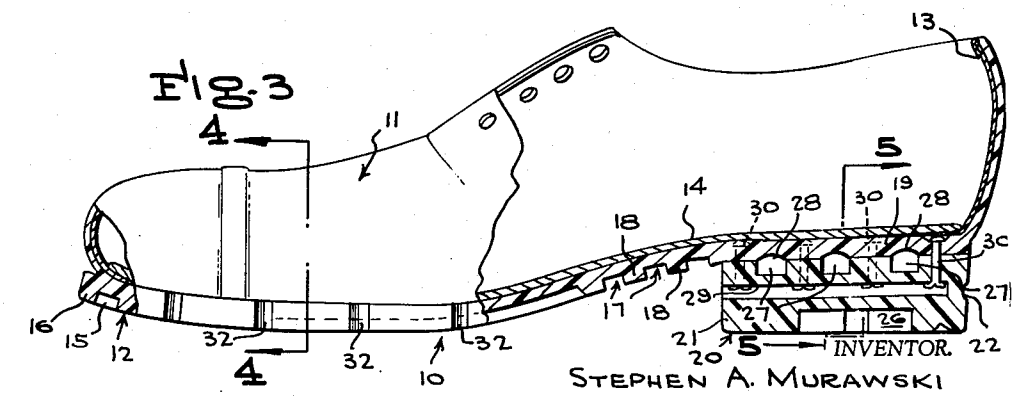


FIG. 3

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MOLDED SHOE

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This invention relates to an article of footwear, and more particularly to a shoe that is adapted to be molded of a suitable plastic material.

The primary object of this invention is to provide a molded shoe which has increased flexibility and which will permit the user to wear the same with increased comfort, and wherein the shoe of the present invention also has a highly attractive or esthetic appearance.

A further object of the present invention is to provide an article of footwear which includes a sole that has grooves or ridges therein, and wherein there is provided a heel which has indentations or recesses therein, the shoe of the present invention having improved anti-slipping features as well as providing an improved pneumatic construction which is comfortable and convenient to wear or use.

Still another object is to provide such a shoe that is economical to manufacture and efficient in operation and which is rugged in structure.

These and other objects of the invention will become apparent from a reading of the following specification and claim, together with the accompanying drawing, wherein like parts are referred to and indicated by like reference characters and wherein:

FIG. 1 is a bottom perspective view of the molded shoe or article of footwear of the present invention.

FIG. 2 is a bottom plan view thereof.

FIG. 3 is a side elevational view thereof, with parts broken away and in section.

FIG. 4 is a sectional view taken on the line 4—4 of FIG. 3.

FIG. 5 is a sectional view taken on the line 5—5 of FIG. 3.

Referring in detail to the drawings, the numeral 10 indicates the article of footwear or molded shoe of the present invention which is shown to comprise an upper 11 as well as an outer sole 12, and the numeral 13 indicates a lining of fabric-like material which is arranged within the shoe, FIG. 3. The numeral 14 indicates an inner sole, and as shown in FIG. 2 for example, there is provided in the bottom of the outer sole 12 a plurality of spaced apart grooves 15 which define and provide therebetween ridges 16 for a purpose to be later described. As shown in FIG. 3 for example, there is provided a plurality of spaced parallel transversely disposed grooves 17 in the shank of the outer sole in the bottom portion thereof which define ribs or ridges 18 therebetween, and the ridges 18 are disposed rearwardly of the ridges 16.

As shown in the drawings, the rear portion of the outer sole 12 defines or provides a base portion which is indicated generally by the numeral 19. The numeral 20 indicates a heel which is arranged below and contiguous to the base portion 19, and the heel 20 includes a main body portion 21 which has an intermediate groove 22 therein, and the groove 22 extends along the sides and back of the heel, as for example as shown in FIG. 1. There is also provided in the outer portions of the heel 20 a plurality of spaced apart indentations or recesses 23 and 24 as well as apertures or openings 25, for a purpose to be later described. The numeral 26 indicates a recess which is arranged in the lower portion of the heel 20, and the recess 26 may have a shape corresponding to a star, as for example as shown in FIG. 2.

As shown in FIG. 3 for example, the upper portion of the heel 20 has a plurality of spaced apart channels or grooves 27 therein, and there is provided grooves 28 in

the lower surface of the base portion 19 of the outer sole, and the grooves 28 register with and are positioned in alignment with the grooves 27. The numeral 29 indicates an opening in the heel 20, and the opening 29 extends from the leading edge of the heel rearwardly to a point contiguous to the rear of the heel.

There is further provided a plurality of securing elements 30, and the securing elements 30 are in the nature of rivets, and the securing elements extend through the rear portion of the outer sole 12 and through the upper portion of the heel 20 as shown in the drawings.

As shown in FIG. 1, there is provided in the lower surface of the heel 20 a generally U-shaped groove which is indicated by the numeral 31.

The numeral 32 indicates spaced apart indentations or recesses which are of generally V-shape, and the recesses 32 are arranged in the sides of the outer sole 12.

The heel 20 has a somewhat slanting formation or tapered formation whereby the rear portion is slightly thicker than the front portion thereof.

From the foregoing, it will be seen that there has been provided an article of footwear or molded shoe, and in use, with the parts arranged as shown in the drawings, it will be seen that there has been provided a shoe which is comfortable and efficient to use or wear, and which is attractively constructed. The shoe 10 includes the grooves 15 which define or provide the ridges 16 and this construction helps insure that the shoe will exert a good gripping action on a surface being walked upon so that the shoe will have good anti-slipping properties.

The shoe also has the grooves 17 which are transversely arranged reawardly of the grooves 15, and the grooves 17 are arranged in the shank portion of the shoe and these provide increased flexibility which permits the shoe to be worn or used with maximum comfort and facility.

The shoe further includes the heel 20 which has the rather large recess 26 in the lower portion thereof, and the heel 20 also includes the opening 29 and there is provided the grooves or openings 27 which are in alignment with the grooves 28 as shown in FIG. 3 for example. The heel 20 is maintained connected to the rear portion of the outer sole 12 by means of securing elements or rivets 30.

The parts can be made of any suitable material and in different shapes or sizes.

The footwear of the present invention is simple and inexpensive to fabricate or mold. The provision of the various recesses or indentations or grooves or apertures in the parts such as the heel and outer sole serve to lighten the parts such as the heel and also mean that less material will be used, and also these openings help provide a shock absorbing effect which permits the shoe to be worn with increased comfort. Also, the provision of the indentations such as the indentations 23 and 24 and 32 improves the appearance of the article. The securing elements 30 are preferably split rivets which serve to hold the heel in place and these rivets are arranged so that they will not interfere with the flexing of the soft shock absorbing material. The rivets 30 also hold the top part of the heel in place and the rivets do not extend entirely through the heel so that there will be no interference with the desired flexing action of the parts. Ordinary shoe nails and other attaching means have a tendency to interfere with the desired flexing action which is advantageous from a point of view of providing shock absorbing features.

The parts such as the heel can be made of pliable plastics, or if desired harder types of plastics can be used as for example when the shoe is being worn by heavy people. The star shaped recess 26 can be arranged so that it opens through or communicates with the opening 29, or it can be arranged so that it does not communicate with the

opening 29. As an example of a suitable material for making the heel, polyurethane can be used. The present invention is simple to mass produce, that is the heel and sole can be readily mass produced at a minimum cost. If desired a suitable adhesive or glue can be used for helping to maintain the heel 20 connected to the shoe, and such an adhesive will work in conjunction with the rivets 30. The grooves 17 also help insure that the shoe will have a good gripping ability so that there will be a minimum tendency for the wearer to slip on wet surfaces or the like. By making the shoe heels of a material such as polyurethane, the shoe heels will be tough and yet remain resilient so that they will provide to the user increased comfort and will have a tendency to last longer than heels such as heels made of rubber. The cavity or opening 29 helps improve the shock absorbing and flexing ability of the heel and also helps to lighten the weight of the heel and insures that less material will be needed in constructing the heel. The securing elements 30 are split or tubular rivets and these securing elements do not extend all the way through the heel so that there will be no interference with the flexing of the heel. The heel is preferably made of one-piece molded construction of a suitable plastic as previously stated.

The provision of the various openings or recesses in the heel is also advantageous or important in the present invention since it will increase the flexing action and also will permit air to more readily pass through the heel to have a tendency to keep the feet cool in the summer, and also such openings will have the ability to prevent heat or cold from the pavement from being transmitted to the shoe, and the feet will be kept high off of the pavement. Also, the indentations or openings help improve the looks or appearance of the heel and outer sole, and the apertures 25 may be made fairly shallow, and may only be deep enough to give the illusion of openings. The opening or recess 29 serves to lighten the weight of the heel and also permits the side walls of the heel to flex, and in addition the opening 29 permits a different method of attaching the heels to the shoes since a conventional steel bucking tool can be inserted into the opening 29 and then the rivets 30 can be flattened to hold the heel in place, and then the bucking tool can be readily removed. No nails are used and nails are disadvantageous because they have a tendency to loosen up and pierce the foot of the wearer. To remove the heel 20, it is only necessary to cut off the inserted rivets 30 with a hack saw, band saw or the like, and replace the worn heel with a new heel by the same method of using split or tubular aluminum rivets 30 which are inserted with the head of the rivet inside of the shoe and this provides an improved means of attaching the heel in place. The heel and sole are adapted to be molded separately out of plastic or other suitable material and a laminated construction is not used, but materials of different hardness can be employed to control the flexing of the heel as for example when the shoe is being worn by heavier or lighter people, and in addition the size and shape of certain of the openings can be varied to change the effect provided by the footwear. The heel thus has an air conditioned construction with see-through openings as well as indents and V-shaped grooves with shock absorbing features and wherein the heel is highly decorative and can be made in different colors to provide shoes of improved appearance.

Preferably the shoe and sole are molded in one piece as one unit, except for the heel which is attached as previously described. The lining 13 is adapted to be made of a suitable material such as cloth, and this cloth lining 13 may be glued to the inside of the shoe and sewn on edges on top of the shoe.

The rounded grooves 28 in the bottom of the sole at the rear thereof are arranged in alignment with the top

of the grooves 27 of the heel to assist in shock absorbing, and the tapered end or rear end of the heel is raised slightly or slanted inward so that the rear portion of the heel is slightly higher at the top thereof than the upper front portion of the heel. The V-shaped recesses 32 improve the looks of the shoes and also mean that less plastic materials are required and also help lighten the weight of the entire shoe. The provision of the slightly slanted construction of the heel as previously stated helps insure that the shoes can be worn with increased comfort and with increased balance since there is increased material or height where needed, and this will also have a tendency to increase the wearing life of the heel and shoe.

It is to be understood that the molded shoe of the present invention can be made as a complete unit with the heel as an integral part thereof. In other words the footwear of the present invention can be made as a complete molded shoe with the heel attached if desired or required. Furthermore, the footwear of the present invention is completely waterproof or leakproof due to the fact that there are no seams or thread holes, and wherein there is provided a construction which utilizes a one-piece molded arrangement. Thus, the heel can be molded with the entire shoe as one complete unit.

Minor changes in shape, size and rearrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

What is claimed is:

A shoe comprising an outer sole and an upper and said outer sole having a bottom portion, a lining arranged within said shoe, an insole arranged within the shoe above the outer sole, said outer sole having a plurality of spaced apart grooves therein in the bottom portion thereof which define and provide ridges therebetween, there being a plurality of spaced apart transversely disposed grooves in the shank portion of the outer sole in the bottom portion thereof rearwardly of the ridges, the rear portion of the outer sole providing a base portion, a heel arranged below said base portion and said heel including a main body portion having an intermediate groove extending along the side and back thereof said heel having an upper portion, a lower portion and an outer portion, said main body portion having a plurality of spaced apart indentations and apertures in the outer portion thereof, there being a recess in the lower portion of the heel, the upper portion of the heel having a plurality of spaced apart grooves therein, there being grooves in the base portion of the outer sole registering with the last named grooves in the heel, said heel having an opening therein and said opening extending from the leading edge of the heel rearwardly to a point contiguous to the rear of the heel, a plurality of split tubular rivets extending through the rear portion of the outer sole and through the upper portion of the heel, spaced apart indentations in the sides of the outer sole, and said heel having a slightly tapered formation whereby the rear top edge is slightly above the front top edge of the heel.

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