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ONE-PIECE FOLDABLE OVERSHOE

Original Filed July 23, 1948

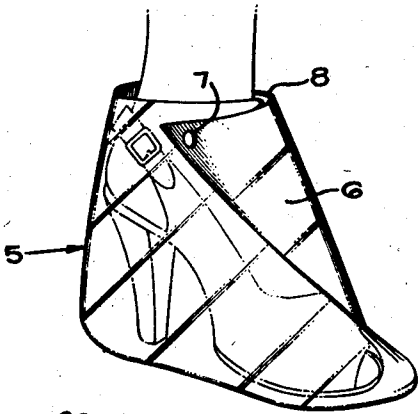


Fig. 1.

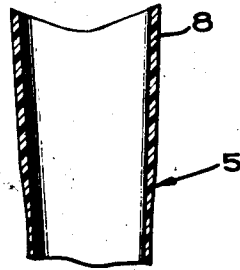


Fig. 3.

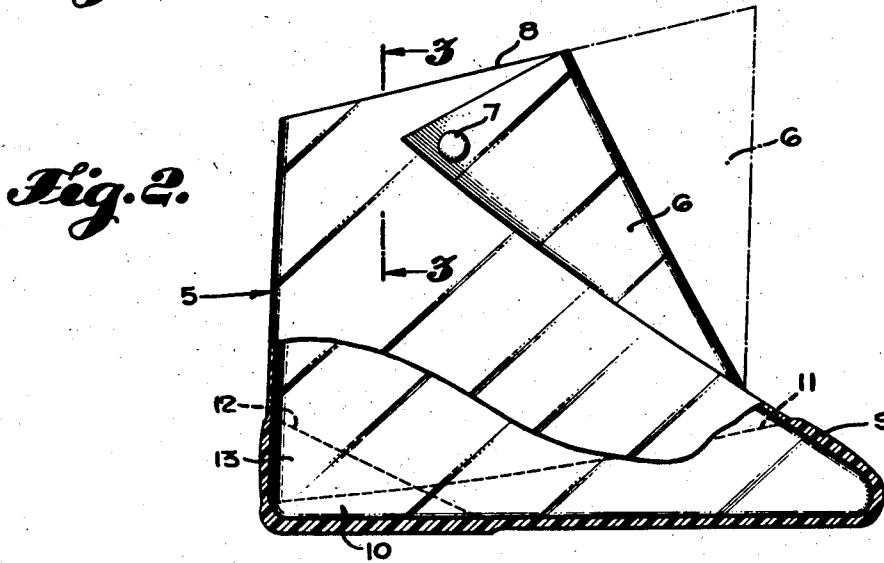


Fig. 2.

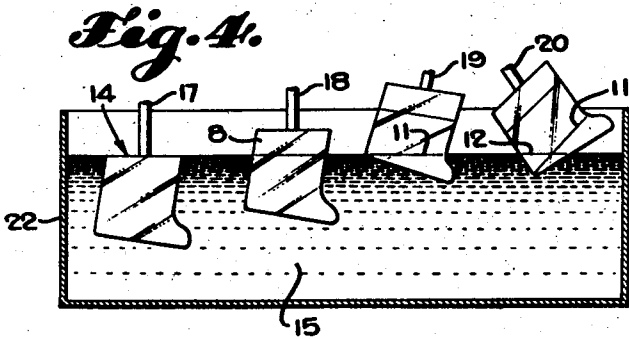


Fig. 4.

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ONE-PIECE FOLDABLE OVERSHOE

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Continuation of application Serial No. 40,255,
July 23, 1948. This application October 12,
1951, Serial No. 251,060

1 Claim. (Cl. 36—7.3)

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The present invention relates generally to water-resistant overshoes, and more particularly to shoes of the class described which are of light, flexible construction, whereby they are adapted to be rolled up and carried in a purse or pocket for occasional use in inclement weather.

This application is a continuation of my application Serial No. 40,255, filed July 23, 1948, and entitled Overshoe and now abandoned.

It is desirable, of course, that overshoes to be used in the above manner be constructed in an inexpensive manner inasmuch as they are not intended to be long-wearing in the same sense that conventional footwear is so intended. Overshoes of the type embodying the invention herein may be constructed at a sufficiently low cost that the finished article may be purchased in emergencies when the purchaser may be caught out in inclement weather without proper footwear.

On the other hand, in addition to the requirement of low manufacturing cost, it is desirable that footwear of the class just described be thoroughly water-resistant, highly flexible in order to be folded into a relatively small package, yet sufficiently resistant to tearing and abrasion to withstand a considerable amount of use.

A further consideration in designing footwear of this class, especially for women, is that the overshoe be so constructed as to detract as little as possible from the appearance of the conventional shoes of the wearer.

Bearing in mind the foregoing considerations, it is a major object of the invention to provide an overshoe which is easily put on and removed, and is of a highly flexible nature whereby to be easily folded into a small package.

Another object of the invention is to provide a shoe of the class described which is adapted to be constructed of a transparent material whereby to reveal the color and design of underlying conventional footwear.

Still another object of the invention is to provide an overshoe of the class described which is constructed of a single homogeneous and continuous sheet of material having no seams whereby to reduce fabrication costs and increase the wear-resistant nature of the finished article.

A further object of the invention is to provide an overshoe of the class described which is reinforced at various points by increasing the thickness thereof, whereby to resist wear occasioned by walking.

A still further object of the invention is to provide an overshoe as described having a thickened edge section whereby to resist tearing while putting on or taking off the shoe.

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The foregoing and other objects and advantages of the invention will become apparent from the following detailed description thereof, consideration being given also to the attached drawings, in which:

Fig. 1 is a perspective view of an overshoe embodying the present invention in place on a wearer's foot;

Fig. 2 is a side elevational view, partially sectioned, of the overshoe illustrated in Fig. 1;

Fig. 3 is an elevational section taken on the line 3—3 in Fig. 2; and

Fig. 4 is a semi-schematic operational diagram illustrating various steps in a method for producing the article illustrated in Figs. 1 through 3.

The overshoe of my invention indicated generally by the numeral 5 is formed as an integral thin structure of flexible homogeneous plastic having a foot portion and an ankle portion. The foot portion has a flat sole, a relatively short toe 9 and a heel portion 10. As will be discussed more in detail later, the sole and the heel and toe portions are of increased thickness for increased strength. The walls of the heel 10 are substantially vertical and the ankle portion of the overshoe extends upwardly from the foot portion in a generally tubular shape. The rear wall of the tubular ankle portion is a substantially vertical extension of the rear wall of the heel and the forward wall 6 of the ankle portion rises from the rear of the relatively short toe portion 9 in a generally vertical manner, it being essential that the ankle portion of the overshoe be of such diameter as to readily admit the wearer's foot. It is also important that the ankle portion be relatively thin to permit the same to be folded flat around the sole to form a substantially flat package adapted for carrying in a purse.

As mentioned, the forward portion or wall 6 of the ankle portion extends upwardly in a manner to readily accommodate the wearer's foot and still be foldable against or about the wearer's ankle to conform generally to the shape thereof. Complementary fastener members 7 are provided to secure the overshoe in closed position, one of said members being secured to a folded portion of the forward wall of the ankle portion and the other fastener member secured to another portion thereof laterally of the first member whereby the forward wall portion can be folded to a closed position conforming generally to the contour of the ankle of the wearer and be secured in said folded position by the interlocking of the fastener members. The overshoe should also be transparent or translucent in order that attractive footwear can be visible therethrough.

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The overshoe 5 may be constructed of various materials, such as natural or synthetic rubber, or various copolymers which form tough flexible semi-solids when polymerized. It is desirable that the aforesaid material be highly flexible, resilient, tough, abrasion resistant, and slightly stretchable. One material meeting these requirements is polyvinyl chloride which has the additional advantage of being capable of formulation in a transparent form. Other materials capable of being formed in transparent sheets and suitable for the overshoe 5 are ethyl cellulose and nylon.

In order to prevent tearing or permanent deformation of the upper portion 8 of the overshoe 5 when the latter is put onto or taken off of the wearer's foot, this upper portion 8 may be thickened, as indicated in Fig. 3, and in a manner to be hereinafter described.

As a further means to provide reinforcement and wear-resistance, the sole and the heel and toe portions of the foot portion are all of increased thickness. It will be noted, from an examination of Fig. 2, that the increased thickness toe area 9 has an upper margin 11 which slants downwardly toward the rear of the shoe 5 terminating at a point slightly above the rearmost heel point. Similarly, the margin of the reinforced heel area 13 slants downwardly toward the front of the shoe, terminating just under the arch. An extra thick heel area 10 is thereby provided where the increased thickness area 9 overlaps the increased thickness area 13 formed at the heel. This insures that all wear surfaces are of increased thickness with the heel surface area of the sole having an additional layer of material for further increased wear resistance.

One method of forming the overshoe 5 with areas of different thickness is illustrated in Fig. 4. Here it will be seen that the overshoe 5 is formed by dipping a mandrel 14, having the general configuration of the shoe 5, into a tank or vat of polymerized resinous material 15, whereby a coat of material adhering to the mandrel 14 as it is withdrawn from the liquid 15 will cure to form a continuous sheet having the desired shape and size of the overshoe 5. It will be noted further that the thickness of the polymerized coating on the mandrel 14 can be increased by redipping the article after one layer has partially cured whereby to build up the thickness. While the thickness so created can be considered as comprising a number of layers, actually in this preferred form of coating, the material is homogeneous throughout the combined thickness, each layer blending slightly into the previous coat.

The thickened area 8 at the upper edge of the shoe 5 is produced by first dipping the mandrel 14, as illustrated in the left hand station in Fig. 4, identified by the reference character 17, so that the mandrel 14 is entirely submerged. The mandrel is then withdrawn to the position illustrated by the reference character 18, at which the upper portion projects slightly from the surface of the liquid 15. The mandrel 14 is allowed to remain in the position indicated by the reference character 18 until the projecting portion 8 has partially cured whereupon the mandrel 14 is again submerged to the position indicated at 17, whereby a double coating adheres to the area 8. The mandrel 14 is then entirely withdrawn from the liquid 15 and the coating allowed to partially cure, forming a partially completed overshoe 5 having a double thickness area 8 around the up-

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per edge and a single thickness throughout the remaining portion of the article. Thereafter, the mandrel 14 is tilted forwardly and dipped to a position indicated by the reference character 19 whereby to form the double thickness area 9 covering the forward and toe portion of the shoe 5. The mandrel is again withdrawn and the coating forming the area 9 is allowed to partially cure. The mandrel is then tipped rearwardly and dipped, as indicated by the reference character 20 to form the increased thickness heel area 13. The mandrel is then withdrawn and the coating of varying thicknesses is allowed to completely cure whereupon the completed shoe is stripped from the mandrel and the upper edge trimmed. The parts forming the snap fastener 7 are then attached in conventional manner.

It will be realized, of course, that the various dipping operations illustrated by the reference characters 17 through 20 can be performed in any desired sequence. If the foot areas 9 and 13 are dipped first, then the increase in thickness will occur on the interior surface of the shoe 5.

As to the increased thickness area 8, it is preferable although not absolutely necessary, to form this area first since during the partial curing of the area 8, it is necessary that the lower mandrel portion 14 remain in the liquid 15 for a relatively extended period, and the coating formed thereon would be somewhat deteriorated by prolonged immersion in the liquid 15.

It will be realized by those skilled in the art that the dipping operations illustrated in Fig. 4 are well adapted for automatic production methods, a plurality of mandrels 14 being carried by a conveyor system (not shown) past a vat 22 containing the liquid 15. Alternatively, a plurality of vats 22 may be used, one for each of the stations 17, 19 and 20, and liquids having various characteristics or color may be used whereby to lend a decorative effect to the finished article.

It is necessary, of course, that the material forming the finished article 5 be slightly stretchable in order to be readily stripped from the mandrel 14. Such stretchability also assists in putting the article on or taking it off the wearer's foot.

While the article shown and described herein is fully capable of achieving the objects and providing the advantages hereinbefore stated, it will be apparent to those skilled in the art that considerable modification is possible without departing from the spirit of the invention. For this reason, I do not mean to be limited to the forms shown and described, but rather to the scope of the appended claim.

I claim:

A light-weight foldable overshoe comprising an integral thin structure of flexible homogeneous plastic having a foot portion and an ankle portion, said foot portion having a flat sole, a relatively short toe area of increased thickness with the upper margin of said thickened area sloping substantially straight downwardly and rearwardly to the rear of the foot portion and extending integrally across the sole, a heel area on said foot portion of increased thickness with the upper margin of said thickened area sloping substantially straight downwardly and forwardly to the heel breastline of the sole and extending integrally across the sole, the walls of said heel being substantially vertical, said ankle portion extending upwardly from said foot portion in the shape of a tube and being adapted to be folded to slope inwardly to conform generally to the

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contour of said foot and ankle, the rear wall of said tube being a substantially vertical extension of the rear wall of said heel and the forward wall of said tube rising from a point rearwardly of the upper margin of said thickened toe area, said tube being of a diameter to readily admit a wearer's foot therethrough to fit snugly into said foot portion, the walls of said ankle portion being relatively thin to permit the same to be folded flat around said sole to form a substantially flat folded package adapted for carrying in a purse, and means on said ankle portion for securing the same in a closed position conforming generally to the contour of the ankle of the wearer.

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