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METHOD FOR MAKING SHOES

Filed March 28, 1957

2 Sheets-Sheet 1

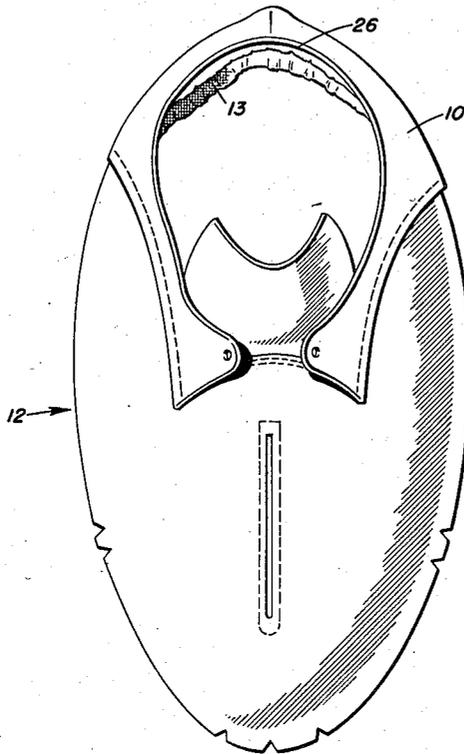


FIG. 1.

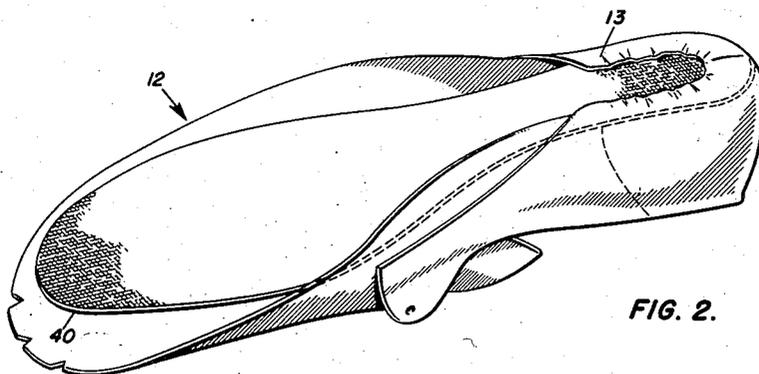


FIG. 2.

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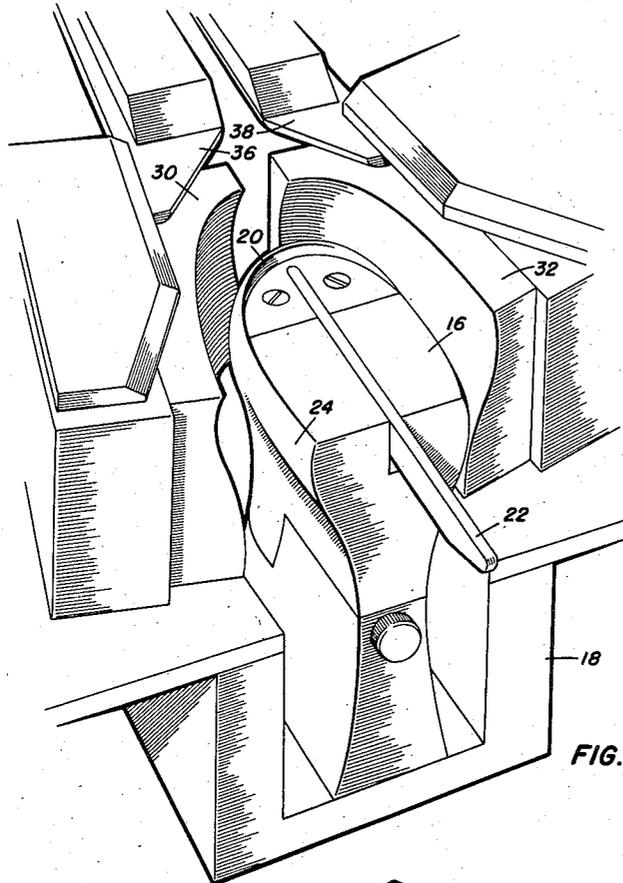


FIG. 3.

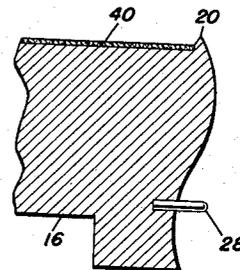


FIG. 6.

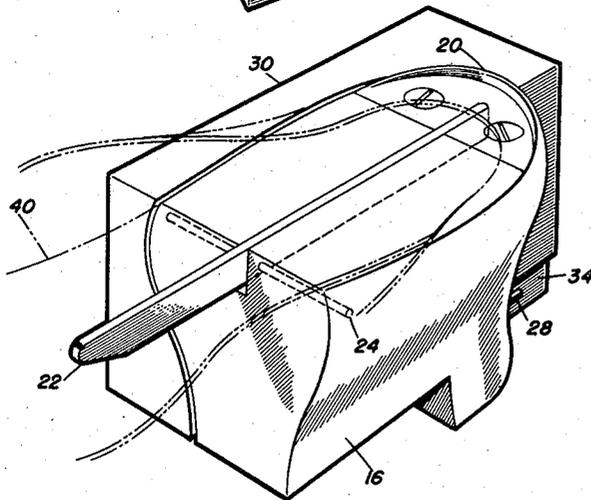
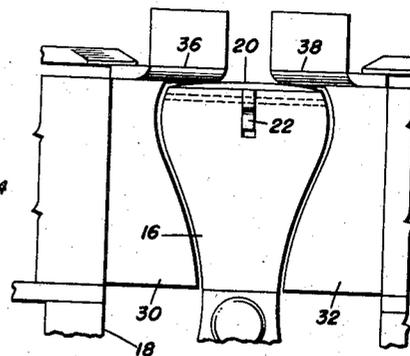


FIG. 4.

FIG. 5.



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METHOD FOR MAKING SHOES

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1 Claim. (Cl. 12—145)

This invention generally pertains to the manufacture of footwear and more particularly to the formation of the quarter or heel portion of footwear and to machinery for forming it.

The heel or quarter portion of a shoe commonly has an outer ply, and an inner ply or lining with a counter blank or stiffener therebetween. The lower marginal portions of the outer ply and the lining in the finished shoe overlap the marginal edges of an insole. It is usual to secure this overlapping by means of a process known as lasting, wherein the shoe, after the upper has been preformed at the quartersection, is placed on a wooden mould and the marginal edges are drawn in and secured to and over an insole or the like. The degree of pulling in by the lasting machine at the marginal portions is difficult to control and it is not easy to obtain a shoe in production with a height that is always consistent at the back or quarter portion. In addition, in shoes where the different pieces of leather are used on different sides thereof, that is, where there is a stitch at the back, it may well be that the elasticity of the two pieces used is different. The lasting machine in such a case will pull or stretch one side of the shoe more than the other.

I have devised a method for making shoes wherein a lasting machine is not necessary for the securing of the marginal portions of the quarter to an insole. According to my invention, the marginal edges of the quartersection are wiped over the marginal portions of an insole portion at the same time that the quarter portion is moulded. By means of appropriate stops on the die moulding machine, the height of the back of the shoe can be controlled with exactitude and the amount of the overlapping at the marginal portions is consistent irrespective of the stretch of the leather at various points on the quarter.

The die moulding of the quarter portion of a shoe is broadly used. For example, United States Patent No. 2,514,057 broadly disclosed this production step. However, when the controlled wiping of the lower marginal portions of the quarter portion over a sole portion to secure them together prior to the shoe being put on a last is effected by the same machine, substantial advantages result in the production and quality of the shoes made.

My invention will be clearly understood after reference to the following detailed specification read in conjunction with the drawings.

In the drawings:

Figure 1 is a top plan view of the upper portion of a shoe.

Figure 2 is a side view of the same upper portion after the heel portion thereof has been moulded and the insole secured thereto.

Figure 3 is a view of the moulds for forming the heel portion, and the wipers that operate in combination therewith according to the invention.

Figure 4 is a view of two of the moulds for forming

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the heel portion showing the manner in which they cooperate.

Figure 5 is an end view of the moulds and wipers showing the manner in which they co-operate.

Figure 6 is a sectional illustration showing how the insole is laid over the male die.

Referring to the drawings, the numeral 10 designates the quarter portion of a shoe upper generally indicated by the numeral 12. This invention particularly relates to the formation of the quarter portion and the incorporation therewith of an insole or the like.

The quarter portion usually comprises an outer ply customarily made of leather but possibly made of cloth and a lining secured to the outer ply by a seam that extends along the upper edge of the quarter lining. The lower edge of the quarter lining is preferably left free, thus providing a pocket for the reception of a counter blank which can be made of any suitable material capable of being moulded and of permanently retaining its shape as imparted thereto by moulding pressure. There is nothing novel in the provision of such a thermo setting counter blank, their use being common in the trade and even particularly described in United States Patent No. 2,514,057.

The marginal edges 13 of the quarter extend below the counter which is between the outer ply and lining and are in manufacture secured to the marginal edges of an insole. As indicated above, this has customarily been effected by an independent operation on the lasting machine but according to my invention, I secure the marginal portion of the upper or quarter to the insole by means of wiping it over at the same time and with the same machine that moulds the quarter portion of the shoe in shape.

I have shown in the drawings typical moulds for putting into practice my method of incorporating an insole or the like into a shoe. They include a rigid male mould 16 rigidly mounted on the base 18 of the machine, formed to the shape of the heel portion of the shoe to be made. The mould 16 has a marginal raised flange 20 at its back top that is highest at the back centre and merges into the top surface of the mould towards the side of the heel portion.

A release bar 22 is pivotally mounted by means of the pin 24 for the purpose of removing shoes from the mould 16 as will be described herein later. Male mould 16 also has a positioning element in the form of a stop pin 28 (Figure 6) at the back centre thereof for the purpose of locating the top back edge 26 (Figure 6) of the shoe with respect to the mould in the moulding operation as will be described later.

A pair of rigid female moulds 30 and 32 co-operate with the side surfaces of the male mould 16 in use to mould the back portion of the shoe 10 in a manner similar to that described in Patent No. 2,514,057 referred to above. The moulds 30 and 32 are shown in an open position in Figure 3 and suitable actuating mechanism (not shown) is provided for moving each of these moulds forwardly and laterally from the position of Figure 3 towards the male mould 16. In Figure 4, female mould 30 has been illustrated in pressing or moulding position with respect to the male mould 16. It will be appreciated that the female mould 32 has been omitted to illustrate the motion. It will be noted that female mould 30 is provided with a cut away as at 34 to accommodate the pin 28. Moulds 16, 30 and 32 are preferably heated.

Numerals 36 and 38 refer to wipers. These wipers occupy the position illustrated in Figure 3 when the female moulds are disposed in their open position. After the female moulds 30, 32 are caused to close in towards the male mould 16 to form the heel portion of the shoe, the wipers 36 and 38 are actuated by a suitable mechanism

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(not shown) to move forward from the position of Figure 3, to pass over the top of the mating male and female moulds in close relation thereto whereby to wipe the free marginal edge portions 13 of the upper portion 10 of the shoe in the mould over an insole 40 as will be referred to later. Wipers 36 and 38 are heated to activate an adhesive that cements the insole 40 to the marginal edge portion 13 of the shoe upper 10.

In making a shoe according to my invention, one takes an upper 10 which has a thermosetting counter between the outer ply and lining thereof and which has a free marginal edge portion 13 at the bottom back for securement to the marginal edge portion of an insole or the like.

With the moulds 30 and 32 in an open position as illustrated in Figure 3, an insole 40 is laid over the bottom of the rigid mould 16 with the back edge of the heel portion thereof in abutment with the flange 20 at the back thereof as illustrated in Figure 6. The outline of the heel portion of insole 40 is substantially the same as the outline of the part of the mould 16. It will be apparent that the front portion of the insole 40 will overlie the lever 22. The next step is the placing of the shoe upper 10 over the mould 16 with the upper back centre portion thereof in contact with pin 28 and the free marginal portions 13 of the outer ply extending above the upper edge of the mould 16.

A suitable adhesive sensitive to heat and pressure of the wipers 36 and 38 is previously applied to either the marginal portions 13 of the upper that will engage the insole or to the marginal edges of the insole that will engage the upper or to both for actuation by the wipers as will be explained later.

With the insole 40 and upper 10 in position as indicated above, the female heel moulds 30 and 32 are then actuated in a forward and lateral direction to press the heel portion of the shoe against the male mould 16. This pressure permanently forms the thermosetting counter and gives the heel portion of the shoe a stiff characteristic. This is known and is described in Patent No. 2,514,057 previously mentioned.

Once the female moulds 32 and 30 are in moulding position, the wiper moulds 36 and 38 are moved in a forward direction to wipe the free marginal edge portions 13 of the upper 10 over the marginal edge portions 13 of the upper 10 over the marginal edge portion of the insole 40. Moulds 36 and 38 are preferably heated and a pressure heat sensitive adhesive between the insole 40 and the marginal portions 13 of the upper responds to the pressure and heat of the wiping moulds 36 and 38 to permanently unite the marginal portions 13 of the upper and the insole 40.

The wiping moulds 36 and 38 and the female moulds 30 and 32 then re-assume the position illustrated in Fig-

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ure 3 and the operator strikes the forward portion of the insole that overlies the lever 22 to tip the front portion of lever 22 down about its pivotal mounting 24 and raise the moulded shoe upper from the male mould. The shoe thus processed is removed and has the appearance illustrated in Figure 2 of the drawings. It is placed on a conventional last and completed by the addition of the outer sole, heel, etc. in a manner well known in the shoe art.

Embodiments of my invention other than the ones shown will be apparent to those skilled in the art and it is not my intention that this invention should be limited to the specific embodiments illustrated. I have disclosed a new method for forming the heel portions of shoes up to the point where the insole is secured thereto and apparatus for practising the method and feel that I am entitled to protection within the scope of the claim that follows.

I claim:

The method of making a shoe, which comprises providing a rigid male mould having a shoe heel seat formation adapted to receive at least the heel portion of an insole, placing an assembly of a shoe upper and a mouldable shoe counter over said male mould with the margins of the assembly extending upright above the male mould, accurately positioning an insole member over at least the heel seat portion of the male mould by engaging the heel end thereof with gage means on the male mould, introducing cementing material between the insole member and the lasting margins of the upper, and concurrently wiping over said lasting margins and moulding said counter and quarters by applying an opposed pair of rigid female mould dies carrying opposed wipers to the opposite sides of said counter and quarters on the male mould.

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