March 31, 1936. P. B. VANCE 2,035,731

SHOE AND METHOD OF MAKING THE SAME

Filed April 10, 1933

FIG. 1.

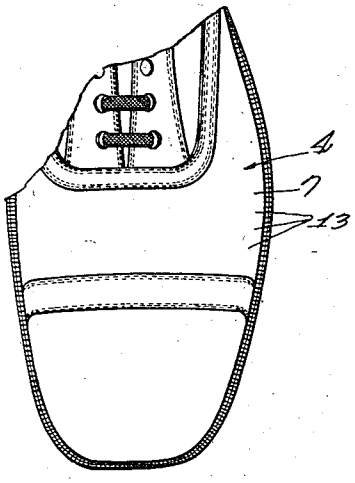


FIG. 2.

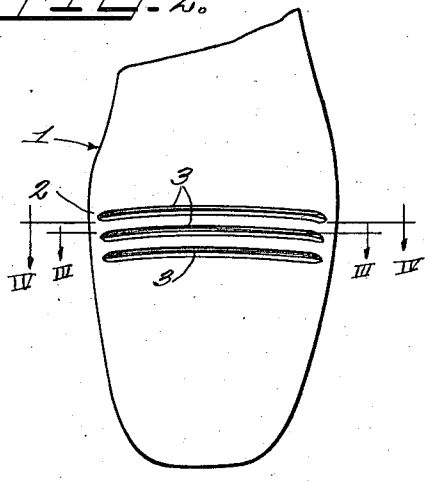


FIG. 3.

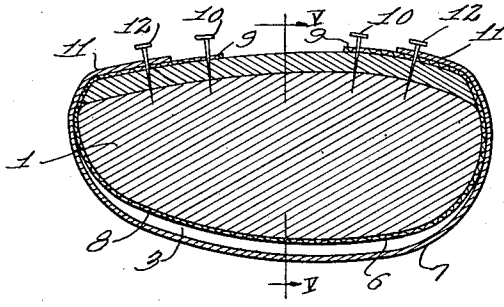


FIG. 4.

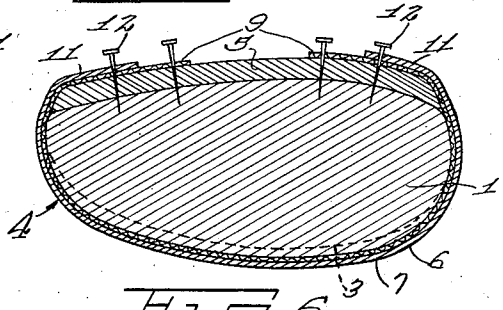


FIG. 6.

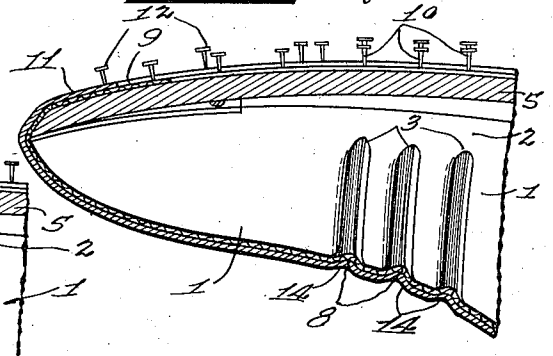
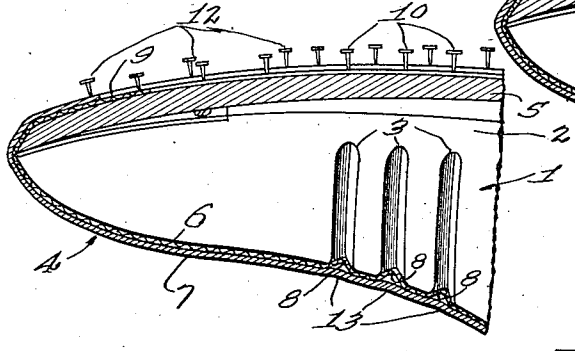


FIG. 5.



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SHOE AND METHOD OF MAKING THE SAME

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Application April 10, 1933, Serial No. 665,243

8 Claims. (Cl. 12—142)

The portion of a shoe upper which in use receives the greatest amount of wear is the ball part of the vamp. This is due to the fact that the foot, as it is being raised to take a step, assumes an angular shape with the portions on opposite sides of the ball pivoting relative to each other about the ball. The result is a repeated bending of the entire shoe at the ball.

In the manufacture of shoes, it has been the custom to employ lasts with smooth surfaces throughout, over which the lining and upper have been drawn taut as a unit so that, when the last has been removed, the outer surface has been smooth throughout. The vamp, especially at the ball, is flexible so that it will not be quickly worn out or cracked by the repeated bending at that point. However, beyond the use of a flexible leather, no provision is made for enabling the ball part to readily flex in such a manner as to avoid discomfort to the wearer due to chafing of the upper part of the ball of the foot during the initial stages of use of the shoe.

Remedy of this drawback has been attempted by shoe salesmen who oftentimes will form transverse marks in the ball of the vamp with some such implement as a button hook or shoe horn, or will forcibly bend the shoe at the ball a number of times. Such operations are hardly more than gestures and often result in unsightly lines or scratches. Moreover, the bending of the shoe by the salesmen results in little if any benefit. In addition, such operations are performed in the presence of the prospective purchaser and give the latter the impression that the shoes are defective in the quality which the salesmen are trying to improve.

Shoes which have heretofore been made have accordingly in many cases caused discomfort in wear due to cramping and chafing of the skin at the upper part of the ball of the foot, and have been unsightly at the ball part of the vamp due to unsightly creases after a short period of wear.

It is accordingly an object of the present invention to obviate the aforesaid shortcomings by the employment of a last construction and process of shoe construction by means of which a shoe is so formed as to readily flex at the ball part of its vamp along predetermined lines, without detracting from its appearance and without necessitating initial flexing by the sales or other person prior to sale or wear of the shoe.

It is a further object to provide a last having the upper part of its ball formed with transverse substantially parallel grooves or corrugations whereby to impart a like formation to the corresponding part of a shoe.

Another object of the invention embodies an improved method of shoe construction whereby slack in the ball part of a shoe upper is provided.

It is a still further object of the invention to provide a shoe with an upper having a desirable appearance and yet capable of flexure without undue stretching or crowding.

In accordance with the general features of the invention, the last at the upper part of its ball is given a generally transversely corrugated formation. After the insole is placed over the sole of the last, the portion of the lining adjacent the corrugations is caused to fit the same and its margin is then tacked to the insole. The leather part of the upper is also lasted over the lining, the portion adjacent the corrugated part of the last being caused to assume the same form or a form similar to that of the lining at the corrugations. When the last is removed, there is a slight slack in the lining at the ball, and the adjacent portion of the upper leather or other material is formed with slight corrugations which may or may not, as desired, be outwardly perceptible and extend transversely of the shoe.

Thus when the shoe is worn, the creasing of the upper at the ball will automatically take place along the preformed lines in the upper, and the lining at that point will permit of the pivotal action without stretching and chafing the foot.

Further important objects and advantages of the invention will appear as the description proceeds.

The invention (in preferred forms) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is a fragmentary plan view of a shoe constructed in accordance with one form of the invention.

Figure 2 is a fragmentary plan view of a last embodying the invention.

Figures 3 and 4 are enlarged cross sectional views taken substantially in the planes designated by the lines III—III and IV—IV, respectively, of Figure 2, with the insole and upper temporarily tacked to the last.

Figure 5 is a fragmentary longitudinal sectional view of one form of shoe construction embodying the invention, taken substantially in the plane designated by the line V—V in Figure 3, the last being shown in elevation.

Figure 6 is a view similar to Figure 5 but showing a modified form of shoe construction.

As shown on the drawing:

Referring now more particularly to the drawing, a portion of a last is shown at 1 to be formed at its upper ball portion 2 with transverse substantially parallel grooves 3. In the making of the improved shoe structure in accordance with the present invention, the upper 4 is placed under and the insole 5 over, the last 1 in the usual way. A departure from past methods is made, however, in that, instead of lasting both the lining 6 and the leather 7 simultaneously throughout, portions of the lining in juxtaposition to the grooves 3 are tensioned or otherwise caused to fit into the grooves as shown at 8 and the margin 9 of the lining at such points temporarily tacked at 10. This operation may be performed at any time, whether before or after the remaining portions of the upper are lasted over the insole 5, although it may be preferred to be done first so that after the margins are tacked in position at 10, the remaining portions of the margins 9 of the lining 6 and margins 11 of the upper leather or the like 7 may be secured by the tacks 12.

In accordance with the form of the invention illustrated in Figure 5, the leather 7 of the upper, at the ball thereof, is caused to dip slightly into the depressions 3 in the last 1, over the corresponding portions 8 of the lining 6, as shown at 13.

In the form of the invention shown in Figure 6, the portions of the ball of the upper leather 7 are caused to intimately engage the depressed portions 8 of the upper lining 6 as shown at 14, the portions 14 so depressed or creased being substantially more readily discernible than the portions 13 of Figure 5.

When the shoe is completed and after the removal of the last 1, the upper is formed with a permanent initial slack or play at the ball of the upper, where repeated bending takes place during the wear of the shoe. This bending results in a stretching of the lining 6 at the ball, and the formation thereof at 8 is such that the likelihood of wearing out of said portion of the lining by virtue of repeated stretchings, and the chafing of the foot at that point, is entirely obviated. Moreover, while this slack is formed in the lining 6 adjacent the ball thereof, nevertheless all remaining portions of the lining are lasted so that they are in intimate contact with the leather 7 and move as a unit with the latter or, otherwise stated, the construction is such that there is substantially no relative movement between the lining and the leather of the upper.

Moreover, by virtue of the permanent set in the leather 7 of the upper, whether to the slight extent shown at 13 or to the greater extent shown at 14, the creases in the shoe at the ball due to the repeated bending at that point will not be left to chance as in constructions heretofore in vogue, but rather will from the beginning take place and effect at the portions 13 or 14, as the case may be, so that the shoe at the ball will never throughout the life of the shoe be unsightly.

In making a shoe in accordance with the form shown in Figure 6, it will be appreciated that the condition of the leather is such that it may be tensioned sufficiently to cause the same to substantially engage the lining in the grooves, although if need be force may be applied directly at such points for that purpose. Moreover, in that form, the lining and leather may be applied at the ball of the last either independently or as a unit. In the form shown in Figure 5, they are preferably applied at the ball individually since the lining is to yield more than the leather at that point.

Although for purposes of illustration the drawing shows the last to be provided with three grooves, it is to be understood that the number of grooves may be varied as desired, and that ribs may be provided instead of grooves, or one or more grooves and one or more ribs, all preferably extending in parallelism or substantially so, may be provided.

In the form shown in Figure 5, the preformed creases when the shoe is new are practically imperceptible as also shown in Figure 1, and in the form shown in Figure 6, the preformed creases will be readily discernible. In either event, the appearance of the shoe is not detracted from in the slightest, and shoes embodying the invention need not be bent, scratched or marked at the ball by the sales person in endeavoring to impress the prospective purchaser of the ability of the shoes to bend readily at the ball.

In a shoe marked by the sales or other person after manufacture of the shoe, such marks are shiny or otherwise very perceptibly in contrast with the adjacent surface portions, thereby detracting materially from the appearance of the shoe. In a shoe embodying the present invention the surface at the ball and elsewhere is uniform throughout and free of any surface grain differences.

The grooves 3 may be substantially V-shaped as shown in Figure 5 or transversely rounded or sinusoidal as shown in Figure 6, the lining alone (Figure 5) or both the lining and the leather (Figure 6) being correspondingly shaped at such grooves.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having at the ball a transversely extending irregularity, tensioning the lining of the shoe upper at the ball in alinement with the irregularity so that it is in intimate engagement with the irregularity, and applying the leather of the upper over the lining without causing the same to follow said irregularity.

2. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having a transversely extending irregularity in the upper part of the ball, and securing the upper to the last with the lining in substantially intimate contact with the irregularity and the leather of the upper only in partial contact with the lining at the irregularity.

3. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having at the ball a plurality of transversely extending grooves, tensioning the lining of the shoe upper at the ball in alignment with the grooves so that the lining is in intimate engagement with the walls of the grooves, and applying the leather of the upper over the lining without causing the leather to follow said grooves.

4. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having a transversely extending groove in the upper part of the ball, and securing the upper to

the last with the lining in substantially intimate contact with the wall of the groove and the leather of the upper in contact with only a part of the lining at the groove.

5. A shoe having an upper formed with a ball portion affording an elongated space between the lining and leather thereof in substantial parallelism with the metatarsal axis of the shoe, providing slack for facilitating bending of the upper and foot about said axis.

6. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having a transversely extending groove, fitting the lining of the upper into the groove, and applying the leather of the upper over the lining without causing the leather to engage the lining at the bottom of the groove.

7. A method of forming a shoe with slack at the ball of its upper, which comprises providing a last having a transversely extending groove in the upper part of the ball, applying the lining of the upper to the last with the lining depressed into the groove, and applying the leather of the upper over the lining with the leather depressed to a smaller extent than the lining at the groove so as to leave a space between the depressed portions of the lining and leather.

8. A shoe comprising an upper whose lining over the ball is depressed along a line substantially parallel to the metatarsal arch, and whose leather over the ball is depressed along the same line partially into the depression in the lining to provide an incipient crease at which the leather will bend when the shoe is bent and to provide slack between the depressed portions of the lining and leather so that they may have relative movement when the shoe is bent.

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