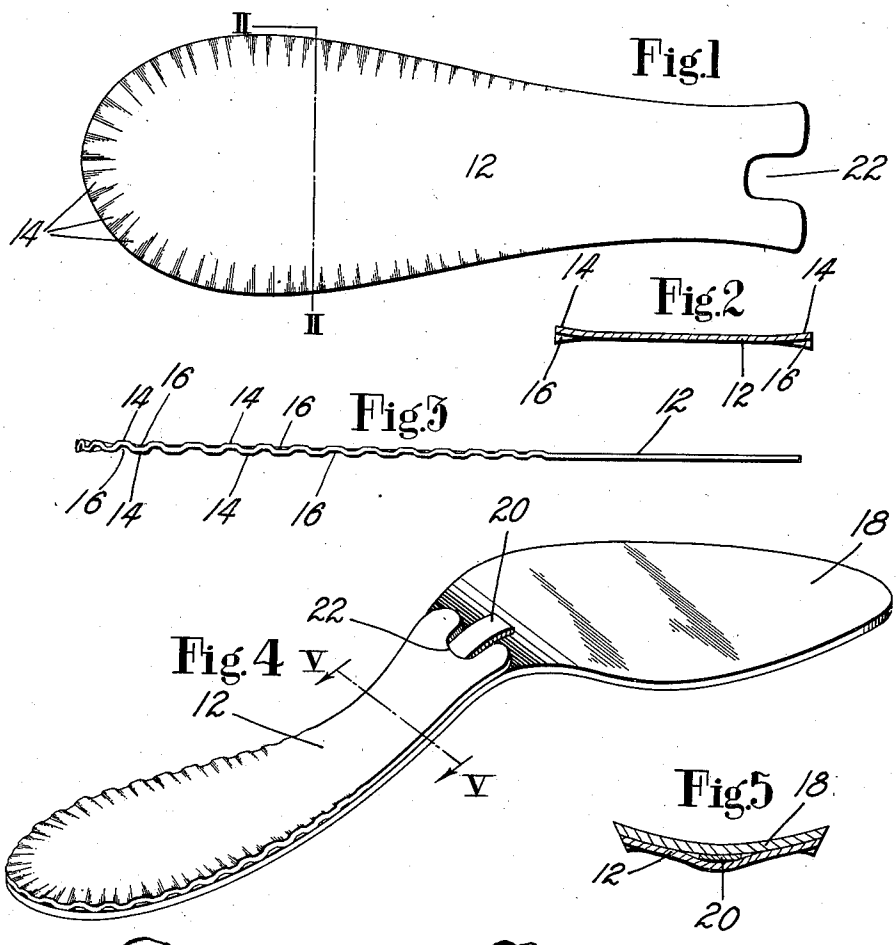
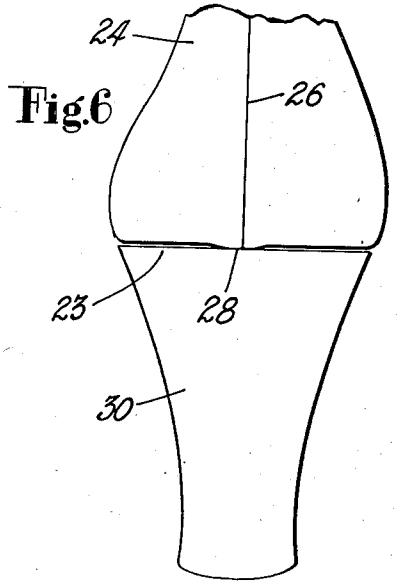
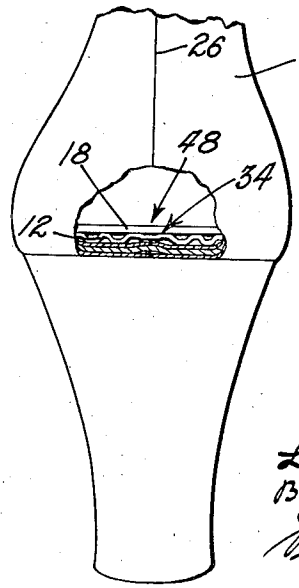
May 6, 1941. L. J. BAZZONI 2,240,603

SHOE AND SHOE PARTS

Filed May 31, 1939 2 Sheets-Sheet 1




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SHOE AND SHOE PARTS

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Fig.8

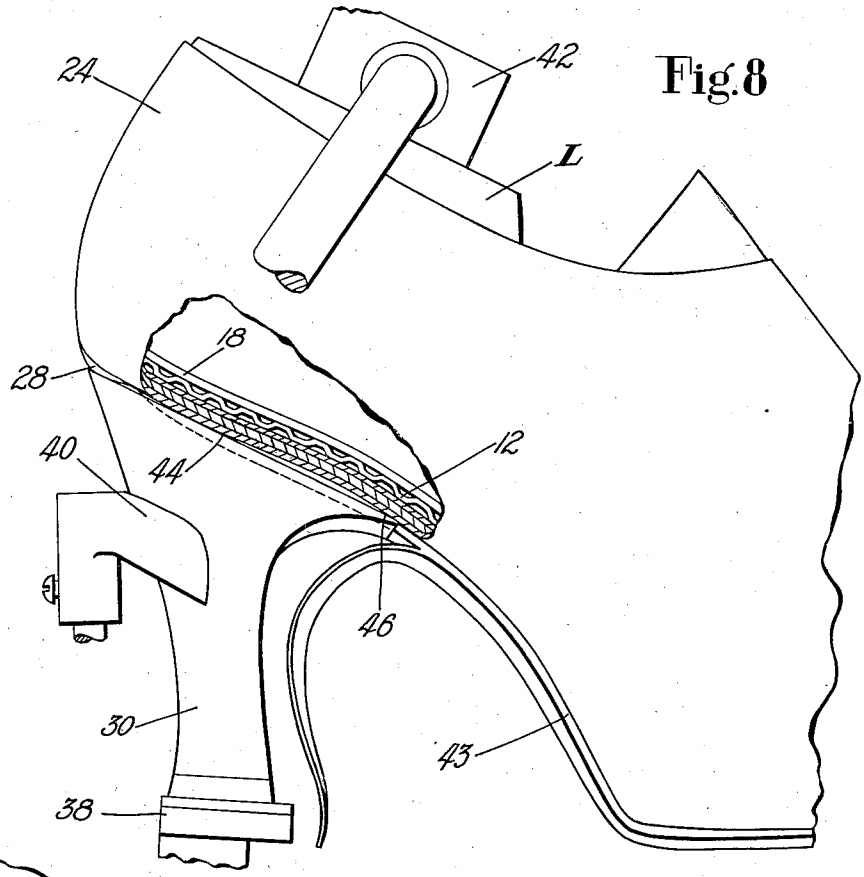
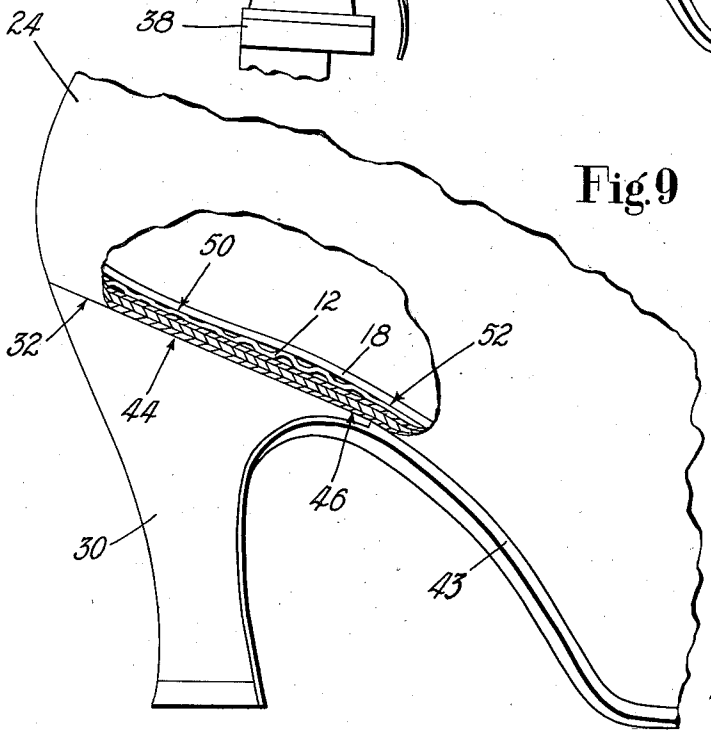



Fig.9




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Patented May 6, 1941

2,240,603

# UNITED STATES PATENT OFFICE

2,240,603

## SHOE AND SHOE PARTS

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Application May 31, 1939, Serial No. 276,669

8 Claims. (Cl. 36—2.5)

This invention relates to improvements in shoes and to improvements in insoles and filler pieces for use therein.

In the manufacture of women's shoes difficulty is often experienced in securing a tight joint between the rim of the attaching face of the heel and the corresponding margin of the heel-seat portion of the shoe bottom. Heels for women's shoes are commonly made so that the rim of the attaching face lies in a plane whereas in most shoes, before the heels are attached, the lower surface of the overlasted upper margin (which constitutes the heel-seat portion of the shoe bottom) does not lie in a plane but has more or less curvature lengthwise of the shoe and has, in addition, a decided downward bulge or ridge where the back seam is located. Consequently, when the heel is applied it usually will not fit accurately upon the shoe bottom but will be held away from the shoe by the back seam ridge and by the lengthwise curvature or other irregularity in the marginal heel-seat portion of the shoe bottom and the heel attaching pressure will usually be inadequate to flatten the shoe bottom sufficiently to insure a tight joint between it and the rim of the heel.

It is one object of the present invention to overcome difficulties such as those just referred to and to that end the invention, in one aspect, provides means in the nature of a filler piece which is adapted for introduction into the marginal heel-seat portion of a shoe bottom and which is capable of yielding or collapsing under the pressure incident to the operation of attaching a heel to the shoe so that the overlasted upper margin at the heel seat of the shoe will conform closely to the rim of the attaching face of the heel and a tight joint will be formed between the upper and the heel rim regardless of differences in profile between the upper margin and the heel rim before the heel attaching pressure is applied. Preferably, and as herein illustrated, the yieldable or collapsible filler means consists of a heel and shank filler piece made of fiberboard, leatherboard, or other suitable substantially non-resilient material cut to correspond in edge contour to that of the heel and shank portion of an insole, the filler piece having a corrugated, crimped or fluted margin. As shown, this filler piece is located in the shoe with the corrugated margin of the piece between the insole and the overlasted upper margin where it will be in line with the rim of a heel to be attached to the shoe. The corrugated or crimped margin of the filler piece is adapted to collapse in the vicinity of any irregularities of formation in the heel-seat portion of the overlasted upper margin under the action of the heel attaching pressure to insure the obtaining of the desired tight joint between the shoe bottom and the heel rim and to remain permanently in collapsed condition so that no irregularities of surface contour will be developed in the insole as a result of reaction of the collapsed portions of the filler piece.

The invention also consists in various other novel features hereinafter described and claimed, the advantages of which will be apparent to those skilled in the art.

The invention will be described with reference to the accompanying drawings, in which

Fig. 1 is a plan view of my improved filler piece;

Fig. 2 is a cross-sectional view of the filler piece taken along the line II—II of Fig. 1;

Fig. 3 is an edge view of the filler piece;

Fig. 4 is a perspective view of an insole unit embodying my improved filler piece, the unit being shown bottom side up;

Fig. 5 is a cross-sectional view of the insole unit taken along the line V—V of Fig. 4, the unit being shown right side up;

Fig. 6 is a rear view of a shoe the heel of which has been placed in position for attachment but has not been subjected to heel attaching pressure, the view illustrating how the bulge of the back seam in the heel-seat portion of the upper tends to prevent the rim of the heel from seating properly upon the shoe bottom;

Fig. 7 is a rear view of a shoe having an attached heel and provided with my improved filler piece, a portion of the upper of the shoe being broken away to illustrate how the crimped or corrugated margin of the filler piece collapses to accommodate the bulge of the back seam in the heel seat portion of the shoe;

Fig. 8 is a view in side elevation of the rear portion of a shoe embodying my improved filler piece, the shoe being shown on a last as the shoe appears after having been positioned in a heel attaching machine but before the heel attaching pressure has been applied, a portion of the upper of the shoe being broken away to show the appearance of the insole, the crimped filler piece, and the overlasted margins of the upper materials at that stage in the heel attaching operation; and

Fig. 9 is a view in side elevation of a portion of the shoe as it appears after the heel has been attached, the upper being broken away to illus-

trate the appearance of the crimped margin of the filler piece in the completed shoe.

As shown in the drawings I provide, for use in the heel and shank portion of the bottom of a shoe, a heel and shank filler piece **12** which may be made of any suitable substantially non-resilient material, such as fiberboard, leatherboard or the like, and which is shaped in edge contour, as by a die-cutting or rounding operation, to correspond with that of the heel and shank portion of the insole of the shoe so that the filler piece will be coextensive with the heel and shank portion of the insole.

In order that the marginal portion of the filler piece may be rendered capable of collapsing, under the pressure incident to the operation of attaching the heel to the shoe, in such localities as to compensate for irregularities of shoe bottom formation, the material along the margin of the filler piece may be expanded, as for example by means of a crimping or corrugating operation, so as to provide marginal corrugations comprising alternately disposed elevations or ridges **14** and corresponding depressions or valleys **16**. This may be readily accomplished by molding the marginal portion of the filler piece between suitable dies or by progressively feeding the margin between cooperating toothed crimping or corrugating rolls. As illustrated, the ridges and depressions produced by the corrugating operation extend transversely with respect to the adjacent edge portions of the filler piece and the ridges are of maximum height and the depressions of maximum depth at the extreme edge of the piece, the height of the ridges and the depth of the depressions decreasing inwardly from the edge of the filler piece until the ridges and depressions blend or merge with the uncrimped interior portion of the filler piece at points spaced approximately ¼ of an inch from the edge around the heel portion of the filler piece. Advantageously, and as shown, the corrugations are all substantially uniform in character around the heel portion of the filler piece but from the heel portion forwardly they gradually decrease in prominence, the ridges becoming progressively less pronounced both in length and height until they disappear entirely at points substantially midway of the length of the shank portion of the filler piece. In Figs. 1 to 3, inclusive, the filler piece is shown as being flat except where its marginal portion is corrugated and the filler pieces may be sold as articles of manufacture in this condition. If desired, however, they may be molded to curve them longitudinally and transversely so as to conform to the curvature of the bottom of a last before they are assembled with the other parts of a shoe.

Desirably the corrugated filler piece may be assembled with a shank stiffener and an insole to provide a reinforced insole adapted to be used as a unit in the manufacture of a shoe. Such an insole unit is illustrated in Figs. 4 and 5 wherein the insole is indicated at **18** and the shank stiffener at **20**, the shank stiffener having the usual longitudinal curvature and the shank portions of the insole **18** and the filler piece **12** being secured together as by means of cement and molded both longitudinally and transversely to last bottom conforming shape. As shown, a notch **22** is provided in the forward extremity of the heel and shank piece **12** to receive the forward portion of the shank stiffener to insure against edgewise displacement of the latter.

When my improved heel and shank filler piece is used in a shoe with the margin of the filler piece interposed between the insole and the overlasted margin of the upper, as indicated in Figs. 7, 8 and 9, the corrugated margin of the filler piece constitutes a yieldable element which, while adapted to maintain its expanded or corrugated form throughout the operation of lasting the upper, is capable of being collapsed more or less as the result of the pressure incident to the attachment of a heel to the shoe in certain localities where the bottom surface of the overlasted upper margin does not conform to a plane. Thus, when the rim of the heel (which does lie in a plane) and heel-seat portion of the shoe bottom are forced together under considerable pressure, all the curved or projecting portions along the heel-seat margin of the overlasted upper are flattened out and as a result the rim of the heel is seated tightly against the upper so that it forms a tight joint therewith.

One of the conditions of irregularity in the heel seat portion of the shoe bottom which is thus compensated for by the collapsing of portions of the corrugated margin of the filler piece is illustrated in Fig. 6, which is a back view of a shoe having a two-part quarter **24** the parts of which are united by a back seam **26**. This back seam is formed by the stitching together of folded-over edges of the upper materials as a result of which a substantial downward bulge **28** is formed in the overlasted margin of the upper. In this figure a heel **30** is shown which has been placed in position for attachment but which has not been subjected to heel attaching pressure and the figure clearly illustrates how the bulge **28** of the back seam tends to prevent the rim of the heel from seating properly on the shoe bottom.

Another condition of irregularity in the heel-seat portion of the shoe bottom is that illustrated in Fig. 8 which shows a portion of a shoe in side elevation, the shoe being mounted upon a last L and assembled with a heel **30** on a heel attaching machine of the type disclosed in United States Letters Patent No. 1,826,723, granted October 13, 1931, upon application of F. E. Bertrand, the heel supporting members being shown at **38** and **40** and the last engaging clamp at **42**. In this figure the outsole is shown at **43** and upper materials have been broken away to show the overlasted marginal partions thereof at the side of the shoe as well as the corresponding corrugated marginal portion of the filler piece as they appear in a plane located directly above the rim of the heel. It will be seen that the bottom contour or profile of the overlasted upper materials is downwardly convex lengthwise of the shoe from the rear of the heel forwardly to a point located a substantial distance rearward of the forward edge of the heel breast lip and that forwardly of this point the bottom curvature or profile of this part of the shoe bottom is downwardly concave.

As illustrated in Fig. 8, the heel attaching pressure has not been applied and consequently the rim of the heel **30** (which lies in a plane) engages the curved bottom margin of the overlasted upper only at the rear extremity of the heel where it engages the bulge **28** of the back seam, and at the localities **44** and **46**, the heel rim being spaced from or "bridging" the overlasted upper margin between the localities **44** and the localities **46** and between the back seam bulge **28** and the localities **44**. After the heel attaching pressure has been applied, however, through the medium of the heel clamp **42**, the corrugated margin of

the filler piece is caused to collapse above the back seam bulge 28 (as indicated at 48 in Fig. 7), and above the localities 44 and 46 (as indicated at 50 and 52, respectively, in Fig. 9). As a result the back seam bulge and the curved portions of the bottom margin are flattened to conform to the plane of the rim of the heel and the latter is seated tightly against the bottom of the shoe. It should be understood that Fig. 8 illustrates only one condition of profile curvature of the marginal heel-seat portion of a shoe bottom and various other conditions of curvature often occur as a result of the curvature of corresponding portions of the last or for other reasons such as non-uniformity of thickness of different portions of the upper materials, improper lasting of the upper, etc. Inasmuch as the filler piece is made of substantially non-resilient material, there will be no reaction of the collapsed portions of the filler piece after the last has been withdrawn from the shoe and consequently no irregularities of surface contour will be later developed in the insole to cause discomfort to the foot.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A heel seat filler piece consisting of a single layer of readily deformable material having its marginal portion only fluted and comprising a series of ridges extending in directions transverse to the edge of the piece, said ridges decreasing in height gradually from their outer extremities to localities where they merge into a substantially flat central portion.

2. A single ply heel and shank piece of readily deformable material having a corrugated margin comprising a plurality of ridges extending transversely to the edge of the piece, the ridges progressively decreasing in height from their outer to their inner extremities.

3. A one-piece heel and shank filler having a fluted marginal portion only, the flutes extending transversely to the edge around the heel and along the shank portion and progressively decreasing in length and height forwardly from the heel portion of the filler piece, and the shank portion of said filler being unfluted throughout a substantial portion of its length.

4. A heel and shank filler piece composed of a single layer of deformable, substantially non-resilient material and having an edge contour corresponding to that of the heel and shank portion of the bottom of a shoe, said filler piece having its rear and side margins crimped and comprising ridges extending at right angles to the edge of the piece and adapted to collapse under the pressure incident to the attachment of a heel to a shoe in which said filler piece is incorporated, said ridges progressively decreasing in height forwardly of the heel portion of the piece, and said filler piece being uncrimped and flat throughout the greater part of the length of its shank portion.

5. An insole unit comprising an insole conforming to last bottom curvature in its shank portion, a reinforcing piece coextensive with the heel and shank portion of the insole and secured to the lower side of the latter, and a longitudinally curved shank stiffener interposed between said parts, the marginal heel portion of said reinforcing piece being crimped and comprising a series of spaced ridges extending in directions transverse to the edge of the unit, said ridges progressively decreasing in length and height forwardly of the heel portion thereof and the forward shank portion of said reinforcing piece being uncrimped.

6. In a shoe having a heel the rim of the attaching face of which lies in a plane, and a shoe bottom element having a marginal heel-seat portion which does not lie in a plane, a filler piece located at the outer or lower side of said bottom element and having a corrugated marginal portion comprising a series of elevations of different degrees of prominence compensating for differences between the profile of the rim of the heel and the profile of the marginal heel-seat portion of said bottom element.

7. In a shoe, an insole, an upper having in its rear portion a bottom margin inturned beneath the insole, a heel attached to said bottom margin, the rim of the attaching face of the heel having a profile differing in contour from that of the profile of the marginal heel-seat portion of said insole, and a filler piece between said inturned bottom margin and said insole having a crimped margin comprising alternating elevated and depressed portions engaging, respectively, said insole and said bottom margin, said elevations and depressions varying in dimensions heightwise of the shoe to compensate for differences in contour of said profiles and thus to insure a tight joint between said bottom margin and the rim of the heel.

8. In a shoe, an insole the opposite lateral margins of the heel portion of which are downwardly convex in directions lengthwise of the shoe and heel, a heel-seat filler piece secured to said insole, said filler piece being coextensive with the heel-seat portion of the insole and located beneath the latter, an upper having an inturned bottom margin underlying said filler piece, and a heel permanently attached to the shoe having the rim of its attaching face lying in a plane and seating against said inturned bottom margin, said filler piece having a corrugated margin, the corrugations of which are collapsed varying amounts thereby accommodating said convexity of said insole margins, thus to insure a tight joint between the rim of the heel and the bottom margin of the upper.

LEWIS J. BAZZONI.