Aug. 31, 1926. 1,597,874

P. C. ARNOLD

SHOE AND PROCESS OF MAKING THE SAME

Filed May 22, 1926

Fig. 1

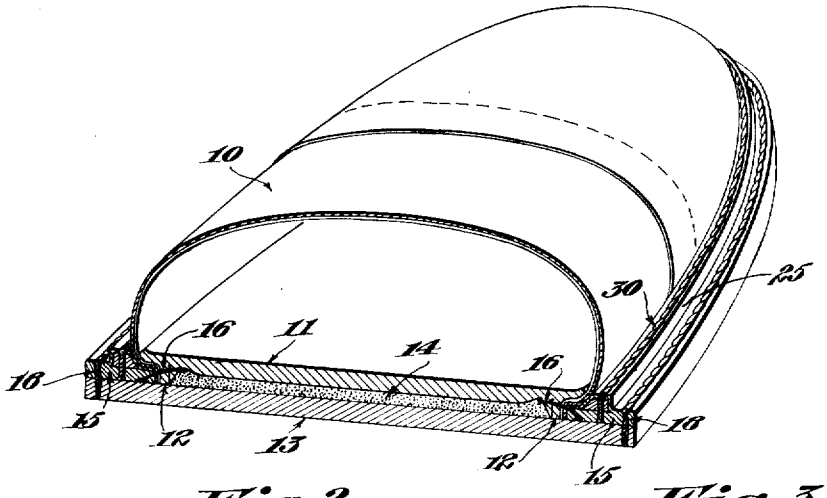


Fig. 2

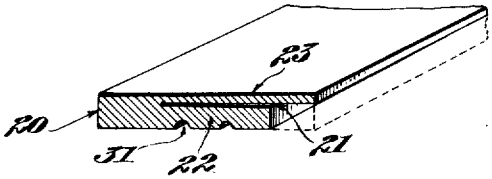


Fig. 3

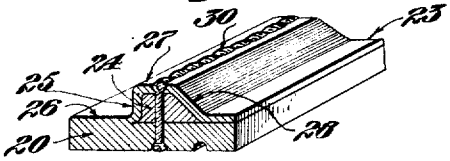


Fig. 4

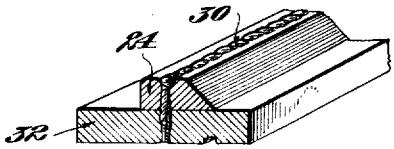


Fig. 5

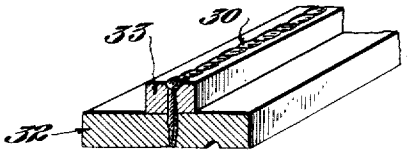
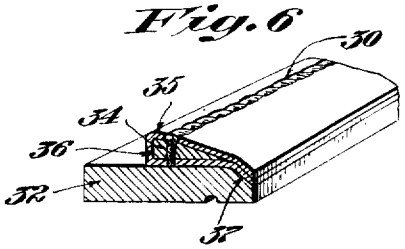


Fig. 6



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Patented Aug. 31, 1926. 1,597,874

UNITED STATES PATENT OFFICE.

PEARL C. ARNOLD, OF WEST HANOVER, MASSACHUSETTS, ASSIGNOR TO PERLEY H. BARBOUR, OF QUINCY, MASSACHUSETTS, TRADING AS BARBOUR WELTING COMPANY, OF BROCKTON, MASSACHUSETTS.

SHOE AND PROCESS OF MAKING THE SAME.

Application filed May 22, 1926. Serial No. 110,939.

This invention relates to shoemaking and more particularly to the manufacture of welted boots and shoes exhibiting a double outseam, commercially known as "double-deck" shoes.

While light weight shoes are in demand for summer wear, for winter wear the public demands shoes of heavy, rugged construction. The effect of a heavy winter-wear shoe may be obtained in various ways but it is highly important that fit, flexibility and comfort be not sacrificed in order to obtain weight, or the appearance of weight and strength.

Heretofore doubledeck welt shoes have been produced by the addition of a slip sole secured between a narrowed welt and the outsole, but such shoes have never attained popularity for several reasons. The main detrimental features are: difficulty of manufacture, due to the fact that no available outsole-stitcher can satisfactorily sew the narrowed welt at the inside shank without stitching into and breaking the inseam, necessitating an unsightly wide extension at this point to avoid this weakening of the inseam stiffness, due to the additional sole; and increased expense, due to the cost of the additional slip sole, and to the need of hand sewing or cobbling at the factory if the shank extension is eliminated.

The object of the present invention is to produce a welted shoe that in appearance has all the style advantages of doubledeck shoes, including the provision of a well-matched double outseam, but which preserves the entire strength of the inseam and improves the construction of prior double-deck shoes by preserving the flexibility that is an important asset of Goodyear welt shoes, because no additional stiffening slip sole is used. An important feature of the present invention is the immense saving of material while yet providing a perfect doubledeck at the margin. A further important feature is the ability of the manufacturer, when building shoes under the novel process of this invention, to preserve all the lines, and especially at the instep, of his individual styles, because the shoe may be built by machines available to every shoe manufacturer, while yet presenting the heavy, rugged appearance that is characteristic of a double-deck shoe.

To the accomplishment of this object and such others as may hereinafter appear, as will readily be understood by those skilled in the art, the invention comprises the features and combinations of elements together with the novel process of manufacture hereinafter described and then particularly pointed out in the appended claims.

The features and scope of the invention will best be understood from a description of the preferred embodiments thereof illustrated in the accompanying drawings, in which:

Figure 1 is a view, in perspective, of the forepart of a shoe, the end in the foreground being shown in section;

Figs. 2 and 3 are two similar views of portions of the welt, in different stages of construction, that is built into the shoe shown in Fig. 1;

Figs. 4 and 5 illustrate portions of modified forms of welt that may be used, being simpler in construction; and

Fig. 6 illustrates a portion of another modified form of welt.

In the drawing various forms are illustrated of the novel welt by means of which the doubledeck margin or edge is obtained, and because of which the shoe may be built throughout all operations in the usual manner and with the usual machines.

In Fig. 1 a cross-section of a Goodyear welt shoe is shown the elements including upper material 10, an insole 11 channeled to provide a sewing rib 12, an outsole 13, sole filler material 14 and a ribbed welt 15 secured to the sewing rib 12 by the usual inseam 16 and to the outsole by the usual outseam 18. It will thus be observed that after assembly, the insole, upper, welt and outsole are secured together by the usual two seams only, one of which is hidden, as is customary in the manufacture of Goodyear welt shoes. But here the strict comparison of the two shoes ceases for, as will now be explained, the novel shoe of the present invention embodies a two deck welt that differs materially in its characteristics from

the ordinary Goodyear welt and, while capable of readily being fed to the stitch-forming mechanism of the Goodyear welt sewing machine, nevertheless gives to the shoe the desired doubledeck without requiring that a third securing seam be sewed during the manufacturing process.

Figures 2 and 3 illustrate the process of making the type of unitary doubledeck welt 15 that is shown in section by Fig. 1. A strip of Goodyear welting 20, somewhat wider than usual, is slit longitudinally at 21 beneath the grain side of the strip. The extra width of the welting (dotted lines in Fig. 2) is removed from the slit edge leaving a body 22 somewhat narrower than the grain-side cover-flap 23. A core 24 is cemented at the base of the slit, or in the angle formed by lifting the cover-flap 23, and the flap is cemented over the core, its extra length providing for covering the core and the rough inner margin of the body 22. The core 24 is characterized by an outer face 25 that stands normal to the plane of the welt surface so that after it has been enveloped by the flap 23 a reentrant right angle is formed at the outer margin 26 of the welt. Preferably, but not essentially, the upper face of the core lies in a plane at a 90° angle to its outer face 25 providing a top deck 27 parallel to the welt surface 26, and the inner face 28 of the core is beveled to present an oblique surface that will fit as snugly as possible in the shoe crease. The upstanding rib formed by the core and its grain surfaced cover flap closely hugs the upper when the welt is stitched to the insole, but with its top face exposed outside the shoe crease.

The novel welt, when employed to produce a doubledeck edge on the shoe, is further featured by a longitudinal seam 30 that is surface-stitched adjacent the outer edge of the top deck 27, functioning in some forms of the welt as means for securing the core 24 in position but inserted primarily to exhibit the second outseam that is a requisite of doubledeck shoes. It will be understood from the foregoing that the welting is supplied to the shoe manufacturer with the line of stitching 30 already placed in the top deck so that the ribbed welt with its embedded stitch may be handled as a unit during the inseaming operation like any other Goodyear welting except for the use of a special welt guide shield. In order that there will be no incongruity the seam 30 is formed by a seven-cord braided cotton thread similar in appearance to the thread that is used for the outseam 18 and the spacing of the stitches may be made to conform to that of the outseam. The stitching 30 may be a chain-stitch seam as illustrated in Fig. 3, in which event it is desirable to provide a groove 31 in which the heavy thread is buried, or it may be a lock-stitch seam as illustrated in Figs. 4 and 5 in which the shuttle thread may be much finer than the heavy needle thread and thus may lie against the under face of the welt without harm. If desired the type of ribbed welt shown in Fig. 3 may be provided with a fair stitched seam 30.

In Fig. 4 a welt having a rib of similar cross-section to that of Fig. 3 is shown except that the welting 32 is not split to provide the cover-flap 23 and in this instance the welting 32 may be of standard width. In Fig. 5 a welt similar to Fig. 4 is shown except that the rib 33 is rectangular in cross-section. In each type just described the outwardly facing shoulder presented by the rib will need finishing.

The modification shown in Fig. 6 illustrates the invention as embodied in one type of what is known commercially as an "imitation cork-sole welt". This type of two deck welting comprises a bottom deck 32 of Goodyear welting and a separately manufactured top deck formed by a rib strip 34 preferably of triangular or wedge-shaped cross-section. This strip 34 may, if desired, have a thin envelope 35 of upper leather to provide a grain finish for the top deck similar to the grain surface of the welting 32. The wedge butt forms an outwardly facing shoulder 36 along the welting 32 and the envelope 35, if used, may extend beyond the wedge edge to provide a thin flap through which the inseam is sewed. The welting preferably, but not necessarily, is beveled at 37 to aid the inseaming operation. The rib strip 34, as for the other types, is surface-stitched along its top deck next to the shoulder 36 with a unitary seam 30 throughout its length, preferably before assembly with the welting 32, using any suitable kind of thread stitch. It is within the scope of the invention, however, to assemble the bottom and top desks and secure them together by the seam 30, the essential object being the presentation of a line of surface-stitching immediately adjacent the top deck shoulder 36 however this shoulder is formed. Those skilled in the art will recognize that the welting of Fig. 6 may be as readily sewed to the shoe when the two decks are unattached as when they are attached. If an unenveloped rib strip is used then its butt end 36 will be burnished by a suitable edge setting tool as stated for the types of Figs. 4 and 5, to produce a finish comparable to that of the exposed edges of the shoe bottom.

In using the surface-stitched two deck welting herein described, and illustrated in several of its forms, in the manufacture of welt shoes of the type having a doubledecked margin, the surface-stitched welting may be attached to the upper and insole and to the outsole like any other Goodyear welt-

ing. The inseam 16 is sewed through the inner margin of the welt at one side of the line of stitching 30 in the top deck of the welt and thereafter the outseam 18 is sewed through the outer margin of the welt at the other side of said stitching in the welt. When the shoemaking process is completed. the inseam is intact and secure but the margin of the shoe exhibits the two parallel outseams characteristic of double deck shoes.

Attention is especially called to the fact that in the manufacture of a doubledeck shoe using my novel welt no additional seam is required other than the usual inseam and outseam. The process of making the shoe is carried forward without departure from the usual practice except, and this is highly important, a two deck welt provided with an exposed line of surface-stitching through the length of the top deck is employed as a unitary article to produce the doubledeck edge on the shoe.

I believe that I am the first to produce a doubledeck welt shoe having only one outseam for securing the outsole to the welt while yet exhibiting two outseams at the margin, one in each deck; and I believe that I am the first to practice the process of making doubledeck welt shoes that will exhibit two like outseams and which yet enables manufacturers to preserve all style effects.

The nature and scope of the invention having been indicated, and the shoemaking process having been specifically described, what is claimed as new, is:—

1. The method of making welt shoes of the type having a double-decked margin which comprises forming a two deck welt the top deck of which presents an outwardly-facing shoulder and having a surface-stitched seam along the top face of said top desk next to said shoulder and throughout its length, assembling upper materials and an insole on a last, inseaming said surface-stitched welt to the upper and insole at one side of said stitching in the welt, applying an outsole, and outseaming said welt to the outsole by surface-stitching at the other side of said stitching in the welt.

2. A welt shoe of the type having a double-decked margin consisting of upper materials, an insole, an outsole, and a two deck welt composed of two strips of material, the top deck strip being located in the shoe crease to present an outwardly-facing shoulder above the bottom deck and an exposed top face outside of said crease, and carrying a line of surface-stitching in said exposed top face, said welt being secured in position by an inseam through its inner margin and the upper materials and insole at one side of the stitching in said top deck strip, and by a surface-stitched outseam through its outer margin at the other side of and parallel to the line of stitching in said top deck strip.

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Certificate of Correction.

It is hereby certified that in Letters Patent No. 1,597,874, granted August 31, 1926, to Pearl C. Arnold, of West Hanover, Massachusetts, for an improvement in "Shoes and Processes of Making the Same," errors appear in the printed specification requiring correction as follows: Page 1, line 27, after the word "seam" insert a semicolon; same page, line 88, for the word "material" read *materials;* page 3, line 42, claim 1, for the word "desk" read *deck;* and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 2d day of November, A. D. 1926.

WM. A. KINNAN,
Acting Commissioner of Patents.

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