

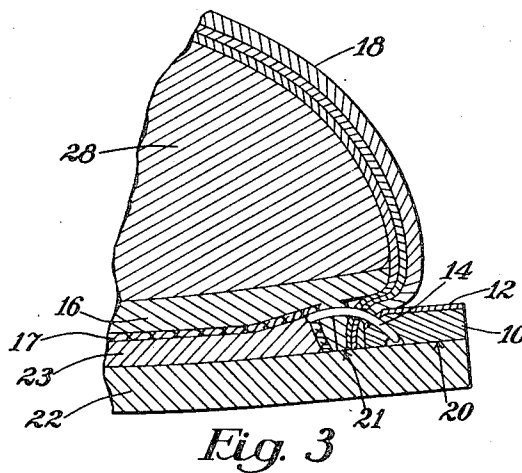
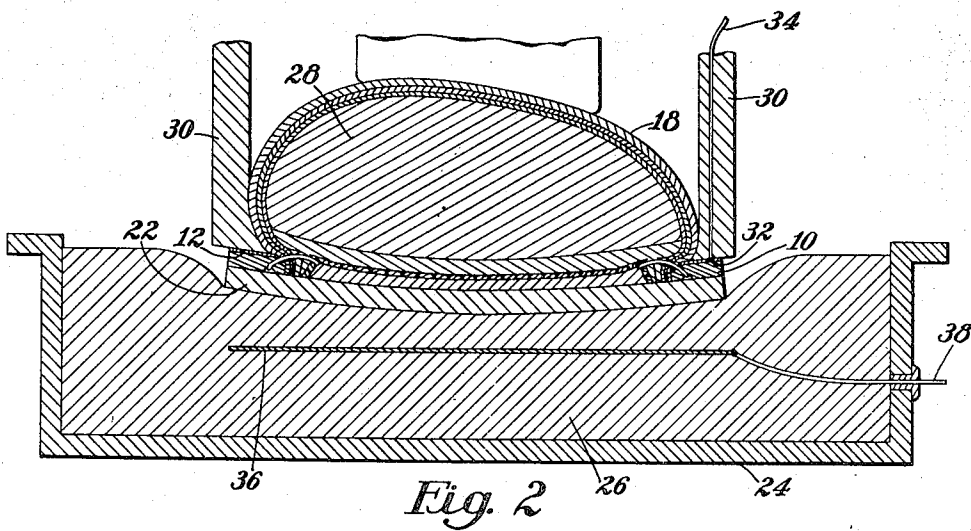
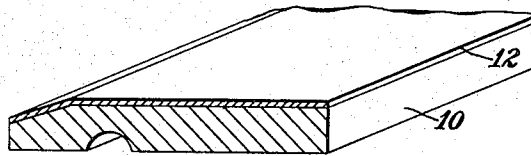
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WELT SHOE SOLE ATTACHING

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WELT SHOE SOLE ATTACHING

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The invention relates to the attachment of soles to welt shoes by means of an adhesive activated in a high-frequency field.

In the attachment of soles to welt shoes by means of an adhesive interposed between the attaching surface of the welt and the flesh surface of the sole, certain types of cement of the thermoplastic or thermosetting varieties may conveniently be activated by the application of a high-frequency field which is usually an electrostatic field. Owing to the variation in sizes or shapes of shoes, however, difficulty is experienced in providing a suitable electrode for the upper, or grain, surface of the welt which will meet all conditions of shoe factory routine. No electrode applied exteriorly of the shoe can extend inside the welt crease. Furthermore, the extension of the welt beyond the shoe varies with different types of shoes and varies between the forepart and the shank portion of the shoe, and it is desirable, in order to make this electrostatic field most effective, that it shall be applied close to the band of adhesive, including both that on the welt and that on the insole.

One object of the invention is to devise an electrode which may be incorporated in a welt shoe and which, accordingly, will have exactly the desired contour regardless of the size and shape of the shoe. Such an electrode may conveniently comprise a layer of conductive material temporarily attached to the strip of welting which is to be applied to the shoe.

Still another object of the invention is to devise an improved process of attaching soles to welt shoes which will avoid the necessity of complicated apparatus intended to provide electrodes for the activation of attaching cement in shoes of various shapes and sizes. In one aspect, this process will include the incorporation in the shoe of a strip of welting having a layer of metal foil temporarily attached to its grain surface. Preferably, and as later described, this metal foil is removed from the shoe, at least in so far as it is exposed to view, after the sole has been attached.

One particular embodiment of the invention is described in the following specification and illustrated in the accompanying drawings, in which

Fig. 1 is an angular view of a strip of welting constructed so that it may serve as an electrode;

Fig. 2 is a vertical transverse section through the toe portion of a shoe positioned in a sole attaching press; and

Fig. 3 shows, on a larger scale, a similar section through the forepart of a shoe including an attached sole.

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In order to provide an electrode which may be incorporated in each shoe, I have provided a special welting 10 having temporarily applied to its grain or exposed surface a layer 12 of metal foil which is conterminous with the outer edge of the welt and conveniently may be temporarily attached to the welting by means of a non-permanent adhesive, such as rubber cement. This welting is incorporated in a shoe, as by means of an insole 14 passing through the lips of an insole 16, reinforced by canvas 17, as well as through the upper 18 and the welting 10. The stitches of this insole will form a line of severance of the foil which will facilitate its removal as later explained. It will be seen that the metal foil 12 then exactly overlies the attaching surface 20 of the welt to which the sole attaching cement is to be applied. Further, the foil 12 extends into and forms part of the insole and comes very close to the trimmed end faces 21 of the insole to which the cement is also applied. Commonly, such cement will be of the thermoplastic variety, of which the vinyl resins are one typical class, and will be applied to the surfaces 20 and 21 and allowed to dry. If desired, a similar band may then be applied to the margin of the flesh surface of the outsole, at least around the forepart of the outsole ahead of the breast line, and this will be allowed to dry prior to bringing together the sole and the shoe. A filler 23 occupies the space inside the rib of the insole.

When, therefore, it is desired to attach an outsole 22 in any suitable form of attaching press 24 commonly including a resilient pad 26, the shoe may readily be positioned upon the outsole in exactly the desired relation without hurry upon the part of the operator and without hindrance because of the use of tacky cements. When this has been done, it will usually be found desirable to apply pressure to the shoe both through the last 28 and to a welt holddown 30, of any convenient type, so as thereby to insure perfect contact between the superposed bands of cement. In order that the welt with its metal foil may serve as an electrode, there will be brought into firm engagement with it a button or prong 32 mounted on and projecting slightly below the holddown 30 and adapted to be joined to one side of a source of high-frequency current by means of a lead 34. The exact form of the other electrode is unimportant so long as it causes the electrostatic field to be set up in the area of the cement bands. This field, by reason of the extent of the layer of foil 12, will traverse the whole width of the cement band on the surfaces 20 and 21. For the sake of

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illustration, such a lower electrode 36 is shown as a metal plate embodied in the pad 26 and supplied with a lead 38 by which it may be connected to the other side of the source of high-frequency current.

Following the activation of the cement, the shoe will be removed from the sole attaching press and, since the metal foil 12 is secured to the welting by a non-permanent adhesive, it may readily be removed in any desired fashion, as by means of a rotary brush. It will be understood that any marks of the brush which are left on the grain surface of the welting will be obliterated during the stitch indenting or wheeling operation, with its burnishing effect.

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

1. Shoe welting comprising a strip of organic material and a layer of metal foil on only the side of the welting which is to be adjacent to the upper.

2. A hank of leather welting having a layer of metal foil adhesively attached to its grain surface with a non-permanent adhesive.

3. As an article of manufacture, a strip of welting for shoes having a thin layer of conductive metal upon and coextensive with one surface thereof and crossing the line at which the in-seam stitches will be placed, said metal being adapted to serve as one of a pair of electrodes for use in activating cement to attach an outsole to the welting in the process of making welt shoes.

4. The process of making a shoe, the sole of which is to be attached by means of an adhesive, which consists in lasting a shoe upper, securing thereto a welt having a continuous band of electrically conductive material incorporated in it, applying cement to at least one of the attaching surfaces including the welt and the sole, allowing the cement to dry, pressing the sole against the shoe and its welt, and activating the adhesive by a high-frequency field set up between electrodes, one of which is the conductive band incorporated in the welt.

5. The process of making a welt shoe, which consists in providing a lasted upper with a welt having a layer of metal foil temporarily attached to its grain surface, applying cement to the opposed surface of the welt and/or to the margin of the attaching surface of a sole, allowing the cement to dry, bringing together the sole and shoe with the welt in contact with the sole, acti-

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vating the adhesive by means of a high-frequency field set up between electrodes, one of which comprises the metal foil on the welt, discontinuing the field, leaving the sole attached to the shoe, and removing the metal foil from the welt.

6. Those steps in the process of making a welt shoe the sole of which is to be attached by means of an adhesive, which consists in forming in-seam stitches to attach a welt and a superposed strip of metal foil to the upper of a lasted shoe, said strip of foil being temporarily attached to the welt for ready removal therefrom, said stitches forming a line of severance between the portion of the foil which is hidden in the shoe and that portion which lies exposed upon the welt, adhesively attaching a sole to the shoe, and removing the metal foil on the exposed surface of the welt.

7. A step product comprising a shoe having an upper to which there has been attached a welt provided with a readily removable layer of metal foil extending substantially throughout the length of the welt and having a width approximating the width of the cement carrying margin on the attaching surface of the welt.

8. A step product comprising a lasted upper to which there has been attached a welt having a layer of metal foil extending continuously substantially throughout the whole length of the welt and of a width approximating the width of the projecting portion of the welt, the outer edge of said foil being conterminous with the outer edge of the welt.

9. A step product comprising a lasted upper, a welt secured thereto and having on its exposed upper surface a temporarily attached layer of metal foil, and a sole attached to the other surface of the welting by means of a permanent adhesive.

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