FLEXIBLE INSOLE RIB FOR WELTING

Inventor: Robert W. Sampson, Billerica, MA (US)

Correspondence Address:
Gauthier & Connors LLP
Suite 3300
225 Franklin Street
Boston, MA 02110 (US)

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Abstract

An insole rib comprising a rib and a fabric. The rib has serrations along an upper edge thereof. A material surrounds a portion of the rib such that the upper serrated edge of the rib is exposed.
FLEXIBLE INSOLE RIB FOR WELTING

SUMMARY OF THE INVENTION

[0007] An insole of a shoe including a rib with a filler having serrations along at least one side thereof to provide intrinsic flexibility to the rib. The filler board may be cellulosic in nature. Additionally the rib incorporates a patented twill fabric such as that disclosed in U.S. Pat. No. 5,195,255 assigned to Worthen Industries, to give further stretch as the serrated rib rounds the sharp corners of the insole, thereby providing even more flexibility to the system.

BACKGROUND OF THE INVENTION

[0002] The traditional method for manufacturing high quality walking shoes includes the use of a stitched welt. The method utilizes an insole to which a rib or wall has been attached by adhesive and positioned approximately \( \frac{1}{2} \)" to \( \frac{3}{4} \)" from the edge of the insole. The upper and the lining, if a lining is present, is lasted to the insole edge and often to the rib itself. A welt, which may include leather, PVC, rubber, or other suitable materials, is sewn through the upper and lining to the wall of the rib. The top of the rib and any extra upper/lining materials are trimmed before sole-attaching by means of a temporary adhesive bond which is then stitched.

[0003] A variety of insole ribs are available. Basically, each of these consists of a fiber core covered with a tape or fabric flanged out at each side to define the rib. The rib is either upright or angled. The attachment of the insole rib to the insole is virtually the same for all types. Originally, the insole rib was applied only to leather insoles but today the insole ribs are attached to a variety of insoles.

[0004] The insole rib is coated with adhesive, usually a neoprene, allowed to dry and then stored on a reel. The insole rib is fed from a reel and attached to the insole by a special rib-laying machine which uses a jet of hot air to heat-activate the adhesive immediately prior to the rib being attached by a hammering action. It is essential that the rib be accurately positioned in relation to the insole edge; normally \( \frac{1}{2} \)" from the edge.

[0005] The prefabricated rib is essentially a woven textile comprised of either cotton, polyester or polyester cotton fibers, coated on one side with an electrometric adhesive and formed around, slit strips of unsatured leather board or TECNO®(registered Trademark of Texon International), a latex rubber saturated paper sheet, a cellulosic paperboard, or other suitable cellulosic material. In attaching the insole rib to the insole, the rib must make two or three turns including a particularly sharp turn at the toe. The turns result in crimps, bumps or puckers—all of which are objectionable. Currently the insole ribs offered have pinned or cut edges to minimize the process caused by these turns. Attaching the rib to the insole board causes a loss of flexibility; further, stitching of the welt to the rib and sole-attaching compounds this inflexibility to the point of making these shoes generally uncomfortable.

[0006] In the past there have only been a few methods to bring back the inherent flexibility of the insole board, all of which contribute to other problems: Use of a thinner, more flexible insole often causes tears during stitching and sole attaching; use of a lighter more flexible rib often results in stitching tears and irregularities; use of more flexible, lighter sole materials decreases the longevity of the shoe. Also, an unfilled rib has been used in Asia for the same purpose, but doesn’t have the intrinsic strength, especially in the higher walled ribs.

[0001] This application claims priority to United States Provisional Application Ser. No. 60/581,951 filed on Jun. 22, 2004, which is incorporated herein by reference in its entirety.

[0007] An insole of a shoe including a rib with a filler having serrations along at least one side thereof to provide intrinsic flexibility to the rib. The filler board may be cellulosic in nature. Additionally the rib incorporates a patented twill fabric such as that disclosed in U.S. Pat. No. 5,195,255 assigned to Worthen Industries, to give further stretch as the serrated rib rounds the sharp corners of the insole, thereby providing even more flexibility to the system.

BRIEF DESCRIPTION OF THE FIGURES

[0008] Other objects, features and advantages of the present invention will become more apparent as the description proceeds with reference to the accompanying drawings, wherein:

[0009] FIG. 1 is a bottom view showing an inner sole and an insole rib;

[0010] FIG. 2 is a cross section of a twill covered rib before being attached to the sole; and,

[0011] FIG. 3 is a cross section of a twill covered rib after trimming.

DESCRIPTION OF THE INVENTION

[0012] Referring to FIG. 1, is a ribbed insole 10 comprising an insole 12 and an insole rib 14. The fabric formed around the rib and the rib must lie flat on the contour of the sole. It is adhered to the inside using conventional techniques.

[0013] As shown in FIG. 2, the rib 14 is formed by using a serrated cellulosic filler board and a twill fabric covering having a back side 16 and a front side 18. The serrations 20 in the rib filler are cut approximately 50-99% through the standing portion, which may be \( \frac{1}{2} \)" or \( \frac{3}{4} \)", depending upon the footwear manufacturer’s preference. The higher rib (%20) is typically used for the manufacture of steel toe or safety shoes. During the manufacturing process, the top of the rib is trimmed off. This exposes the serrated cellulosic material allowing for flexing of the insole. Once the rib 14 has been trimmed prior to sole-attaching as seen in FIG. 3, the top of the standing rib is trimmed off so that the serrations 20 are opened sufficiently to allow the rib 14 and insole 12 to flex. Although stitching of the welt and sole-attaching still contribute to inflexibility, this rib 14 adds 30-50% more flex than is normally seen using like components (insole, welt, sole) and standard rib.

[0014] The foregoing description has been limited to a specific embodiment of the invention. It will be apparent, however, that variations and modifications can be made to the invention with the attainment of some or all of the advantages of the invention. Therefore, it is the object of the application to cover all such variations and modifications as come within the true spirit and scope of the inventions.

I now claim:

1. An insole rib comprising a rib and a fabric, the rib having serrations along an upper edge thereof, the material surrounding a portion of the rib such that the upper serrated edge of the rib is exposed.

2. The insole rib of claim 1, wherein the rib filler is serrated approximately 50-99% there through.

3. The insole rib of claim 1, wherein the fabric is twill.

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