May 26, 1964 W. M. SCHOLL 3,134,381

SHANK AND HEEL ASSEMBLY

Filed Aug. 15, 1960 2 Sheets-Sheet 1

Fig. 1

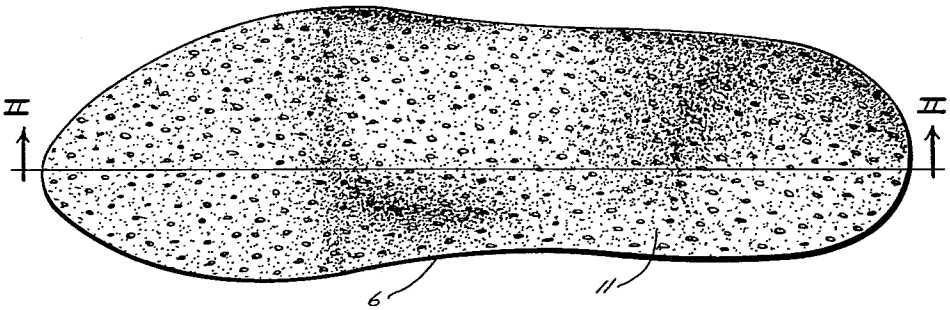


Fig. 2

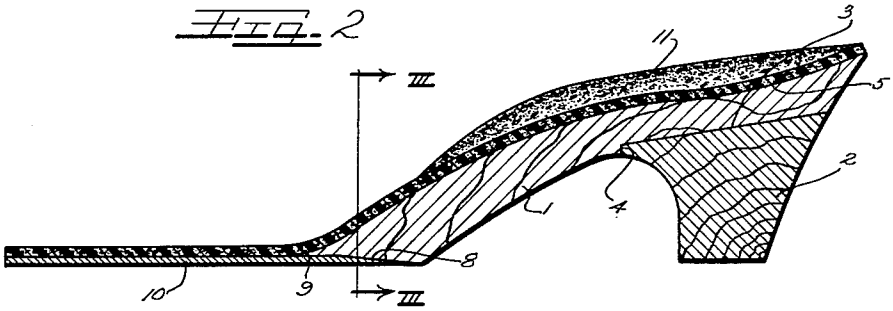
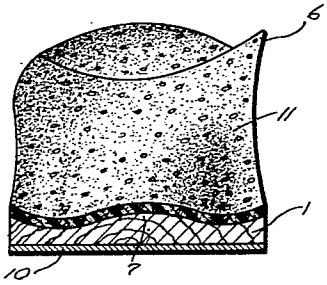


Fig. 3



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May 26, 1964 W. M. SCHOLL 3,134,381

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Filed Aug. 15, 1960 2 Sheets-Sheet 2

FIG. 4

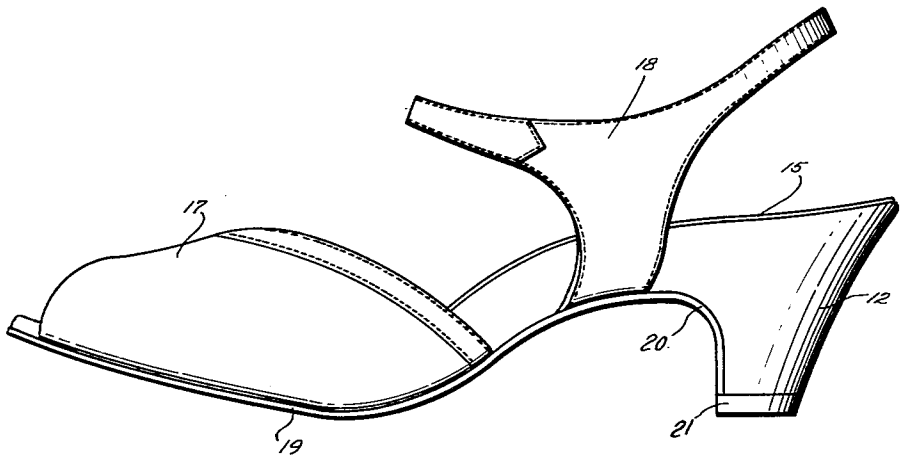


FIG. 5

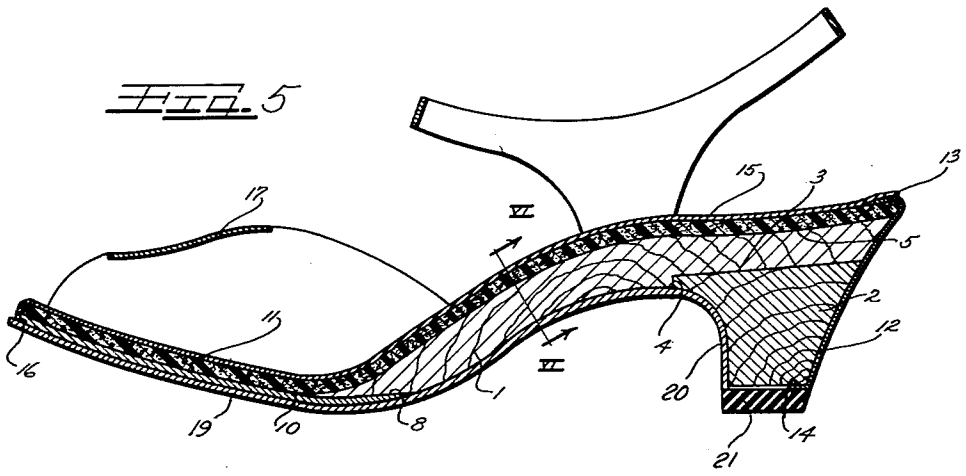
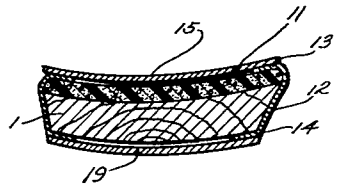


FIG. 6



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SHANK AND HEEL ASSEMBLY

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2 Claims. (Cl. 128—590)

This invention relates to improvements in shank and heel structure and more particularly to a unitary shank and heel assembly for use in articles of footwear and shaped to properly support the human foot over the entire plantar surface of the foot, the invention being highly desirable for use in open type shoes and sandals, although it may be used in other articles of footwear as will be apparent to one skilled in the art.

In the past, difficulty has been experienced in providing open type shoes or sandals capable of properly supporting the foot of the user without resort to an expensive lasting or shank building procedure with the result that price of the footwear had to be objectionably high. Lower priced open type shoes and sandals frequently did not give adequate and proper support to the foot and did not cushion the foot with proper support, but merely permitted the foot to rest upon a substantially flat uncontoured surface.

With the foregoing in mind, it is an important object of the instant invention to provide a unitary shank and heel structure for an article of footwear which is extremely economical to provide and which is contoured in keeping with the plantar surface of a normal human foot.

Another object of the invention is the provision of a contoured shank and heel structure designed to properly support a human foot, and at the same time cushion the foot particularly during walking.

It is also a feature of this invention to provide an economical unitary shank and heel structure for an article of footwear provided with an innersole portion extending therebeyond and with cushioning material covering the entire upper face of the shank and heel unit and the innersole portion.

A further feature of the invention resides in the provision of a rigid unitary shank and heel assembly having an upper surface contoured in keeping with the plantar surface of a human foot, with an innersole portion projecting forwardly of the assembly and to which an outer sole may be readily cemented, and the shank and heel assembly may be colored, covered with any desirable material, or otherwise decorated.

A further feature of the invention is the provision of a contoured shank and heel assembly for an article of footwear, which assembly is made of wood.

Also an object of this invention is the provision of an article of footwear incorporating an economical and contoured shank and heel assembly to which a sole and an upper or straps may readily be secured by adhesive means, the use of nails or equivalent securing elements being confined to an absolute minimum.

While some of the more salient features, characteristics and advantages of the instant invention have been above pointed out, others will become apparent from the following disclosures, taken in conjunction with the accompanying drawings, in which

FIGURE 1 is a plan view of a shank and heel assembly embodying principles of the instant invention;

FIGURE 2 is a longitudinal vertical section through the assembly taken substantially as indicated by the line II—II of FIGURE 1, looking in the direction of the arrows;

FIGURE 3 is a transverse vertical sectional view taken substantially as indicated by the line III—III of FIGURE 2;

FIGURE 4 is a side elevational view of an article of footwear incorporating the shank and heel assembly of FIGURES 1, 2 and 3 in its construction;

FIGURE 5 is a longitudinal vertical sectional view through the structure of FIGURE 4; and

FIGURE 6 is a transverse vertical sectional view taken substantially as indicated by the line VI—VI of FIGURE 5.

As shown on the drawings:

In the illustrated embodiment of the invention, with reference more particularly to FIGURE 2, it will be seen that the shank and heel assembly comprises a shank **1**, and a heel **2**, the heel shown being of the so-called cuban type, although it may have substantially any desired shape and any desired elevation. The shank **1** and heel **2** may be integral with each other so that the entire assembly is one piece, and this assembly may be molded from plastic or the like if so desired. However, for economy in production it is deemed better to utilize two separate pieces and secure them together, preferably cementitiously, along the confronting faces indicated at **3**. Preferably, also, the shank is notched as shown at **4** in order to secure a better fit and more positive securement between the pieces. As shown, the shank and heel assembly is preferably made of wood which may be carved to the desired shape and size.

The upper surface of the shank **1** which underlies the foot from the rear of the heel to and inclusive of the transverse metatarsal arch is preferably contoured in keeping with the normal human foot. A depression **5** at the rear end of the shank provides a hollow concave heel seat. As indicated at **6**, the inner side of this shank is elevated higher than the outer side to provide a curvate support for the longitudinal arch of the foot. At its forward end the shank is provided with a central elevation **7**, FIGURE 3, to lend support to the metatarsal arch of the foot. Between and around the elevations **6** and **7** and the heel seat **5**, the upper surface of the shank is smoothly finished and contoured to properly support substantially the entire plantar surface of the foot from the metatarsal arch rearwardly.

As seen best in FIGURE 2, the forward end of the shank **1** is in substantially floor level and load supporting alignment with the lower end of the heel to coordinate metatarsal and heel support and floor support, and is cut to provide a substantially flat but slightly upwardly and forwardly tapering bottom face **8**, and the shank terminates forwardly in a fine line transverse edge **9**. A sole **10**, skived at its rear end, is adhesively secured to the under face **8** of the shank and projects forwardly therebeyond. This sole may be made of leather, hard pressed fiber board, or any other suitable material.

Disposed over the uper face of the shank **1** and the sole **10** to completely underlie the foot is a layer **11** of cushioning material, which may readily be adhesively attached. This cushioning material may be of any satisfactory substance such as foam latex, polyester or polyurethane foam, polyvinyl chloride foam, or other material of equal resiliency and shock absorbing properties.

In FIGURES 4, 5 and 6 I have illustrated how the shank and heel assembly above described may be incorporated in an article of footwear. By way of example, and not by way of limitation, I have selected for illustrative purposes an open-toe, open-heel type of shoe. In this instance, the sides of the shank **1** and heel **2** are covered with a sheet **12** of any suitable or desirable material, such as leather, imitation leather, a plastic sheet as vinyl for example, Celluloid, or some other medium. This cover is not essential to the use of the shank and heel assembly, however, since that may be varnished and polished and used directly if so desired. However, when a colored or dressy appearing shoe is desired, a covering such as **12** is preferably utilized. The cover **12** is adhesively secured to the shank and heel **1** and **2**, and has a top margin **13** turned over the cushion layer **11**, and a bottom margin **14** turned under the shank and heel assembly as seen best

in FIGURES 5 and 6, these turned margins also being preferably cemented in place.

A foot contacting liner **15** having a smooth top surface is disposed over the cushion layer **11** and the margins **13** of the cover **12** and cemented in position. At the forward end thereof where this liner extends beyond the shank **1**, it is widened and provided with margins turned under the sole **10** as indicated at **16** in FIGURE 5, and these margins **16** are also cemented in place. An upper **17** is provided and it also has marginal portions turned under the sole **10** and the margin **16** of the liner and cemented in place. Likewise, a foot engaging strap arrangement **18** has its end portions turned under the shank **1** and the margins **14** of the cover **12** and cemented in place.

Over the entire bottom of the structure including the exposed margins of the various pieces, an outer sole **19** may be cemented in position, and this outer sole is preferably of leather or equivalently strong and flexible material. As seen in FIGURE 5 at **20** the outer sole preferably extends over the forward face of the heel **2**. A heel tap **21** is also secured to the bottom of the heel either by cement, nails, or both, and this tap may suitably be of leather, rubber, or any other suitable material.

The resulting structure, that is the forming of a complete article of footwear about the shank and heel assembly, is neat and dressy in appearance, may be made in any desired color or combination of colors, adequately and properly supports the plantar surface of the foot while cushioning the foot at the same time, is highly durable, and may be very economically manufactured.

It will be understood that modifications and variations may be effected without departing from the scope of the novel concepts of the present invention.

I claim as my invention:

1. A shank and heel assembly for an article of footwear, comprising a wooden shank of a size to underlie the foot from the rear of the heel to under the transverse metatarsal arch, said shank having a concave heel seat, an elevation to support the longitudinal arch, and an elevation to support the transverse metatarsal arch, a heel also of wood beneath the rear end of said shank, the forward end of the shank being in substantially floor level and load supporting alignment with the lower end of the heel to coordinate metatarsal and heel support and floor support, said shank having a fine transverse edge at its forward end a slightly upwardly and forwardly inclined bottom face thereadjacent, an inner sole with a skived rear end adhesively secured to said bottom face, and a layer of cushioning material overlying said shank and said inner sole.

2. A shank and heel assembly for an article of footwear, comprising an upwardly and rearwardly extending shank of a size to underlie the foot rearwardly from under the transverse metatarsal arch to and inclusive of the heel and with a contour on its upper face in keeping with the plantar surface of the human foot, and a heel underlying and secured to the rear end of said shank to provide a unitary assembly, the forward end of the shank being in substantially floor level and load supporting alignment with the lower end of the heel to coordinate metatarsal and heel support and floor support, and a forwardly extending inner sole secured at its rear end to the underside of the forward end of said shank, said shank and inner sole being of equal width at the place of securement.

References Cited in the file of this patent

UNITED STATES PATENTS

1,417,170	Hosmer	May 23, 1922
1,568,893	Gallagher	Jan. 5, 1926
1,781,715	Blakely	Nov. 18, 1930

FOREIGN PATENTS

37,747	Netherlands	Mar. 16, 1936