

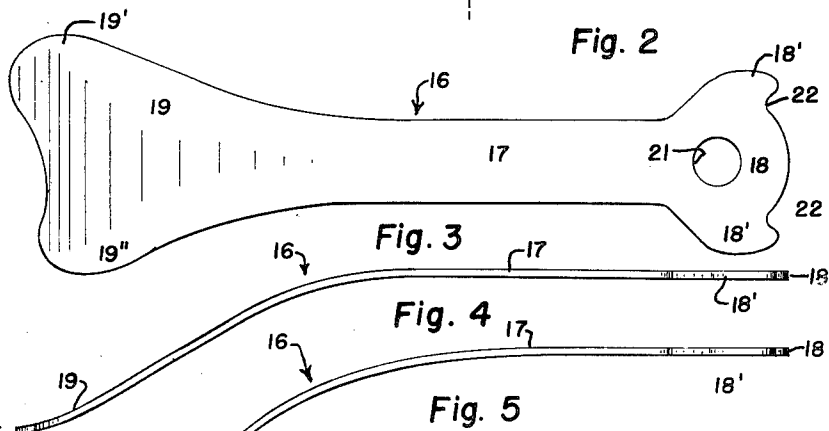
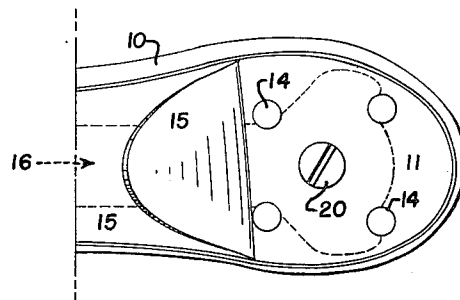
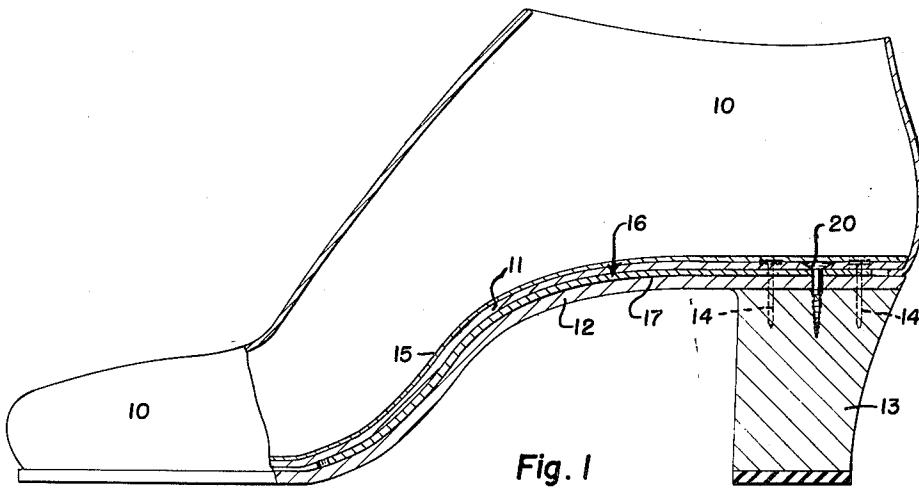
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SHANKPIECE

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SHANKPIECE

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1 Claim. (Cl. 36—76)

This invention relates to the shank stiffeners, or shankpieces, conventionally utilized in shoes designed for human wear, and more particularly to shankpieces adapted for use in shoes of heel type characterized by arched shank portions, and has as an object to provide an advantageously novel form and construction thereof.

A further object of the invention is to provide a novel and improved shankpiece conducive in use to natural attitudes of and correct load distribution through the foot of the wearer.

A further object of the invention is to provide a novel and improved shankpiece expediently adaptable in a primary unit embodiment to use in shoes of diverse styles and varying heel heights.

A further object of the invention is to provide a novel and improved shankpiece effective in use to supply adequate firm support for the foot with resilient accommodation of the flexures thereof incident to ambulation.

A further object of the invention is to provide a novel and improved shankpiece susceptible of simple and inexpensive production from readily-available materials through simple application of known techniques and conventional facilities.

A further object of the invention is to provide a novel and improved shankpiece amenable to incorporation in a shoe as an incident of conventional shoe production.

A further object of the invention is to provide a novel and improved shankpiece that facilitates secure interengagement of the shoe elements wherewith it is associated and thereby extends the sightly useful life of the shoe.

With the foregoing and other objects in view, my invention consists in the construction, arrangement, and operative combination of elements as hereinafter set forth, pointed out in my claim, and illustrated by the accompanying drawings, in which:

Figure 1 is a side view, largely in longitudinal section, of a typical woman's shoe of medium heel height as conventionally produced to include the improved shankpiece.

Figure 2 is a top plan view, on a sightly enlarged scale, of the heel portion of the shoe according to Figure 1 with the innermost sole element, or sock lining, turned back to expose underlying elements of the organization.

Figure 3 is a top plan view of a shankpiece exemplifying the principles of the invention as adapted for use in a woman's shoe to be worn on the right foot.

Figure 4 is a side elevation of the shankpiece according to Figure 3 as conditioned for use in a shoe of less heel height than that according to Figure 1.

Figure 5 is a side elevation of the shankpiece according to Figure 3 as conditioned for use in a shoe of greater heel height than that according to Figure 1.

Representative of conventional shoe construction wherewith the shankpiece of the instant invention is designed to be used, the shoe organizations typified by the views of the drawings include the usual shoe upper 10 secured to and marginally about the usual innersole 11, an outsole 12 underlying the innersole 11 in secure attach-

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ment to margins of the latter, a heel 13 conformably underlying the rear end of the upper and sole assembly in attachment thereto by means of fasteners 14 engaged through the innersole, outsole, and with the heel, and a sock lining 15 overlying the face of the innersole 11 exposed within the upper 10. While certain types and styles of shoes may dispense with stiffeners for the shank portions thereof, it is customary in shoes having an otherwise unsupported, upwardly-arched shank portion forwardly of the heel to provide a stiff, longitudinally-curved shankpiece extending longitudinally of the shoe between the innersole 11 and outsole 12 thereof from overlying relation of its rear end with the heel 13 to termination in a forward end disposed at or adjacent the break between the flat and upwardly-curved outsole portions near the toe end of the shoe, and it is to the provision of a novel and improved such shankpiece that the instant invention is directed.

A typical shankpiece embodying the principles of the invention in a form and arrangement especially adapted for practical use in and with shoes for women's wear as commonly characterized by relatively-high heels of varying height and consequently highly-arched shank portions is represented by the views of the drawing. The shankpiece illustrated is designed for use in a shoe to be worn on the right foot, but it is to be understood that a complementary such shankpiece for the shoe of the left foot results from simple inversion and reverse longitudinal curvature of the illustrated unit, hence a description of but the one unit formed and applied as shown adequately explains the construction, use, and advantage of the improvement in association with either, or both, shoes of a pair.

The improved shankpiece unit as formed and arranged for association with women's shoes is designated, generally, by the numeral 16 and is cut and shaped, as best shown by Figure 3, from suitable strip or sheet material as an initially-flat, thin, elongated member characterized by a straight, narrow, intermediate length portion 17, a laterally-enlarged rear, or heel, end 18 symmetrical with respect to the longitudinal median line of the member, and a laterally-enlarged forward, or toe, end 19 asymmetrical with respect to said longitudinal median line. The unit 16 is formed from stiffly-resilient material, such as tempered steel, of a thickness and strength to support and to moderately flex without permanent distortion under the weight customarily imposed thereon through the associated shoe by a wearer of the latter, and is of a length to conformably span the shank portion of the shoe between the innersole 11 and outsole 12 with its rear end 18 in superposed registration with the position of the shoe heel 13 and the forward edge of its end 19 approximately registered with the break between the forward flat and arched portions of the outsole. While the intermediate length portion 17 of the unit 16 is relatively narrow for accommodation in the available space between the innersole and outsole at the shank portion of conventional women's shoes, the said portion 17 is of substantial width such as to resiliently oppose torsional stresses imposed thereon and to consequently yieldably maintain the several portions of the member in their initial, predetermined relationship.

Significant and distinguishing features of the invention are the organization and correlation of the elements 17, 18 and 19 of the shankpiece unit 16 and the contour, or longitudinal curvature, of said unit. Characteristically, the heel elements 13 of women's shoes are secured to the outsole, innersole, and upper assembly by means of a screw 20 engaged through the innersole and outsole laminations on the longitudinal median line of the shoe and with the heel element 13 substantially centrally thereof, and by the fasteners 14, such as nails, driven through

the innersole and outsole laminations and into the heel element in a regular spacing about said screw and in a pattern determined by the equipment utilized to accomplish this operation of shoe construction. Adapting the shankpiece unit 16 of the invention for attachment to and operative association with the conventional elements of the shoe by the means and through the application of the techniques customarily utilized in assembling the heel element to the shoe, the rear end 18 of said unit is formed with a hole 21 centered on the longitudinal median line of the unit to register with the position of the screw 20 when said unit is housed in its position of use between the innersole 11 and outsole 12, and the lateral enlargement of said rear end 18 is developed as like arcuate wings 18' integral and coplanar with the member length 17 and the rear end 18 thereof similarly outstanding at the opposite sides of the hole 21 and marginally converging forwardly of the unit to junction with the corresponding margins of the member length 17 through rather abrupt angles disposed to receive and accommodate the forward pair of fasteners 14 conventionally employed. The lateral extent of the wings 18' substantially fills the space between the innersole 11 and outsole 12 at the heel end of the shoe and the margins of said wings curve rearwardly and inwardly behind the hole 21 and are interrupted at each side of said hole by notches 22 disposed to receive and accommodate the rearward pair of fasteners 14 conventionally employed. Thus, with the unit 16 in place in the sole assembly of the shoe, attachment of the heel element to the shoe in a conventional manner and by the usual means operates to securely clamp the unit rear end 18 in and to the shoe by means of the screw 20 through the innersole, outsole, and hole 21 of the unit therebetween, and at the same time operates through engagement of the fasteners 14 through said innersole and outsole and the angles and notches 22 of the unit provided for their accommodation to immobilize and retain the unit in the desired aligned registration of the longitudinal median lines of the shoe and unit determinative of the correct use position of the unit. The lateral expansion at the unit forward end 19 is developed in the form of a longer lobe 19' and a shorter lobe 19'' integral and initially coplanar with the forward portion of the member length 17 and asymmetrical with relation to the longitudinal median line of the unit. The outer side margins of the lobes 19' and 19'' are arcuate continuations of the side margins of the member length 17 and diverge gradually and somewhat similarly therefrom to establish a maximum width adjacent the forward end of the unit that substantially fills the available space between the innersole 11 and outside 12 at the widest zone of the shoe corresponding with the sole break above mentioned. The lobe 19', positioned in use at the outer side of the shoe, has a lateral extent from the longitudinal median line of the unit slightly greater than the corresponding lateral extent of the lobe 19'' and is delimited in a forward projection from the unit slightly greater than the similar projection of the lobe 19'' by a smooth forward and inward curvature of its side margin which is reversed centrally of the unit through a forwardly-opening, shallow, arcuate notch to merge with the similar and oppositely curved boundary of the lobe 19''. Shaped, as by means of dies, to the form and relationship of constituent features shown and described, the initially-flat unit 16 is longitudinally bent and contoured to conform with the arch of the shoe shank portion wherein it is to serve and to a condition wherein the unit rear end 18 and a considerable portion of the member length 17 adjacent thereto remain flat and coplanar as a platform adapted to parallel the ground-engaging faces of the outsole 12 and heel 13 when the shankpiece is assembled in a shoe and from the forward end of which the longitudinal curvature of the unit is effected through a gradual arc that is reversed adjacent the margin terminating the forward unit end 19 to dispose said forward

end margin against the inner face of the outsole 12 and in substantial registration with the break of the latter when assembled in the shoe. Expediently worked and shaped to desired ultimate form from untempered metal, the shankpiece unit 16 is finally conditioned for use through such tempering as will suffice to provide the degree of stiff resilience appropriate for its yieldably supporting reaction in and with a shoe.

As has been above noted, the shankpiece unit 16 of the invention is adapted for assembly in operative relation with a shoe through application of the techniques and equipment conventionally utilized for shoe assembly operations, in addition to which the unit, in a single standardized production varied only as to shoe size, is suitable for use in shoes of differing heel heights, and consequently differing inclination of the shoe shank portion arch, through simple and obvious variation of but one arc of the longitudinal curvature thereof, as is clearly readable from Figures 1, 4, and 5 of the drawings. Thus, adaptation of the unit 16 to use in a shoe having a low heel is had through such longitudinal conformation of the unit as extends the length of the horizontal platform comprised from the unit end 18 and the coplanar portion of the member length 17, with consequent flattening of the curvature arc at the forward portion of the length 17 and shortening of the curved portion length, while adaptation of the unit to use in a shoe having a high heel shortens the length of the horizontal platform, lengthens the curved forward portion of the unit, and steepens the curvature arc joining said forward portion to the length 17. As secured in and between the innersole and outsole of a shoe as shown and described, the improved shankpiece is held with its longitudinal median line in registered alignment with that of the shoe to provide at the heel end of the shoe a flat, horizontal platform supported by the heel 13 and extended laterally of the latter in secure association therewith. From said platform, the shankpiece extends forwardly and centrally in conforming relation with the shank portion of the shoe as a stiffly-resilient support accommodative of some torsional flexure as well as flexure in a vertical plane longitudinally thereof, and adjacent the junction of the toe and shank portions of the shoe, where the flexions of ambulation are most pronounced, the shankpiece widens to provide firm lateral support for the foot, the lobe 19' is advanced longitudinally and extended laterally relative to its complementary lobe 19'' to slightly elevate the foot at the outer side of the shoe and thereby induce a proper and natural distribution of the loads thereon, and the forward end and margin of the shankpiece is free to shift as may be needed longitudinally of the shoe between the innersole and outsole with no intrusion of rigid elements into areas of the shoe engaged by the foot of the wearer.

Since changes, variations, and modifications in the form, construction and arrangement of the elements shown and described may be had without departing from the spirit of my invention, I wish to be understood as being limited solely by the scope of the appended claim, rather than by any details of the illustrative showing and foregoing description.

I claim as my invention:

A shankpiece comprising a stiffly-resilient, initially-flat, thin unit of uniform thickness and stiffness adapted for conformable engagement between the outsole and the innersole of a shoe, said unit being formed with a straight, relatively narrow, laterally-flat, intermediate strip portion whereof the forward extension is longitudinally contoured into conformity with the shoe shank and the rearward extension parallels the ground-engaging plane of the shoe, an integral, lateral enlargement symmetrical with respect to the longitudinal median line of said strip portion coplanar with the rearward extension of the latter and rearwardly terminating the same to conformably overlie the heel area of the shoe, a hole through said enlargement centered on the longitudinal median line

of the strip portion for the accommodation of a screw fastener engaged with and centrally of the shoe heel through the outsole and innersole, whereby to position and retain the shankpiece longitudinally of the shoe with said enlargement held against displacement laterally of the shoe, notches and angularities marginally of said enlargement coactably accommodative of other fasteners spacedly about said screw fastener, whereby to immobilize the shankpiece against angular displacement about said screw fastener, and an integral, lateral enlargement asymmetrical with respect to the longitudinal median line of said strip portion forwardly terminating the same as a pair of lobes of unequal length diverging forwardly at unequal angles to the longitudinal median line of the strip portion with the longer of said lobes directed toward the outer side of the shoe and terminating forwardly of the shorter lobe in advance of a concaved forward margin of the enlargement therebetween.

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