Oct. 9, 1956 K. C. JOHNSON 2,765,546

METATARSAL PAD

Filed June 10, 1955

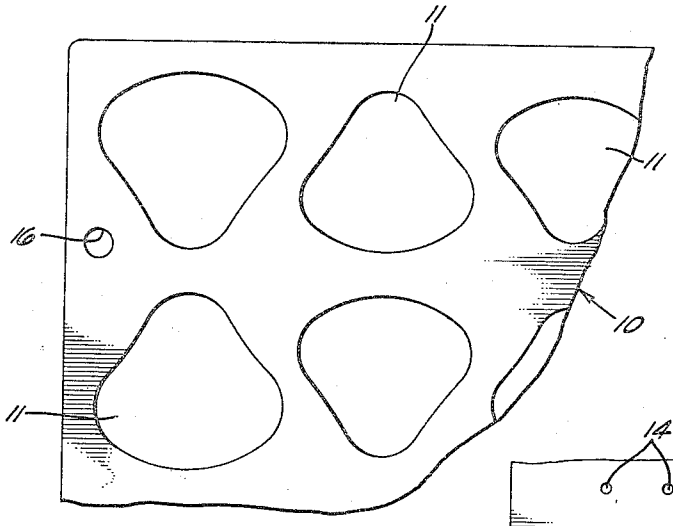



FIG. 1.

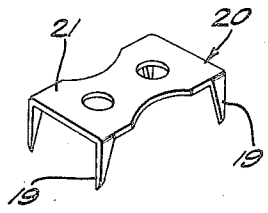



FIG. 6.

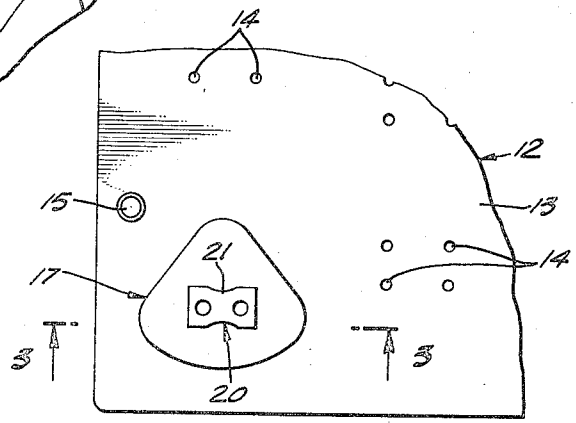



FIG. 2.

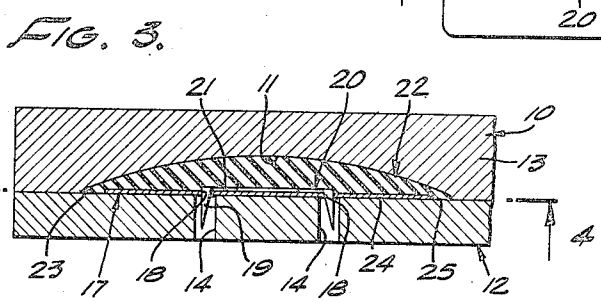



FIG. 3.

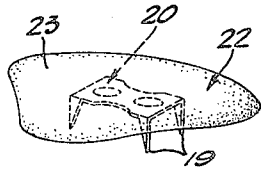



FIG. 5.

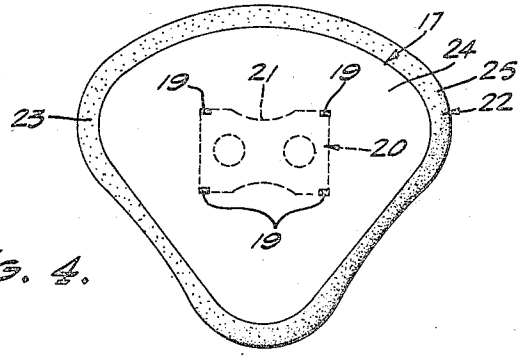



FIG. 4.

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# METATARSAL PAD

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Application June 10, 1955, Serial No. 514,430

1 Claim. (Cl. 36—71)

This invention relates to metatarsal pads which may be removably mounted within a shoe by detachably securing it to the inner sole of the shoe in any desired position. Metatarsal pads of this general type are now commonly made by sewing or cementing a suitable cover to enclose a body of foam rubber or the like, and positioning a multiple prong fastener so that its prongs project outward through the bottom cover. Other metatarsal pads are formed by omitting the bottom cover and embedding the prong fastener directly within the foam rubber body, the prongs of the fastener projecting below the lower surface of the body. The first of these constructions is expensive to manufacture and is not fully satisfactory because it fails to provide a true flat surface on the bottom of the unit which extends to the extreme peripheral edge of the body.

The difficulty with the second described construction is that no satisfactory bond is created between the prong fastener and the foam rubber body and the result is that the prong fastener is not rigidly mounted and sometimes pulls out of the rubber body through failure of the soft rubber material.

The principal object of this invention is to overcome the difficulties in the prior constructions and to provide a superior metatarsal pad having a substantially flat lower surface which extends to a feather edge.

Another object is to provide a metatarsal pad of this type wherein a fastener sheet or strip molded integrally with the body and prong fastener confines the base of the fastener between the strip and the body.

Another object is to provide a metatarsal pad having this construction wherein the lower surface of the fastener sheet or strip is co-planar with the marginal edge of the body.

Other and more detailed objects and advantages will appear hereinafter.

In the drawings:

Figure 1 is a plan view of the underside of a die section employed in the manufacture of metatarsal pads embodying my invention.

Figure 2 is a plan view of the upper side of a mating die section, one of the retainer elements and prong fasteners being shown in molding position.

Figure 3 is a sectional elevation showing relation of the die sections in closed position and showing a preferred embodiment of my invention. Figure 3 is taken substantially on the lines 3—3 as shown in Figure 2.

Figure 4 is a plan view of the underside of a metatarsal pad embodying my invention.

Figure 5 is a perspective view thereof showing the upper side and showing the feather edge.

Figure 6 is a perspective view showing construction of the prong fastener.

Referring to the drawings:

The upper mold section **10** has a plurality of pockets **11** formed in its lower surface. The lower mold section **12** has a substantially flat upper surface **13** and several



groups of apertures **14** extend through the mold section and intersect the mold surface **13**. An alignment pin **15** on the lower mold section **12** may be provided and received within a corresponding hole **16** provided in th upper die section **10**.

In accordance with my invention I provide a retainer sheet or strip **17** which has holes **18** punched in the proper locations to receive the prongs **19** of the prong fastener **20**. The shape of the retainer sheet or strip **17** is substantially the same as the outline of the shape of the cavities **11** in the upper mold section **10**. The retainer sheet or strip **17** is slightly smaller than the cavities **11**.

After the retainer strip **17** is placed on the upper surface **13** of the lower mold section **12**, a prong fastener is inserted through the holes **18** so that the prongs project into the apertures **14**. A measured quantity of raw rubber is then placed over the base portion **21** of the prong fastener **20**. The mold sections **10** and **12** are then closed and held together under pressure while heat is applied. This causes the rubber body **22** to fill the mold **11** and to embed both the retainer sheet or strip **17** and the base portion **21** of the prong fastener **20**. The body may conveniently be formed of foam rubber or any other soft resilient material capable of being molded. The peripheral edge of the body **22** extends beyond the outer edge of the retainer sheet or strip **17** to form a feather edge **23**. It will be observed that the lower surface **24** of the retainer sheet or strip **17** is co-planar with the surface **25** on the marginal edge of the rubber body **22**. The mold sections are then separated to permit the complete metatarsal pad to be withdrawn. A number of metatarsal pad units are formed simultaneously.

The retainer sheet or strip **17** is preferably formed of rubber-coated cloth although sheets of heavy paper, plastic or leatherette, or other suitable material can be employed, if desired. The important consideration is that the material of the retained sheet or strip **17** be capable of bonding with the rubber body **22** during the molding operation.

The completed metatarsal pad has a flat bottom surface which extends to the extreme feather edge forming the periphery of the unit. Moreover, the prong fastener is securely held against separation from the body **22** by means of the retainer sheet or strip **17**.

Having fully described my invention, it is to be understood that I do not wish to be limited to the details herein set forth, but my invention is of the full scope of the appended claim.

I claim:

A metatarsal pad comprising: a body formed of soft resilient rubber having a curved upper surface and a flat lower continuous marginal surface, said surfaces intersecting to define a feather edge forming the outer boundary of the pad, a rubberized cloth retainer sheet embedded in said lower surface of the body to the extent of the thickness of the retainer sheet, the lower face of the retainer sheet being flat and lying in the same plane as said flat continuous marginal surface of the body, the retainer sheet extending over a major portion of the area of the lower side of the pad and being bonded to said body, and a multiple prong fastener having a base portion interposed between the retainer sheet and the body and having prongs projecting through the retainer sheet below the lower surface thereof.

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