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GOLF SPIKE RECEPTACLES AND ANCHOR PLATE COMBINATION

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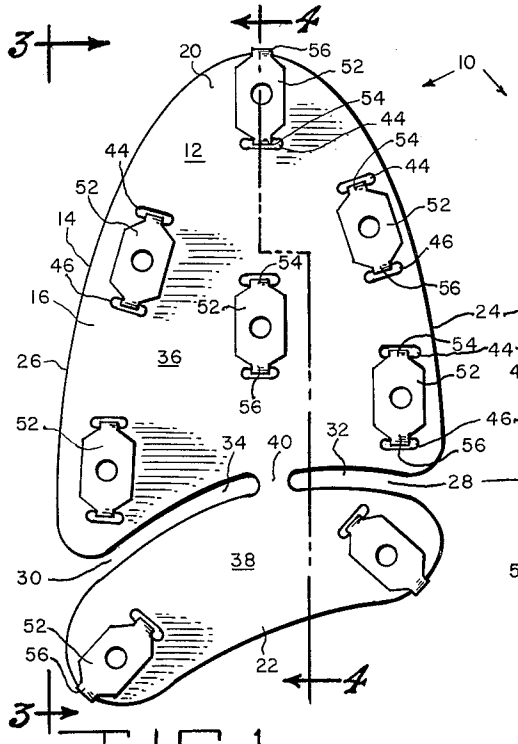


FIG. 1

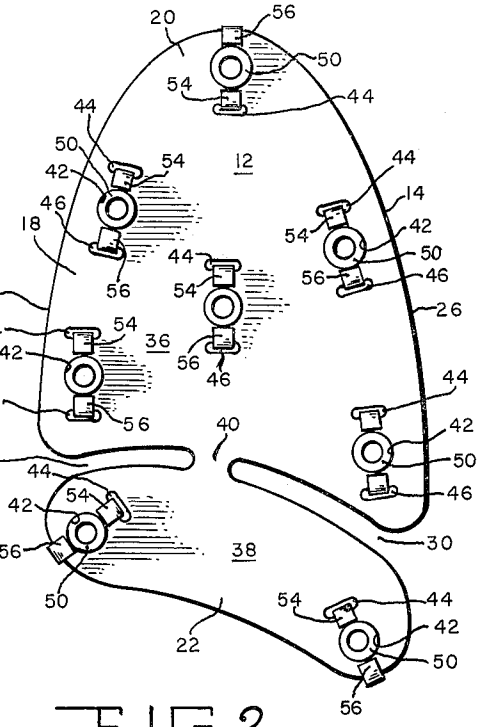


FIG. 2

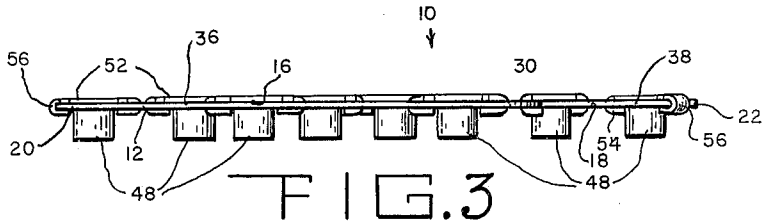


FIG. 3

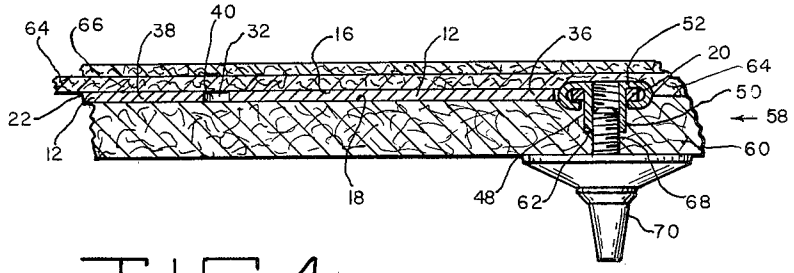


FIG. 4

INVENTOR.
ARDEN B. MACNEILL

BY

Walter J. Kreske
ATTORNEY

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Arden B. MacNeill, Waltham, Mass., assignor to MacNeill Engineering Company, Inc., Waltham, Mass., a corporation of Massachusetts

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This invention relates to the combination of golf spike receptacles and receptacle retaining plates for assembly in shoe soles and more particularly to an improved combination of golf spike receptacles and receptacle retaining plate having a peripheral configuration of a shoe half-sole with a toe and shank sections and a narrow land therebetween flexibly holding the sections together as a unitary structure for facilitating manufacture and assembly in shoe soles.

A serious problem in the use of metal plates in shoe soles for holding golf spike receptacles is that the metal plates tend to stiffen the sole to a degree which undesirably impedes sole flexure caused by a foot during walking. This stiffening affect is particularly objectionable at the position of sole contact with the ball of the foot where maximum sole flexure occurs. One method of minimizing this flexural impedance problem might be to use two golf spike receptacle retaining plates, one receptacle retaining plate covering the toe section of the sole located forward of the line of maximum sole flexure, and the other receptacle retaining plate covering the shank section located behind the line of maximum sole flexure. However, such dual golf spike receptacle retaining plates create problems of inefficiency, inconvenience and increased costs in manufacture of the separate receptacle and retaining plate combinations, as well as inefficiency, inconvenience and increased costs of their assembly in shoe soles. Also, inasmuch as different sizes of receptacle retaining plates are required to accommodate the different sizes of shoe soles, the dual receptacle retaining plate construction creates the further problem of possible mixing of element sizes and proper mating of the receptacle retaining plate components for each particular shoe size.

These problems have been overcome by the present invention of an improved combination of golf spike receptacles and receptacle retaining plate which also incorporates other desirable features and advantages. Among these other desirable features and advantages of the present invention include that of the use of a single golf spike retaining plate construction conforming to the peripheral shape of a shoe half sole and anchoring all of the golf spike receptacles in place at the bottom of the sole without materially impeding flexure of the sole at the line where maximum sole flexure normally occurs. Other features and advantages including achieving convenience and economy production of a golf spike receptacle retaining plate as a single, unitary member as well as the advantages of a single, unitary member for handling, storing and assembling in the soles of shoes. A further feature and advantage is that of achieving a unitary receptacle retaining plate construction which is usable for the soles of both the right and left feet and which is producible as an inexpensive high production rate stamped product.

A primary object of the present invention is the provision of a combination of a plurality of golf spike receptacles and a receptacle retaining sole plate as a unitary structure for carrying all of the golf spikes in a shoe sole without substantially impeding flexure of the sole at the line in the sole where maximum walking flexure occurs.

Another object is the provision of a golf spike receptacle retaining sole plate having capacity for anchoring sufficient golf spike receptacles to accommodate all of the golf spikes at the bottom of a shoe sole without substantial impairment of flexure of the sole resulting from walking therewith by a wearer of the shoe.

Further objects include the provision of a golf spike receptacle anchoring plate which is adaptable for both the right and left shoe soles, lends itself to inexpensive mass production, is readily assembled in the soles of shoes as a single unitary structure with only one of said unitary structures being needed per shoe sole for carrying the entire golf spike requirement of said sole and without impeding desirable flexural characteristics of the sole.

These objects, features and advantages are achieved generally by the provision of a thin, metallic plate having a peripheral configuration of a shoe half-sole with a top and bottom surfaces and with a peripheral configuration having oppositely disposed toe and shank ends and oppositely disposed inner and outer side sole conforming contours including a portion defining the area receiving the ball of a foot, a plurality of fastening structures in the metallic plate for receiving and firmly fastening to the plate a plurality of golf spike receptacles, and a pair of elongated openings extending inwardly from the inner and outer peripheral contours at the area receiving the ball of the foot for thereby forming a toe and shank sections of the anchoring plate with a narrow land therebetween for flexibly holding the toe and shank sections in proper physical relation to each other as a single, unitary structure for convenience and efficiency in manufacture of the combination and assembly in shoe soles.

By making the fastening structures in the form of groups of holes with each group comprised of a circular hole between a pair of elongated slots, with the circular hole carrying a threaded sleeve and the slots carrying respective ears of an associated golf spike receptacle, a relatively simple, inexpensive and secure fastening arrangement for the golf spike receptacles to the retaining plate is thereby achieved.

By making the metallic plates of spring tempered carbon steel or stainless steel, a very thin material having high flexure characteristics as well as desirable resistance to cracking under repetitive flexure is thereby achieved.

By providing in some of the fastening structures a single circular hole and single elongated slot with the sleeve of the golf spike receptacle in the circular hole and one of the receptacle ears in the slot with the other receptacle ear folded about the peripheral contour of the retaining plate, wider choice of receptacle placement on the plate is thereby achieved.

These and other objects, features and advantages of the invention will be better understood from the following description taken in connection with the accompanying drawings of a preferred embodiment of the invention and wherein:

FIG. 1 is a plan view of a combination of golf spike receptacles and receptacle anchoring plate in accordance with the present invention;

FIG. 2 is a bottom view of the FIG. 1 embodiment;

FIG. 3 is a side view taken on line 3—3 of FIG. 1;

FIG. 4 is a cross sectional view to enlarged scale of a portion of a shoe sole with the FIG. 1 embodiment assembled therein and shown in cross section taken on line 4—4 of FIG. 1.

Referring to the drawings in more detail, a combination of golf spike receptacles and a thin metallic receptacle retaining or anchor plate in accordance with the present invention is designated generally by the numeral **10**. The combination **10** has a thin metallic golf spike receptacle retaining or anchor plate **12** preferably of such material as spring tempered carbon steel or stainless steel and a thickness in the order of .015 of an inch. The golf spike receptacle retaining plate **12** has a peripheral configuration **14** of a shoe half-sole with a top surface **16**

and bottom surface 18. The peripheral configuration 14 has oppositely disposed toe and shank ends 20 and 22 respectively, and oppositely disposed inner and outer side sole conforming contours 24 and 26 respectively which include portions 28 and 30 respectively between which is an area for supporting the ball of a foot (not shown) and across which maximum flexure perpendicular to the receptacle retaining plate 12 occurs during walking.

The golf spike receptacle retaining plate 12 at the portions 28 and 30 has oppositely disposed, inwardly extending openings or slots 32 and 34 respectively along a line of said maximum flexure and forming thereby substantially separate toe and shank sections 36 and 38 respectively with only a narrow land 40 of the thin metallic plate 12 material for flexibly holding the toe and shank sections 34 and 36 in proper physical relation to each other as a single, unitary structure for ease in manufacture as a single, relatively simple, high production stamping operation and ease in assembly as will be hereinafter further described. The narrow land 40 while achieving the above described unitary structure nevertheless offers substantially no resistance to flexure.

The golf spike receptacle retaining plate 12 is provided with a plurality of groups of holes or openings therethrough with each group comprising a circular opening 42 between a pair of narrow elongated openings or slots 44 and 46 respectively at selected positions in the plate 12 for anchoring golf spike receptacles 48 thereto. The golf spike receptacles 48 each include an internally threaded sleeve 50 projecting downwardly of the bottom surface 18 through the circular hole 42 with the upper end of the sleeve 50 having a flare or flange 52 resting on the top surface 16 of the plate 12 and having oppositely disposed ears 54 and 56 extending through the slots 44 and 46 respectively and bent over to engage the bottom surface 18 of the plate 12 for thereby holding the respective golf spike receptacles 48 securely in place on the retaining plate 12.

To facilitate greater freedom in placement of the golf spike receptacles 48 on the retaining plate 12, some groups of fastening holes may include only a single circular hole 42 and a single elongated slot 44 for receiving a receptacle sleeve 50 and ear 54 respectively with the other ear 56 being bent about the peripheral configuration 14 of the retaining plate 12 as shown at the toe end 20 and shank end 22.

The combined golf spike receptacles 48 and receptacle retaining plate 12 is assembled in soles 58 of shoes (not shown) preferably between an outer sole 60 having holes therethrough such as hole 62 aligned with and receiving corresponding ones of the golf spike receptacle sleeves 50, and an intermediate sole 64 covering the top surface 16 of the receptacle retaining plate 12 with an inner sole 66 as is customary in shoe sole construction. The threaded shanks such as shank 68 of golf spikes such as golf spike 70 are inserted through the holes 62 from the bottom of the outer sole 58 and screwed tightly into the internally threaded sleeves 50 of the golf spike receptacles 48 and thereby anchoring the golf spikes 70 securely in place under the shoe sole 60 with capacity for withstanding heavy load conditions on the golf spikes 70.

It will be noted from FIG. 4 that the land 40 being positioned at the line of maximum flexure of the sole 58 will offer very little bending resistance to the sole 58 and thereby will not impede the natural flexural characteristic of the sole 58. Also, since the retaining plate 12 is not dependent for its strength on the land 40, an eventual flexurally caused crack in the land 40 will not detract from the use or comfort, or golf spike retaining service of the toe and shank sections 36 and 38 respectively of the retaining plate 12.

It should also be noted that inasmuch as receptacle retaining plate 12 will have the same peripheral configuration 14 for both the right and left soles 58, the determination of its use for either the right or left sole is made by the direction faced by the threaded sleeves 50. For example, in FIG. 1 the receptacle sleeves 50 are projecting outwardly from the bottom surface 18 of the plate 12 thereby making the combination one for a left sole. Reversing the direction of the sleeves 50 so that they project outwardly from the top surface 16 of the plate 12 would make the combination one for a right sole.

This invention is not limited to the particular details of construction described as equivalents will suggest themselves to those skilled in the art.

What is claimed is:

1. The combination of a plurality of golf spike receptacles of the type having internally threaded sleeves with two ends, one of said sleeve ends being flared to form a support base for said receptacle; a thin metallic receptacle retaining plate having the general peripheral configuration of a shoe half-sole, a top and bottom surface with the peripheral configuration having oppositely disposed toe and shank ends and oppositely disposed inner and outer side hole conforming contours including a portion defining the area for supporting the ball of a foot, a plurality of means fastening said golf spike receptacle bases to said retaining plate with said receptacle sleeves extending from said bottom surface; and a pair of elongated openings extending inwardly from said inner and outer peripheral contours at said ball supporting area for thereby forming a toe and shank sections of said retaining plate with a narrow land therebetween for flexibly holding said toe and shank sections in proper physical relation to each other as a single unitary structure.

2. The combination as in claim 1 wherein each of said fastening means includes a group of three holes in said retaining plate for each of said golf spike receptacles, and oppositely disposed ear extensions on said receptacle support base with said sleeve extending through one of said group of three holes and each of said ears extending through a respective one of the remaining two holes of said group and folded in binding relation against one of said surfaces to securely hold said golf spike receptacle in place on said retaining plate.

3. The combination as in claim 2 wherein some of said groups adjacent said periphery have two holes with said associated sleeve extending through one of said holes, one of said ear extensions extending through the other of said two holes and the other of said ears folded about said periphery for thereby securely fixing said receptacle to said retaining plate.

4. The combination as in claim 1 wherein said retain ing plate is of spring temper steel.

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FRANK J. COHEN, *Primary Examiner.*