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2,628,439

ROTATABLE AND REVERSIBLE HEEL ELEMENT

Filed May 24, 1951

2 SHEETS—SHEET 1

FIG. I.

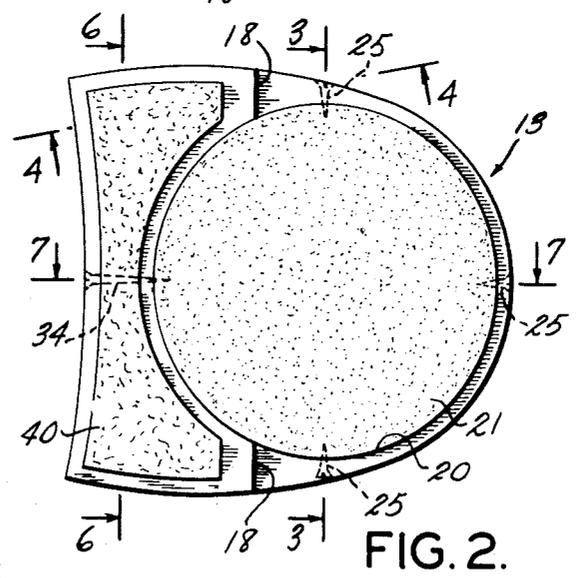
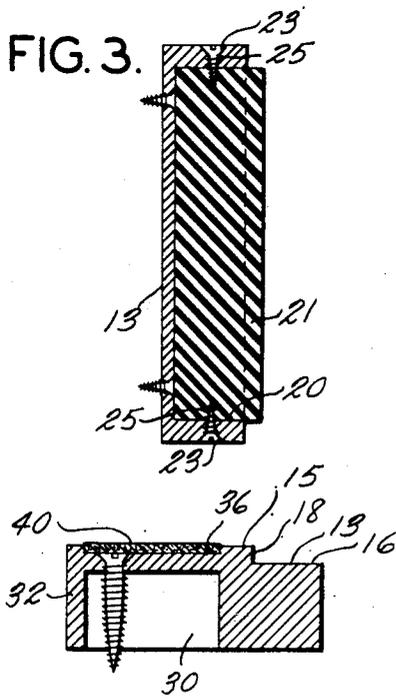
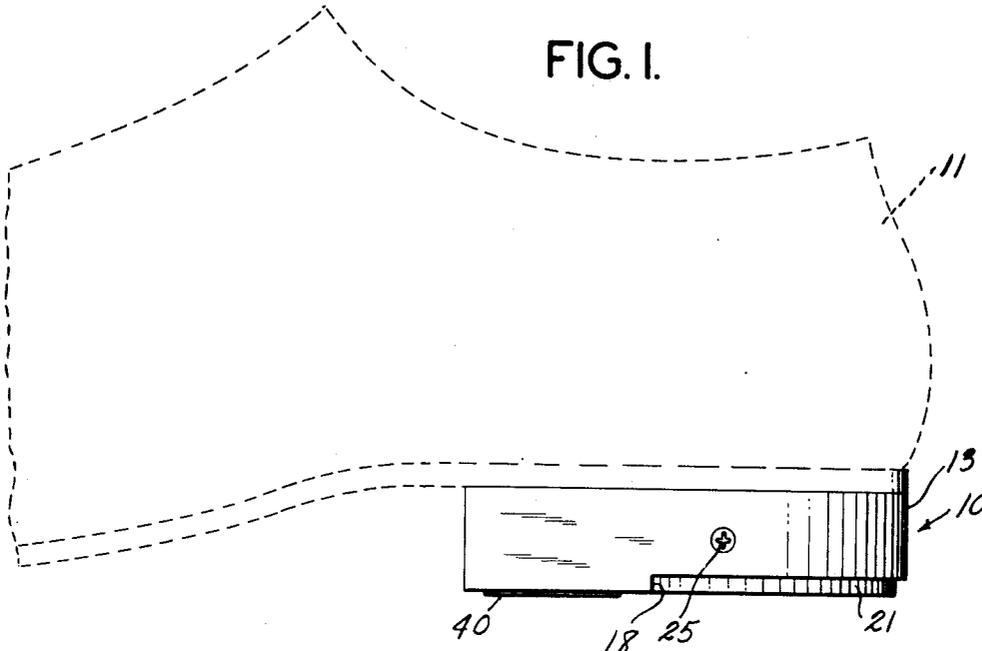


FIG. 4.

FIG. 2.

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2 SHEETS—SHEET 2

FIG. 6.

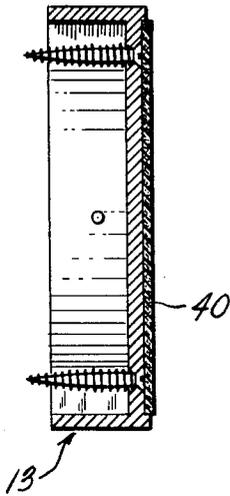


FIG. 5.

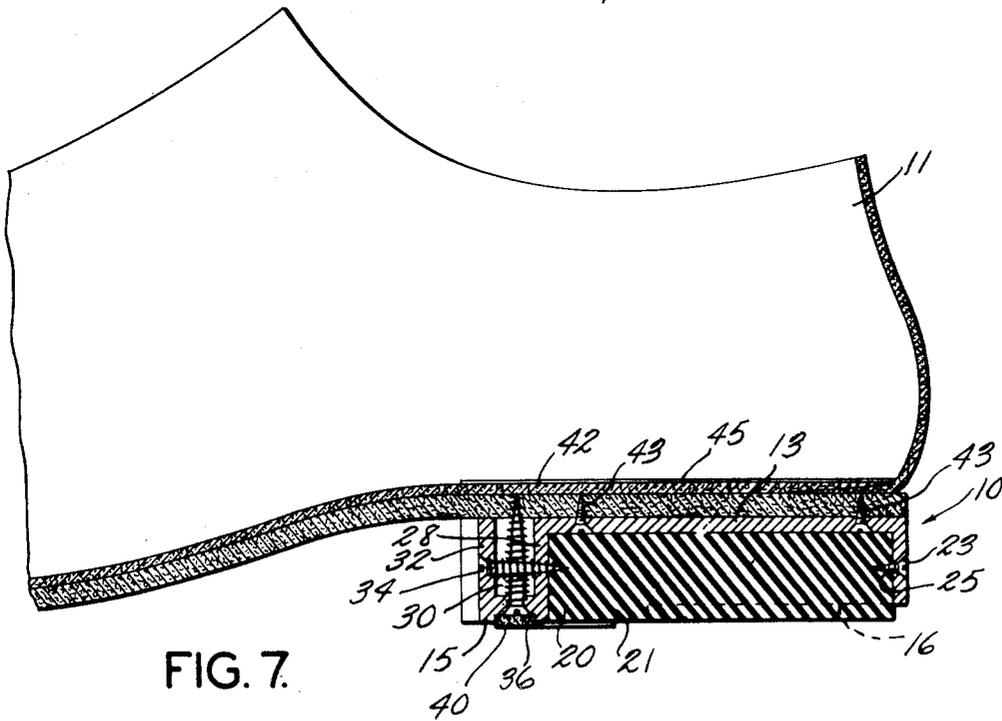
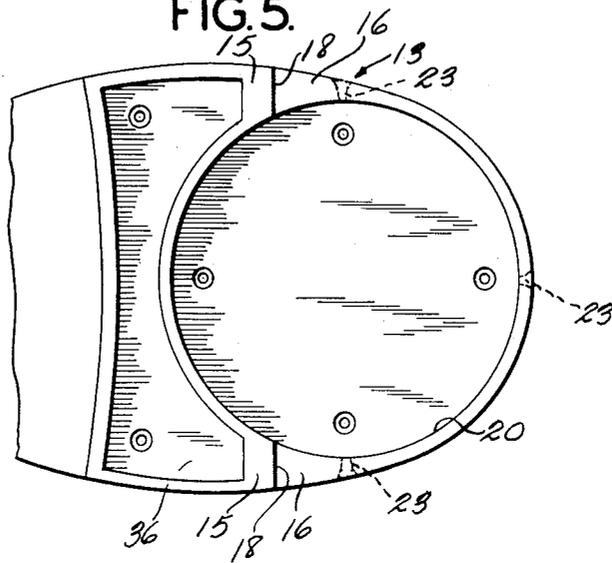


FIG. 7.

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# UNITED STATES PATENT OFFICE

2,628,439

## ROTATABLE AND REVERSIBLE HEEL ELEMENT

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Application May 24, 1951, Serial No. 228,053

3 Claims. (Cl. 36—36)

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This invention relates to shoe heel assemblies and holders for heel elements that can be turned when worn at their rearward edges, and that can be conveniently replaced after being turned a number of times.

The heels of shoes are subject to more severe wear than other portions of the shoe and the greatest wear is localized at the back and generally toward the outside of the shoe. Many constructions have been suggested which permit turning and/or reversing of worn heels so that new unworn corners can be put into the position of greatest wear, and one heel used a number of times.

These constructions of the prior art have not been satisfactory. Some have been too complicated and expensive. Since the idea is one of economy, it is evident that an expensive holder, or one requiring elaborate and costly replacement elements or the services of a mechanic to change a heel, are essentially unsatisfactory. Likewise, unsightly constructions or those which show the worn part of the heel, after turning, are unsatisfactory. Some other prior constructions have been structurally defective, as in the case of holders having feather edges which are not strong enough to withstand the severe usage required of shoe heel assemblies.

It is an object of this invention to provide a practical shoe heel construction which is of very low initial cost and in which the heel element can be rotated and turned several times to present new wearing surfaces, and can be eventually replaced at trivial expense. The holder for the heel element will outlast the shoe. It is another object to provide an improved shoe heel assembly of the class wherein a heel element can be moved into different positions to bring unworn corners into position to replace parts of the heel that wear. Another object is to provide a heel assembly in which the replaceable element is of the simplest construction possible and in which it can be replaced conveniently by the owner of the shoe without recourse to a shoemaker.

One feature of the invention relates to a rugged holder construction that is of pleasing appearance and that covers the worn places of a heel element which has been turned. Another feature relates to a holder that has a heel element in a socket, at the rear of the holder, and a recess ahead of the socket for a tread pad that provides increased transverse stability with a wide heel base for a person to stand on when using a shoe having the heel equipped with this invention.

Other objects, features and advantages of the

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invention will appear or be pointed out as the description proceeds.

In the drawing, forming a part hereof, in which like reference characters indicate corresponding parts in all the views,

Fig. 1 is a side elevation of a heel assembly embodying this invention, the assembly being shown connected to a shoe.

Fig. 2 is a bottom plan view of the heel assembly shown in Fig. 1.

Figs. 3 and 4 are sectional views taken on the lines 2—3 and 4—4, respectively, of Fig. 2.

Fig. 5 is a bottom plan view similar to Fig. 2 but showing the holder without the heel element and without the tread pad.

Fig. 6 is a sectional view on the line 6—6 of Fig. 2, and

Fig. 7 is a vertical sectional view through the heel assembly, and a portion of the shoe, shown in Fig. 1.

Fig. 1 shows a heel assembly 10 connected as the heel of a shoe 11. This heel assembly includes a holder 13 that is secured directly to the heel portion of the shoe. The holder has a bottom face which has two levels. A forward portion 15 of the bottom face is of a level lower than a rearward portion 16 of the bottom face. At the juncture of these different levels there are steps or shoulders 18 (Fig. 2) extending transversely and substantially in alignment with one another.

There is a socket 20 in the bottom face of the holder, and a heel element 21 fits into this socket and bears against the face of the holder at the upper end of the socket. The bottom face of the heel element 21 is substantially flush with the lower-level portion 15 of the bottom face of the holder. The rearward part and portions of the sides of the heel element 21, therefore, extend for a substantial distance below the higher-level portion of the bottom face of the holder.

The holder 13 is preferably a metal casting made of an alloy, and preferably an aluminum alloy for greater strength with light weight. Other material can be used for the holder, if desired. The socket 20 at its minimum depth has side walls of a height greater than one half the height of the heel element 21. There are holes 23 through the wall of the socket 20, preferably at angular spacings of 90°, for screws 25, or other detachable fastening means, that extend into the side of the heel element 21 to prevent it from turning in the socket 20 or from being displaced downward in the socket.

The holes 23 are countersunk so that the

screws 25 have their heads flush with the outside surface of the holder 13. This makes the screws 25 inconspicuous. If desirable, the heel can be cast with dummy screw heads in line with the real screws to provide decoration for the heel. For decorative effect, the Phillips head screws are preferred.

The heel element 21 is made of rubber, or leather, or other material suitable for the purpose, and the screws 25 are pointed so that they can be screwed into the side of the heel element with the heel element turned into any position.

In the construction illustrated, the socket 20 is cylindrical with the axis of the cylinder substantially normal to the plane of the portion 15 of the bottom face of the holder. This makes it normal to the plane of the higher level portion 16 also, since the planes of both levels of the bottom face are parallel in the holder shown in the drawing. The circular cross section of the socket 20, and the corresponding cross-section of the heel element 21 makes it possible to turn the heel element angularly into any desired position in the socket 20. Other cross sections can be used for the socket, but it is a feature of the invention that the socket 20 is symmetrical about one or more axes extending in a plane that is normal to the longitudinal (i. e. vertical) axis of the socket.

With a cylindrical socket there are an infinite number of such axes of symmetry since every diameter of the cylindrical socket satisfies the requirement. If the socket were of octagonal cross section, instead of circular, however, there would be four axes about which the socket would be symmetrical in a plane normal to the longitudinal axis of the socket; and the heel element would fit the socket each time that the heel element was turned through an angle of 45°.

There are other considerations that determine how far the heel element must be turned when its bottom corner becomes sufficiently worn to make replacement desirable. If the heel is turned through a small angle, the worn corner is displaced from the back to one side of the heel assembly and it is still visible and unsightly to look at. The heel element should be turned far enough to carry the worn corner ahead of the steps or shoulders, where it is out of sight, or a slightly worn region can be moved a little toward one side, usually the inside, so that it still remains at the back of the shoe but not at the region which receives the greatest wear.

Another feature of the heel element 21 is that it is the same at both ends. When the lower end corner is worn away, the heel element can be taken out of the socket and put back upside down so that what was the upper corner becomes the new lower end corner. Any worn places of the other corner are hidden in the upper part of the socket.

In the preferred construction, the steps or shoulders 18 are further forward than the maximum transverse diameter of the socket 20. This makes the major part of the cross section of the socket open through the upper level portion 15 of the bottom face. It also makes the length of the steps 18 longer than the thickness of the wall of the socket around the back of the socket. The strength of the shoulders is thus increased and a rugged and durable construction is provided that is suitable for manufacture with die cast metal.

The socket 20 has a front wall 23 (Fig. 7) of substantially the same thickness as the rearward

wall. Across a cavity 30 of the holder casting, there is a front wall 32 that comprises the front face of the heel assembly. At its forward end the heel element 21 is held in place by a screw 34 that is similar to the screws 25, but longer, so that it can extend through both of the walls 28 and 32, and cross the cavity 30; or a pointed stud extending inward from the wall 28, and integral with that wall, can be used in place of the screw 34.

The purpose of the cavity 30 is to save material in the manufacture of the holder. This cavity can be omitted, if desired.

Ahead of the socket 20 there is a shallow recess 35 in the bottom face of the holder. This recess follows generally the shape of the cavity 30 which is located above it on the upper side of a bottom wall 38 of the holder 13. A filler comprising a tread pad 40 fits the recess 35 and extends slightly below the bottom face of the holder. This tread extends across almost the entire width of the heel assembly and serves as an equalizer for preventing any tilting of the heel assembly when a person is standing upright on the shoe to which the heel assembly is attached. This equalizer tread 40 makes practical the use of softer material for the heel element 21 because the heel element does not have to provide the transverse stability for the heel assembly as the heel comes flat on the floor or other underlying support.

The tread pad 40 is preferably cemented to the holder and it is replaced when worn. Screws 42, 43 or tacks or rivets or other fastening means extend through the holder 13 and through the bottom 45 of the heel portion of the shoe as shown in Fig. 7.

The preferred construction of the invention has been illustrated and described, but changes and modifications can be made, and some features can be used in different combinations without departing from the invention as described in the claims.

What is claimed is:

1. A shoe heel assembly including a heel element having a side wall and having top and bottom faces that can be used interchangeably as wearing surfaces for the assembly, a holder having a socket in which the heel element is retained, the top face of the socket being fixed and immovable with respect to the remainder of said holder, the top face of the heel element pressing directly against the fixed top face of the socket and being movable into different angular positions about the longitudinal axis of the socket, the heel element being held at the same level in the holder by pressing against the fixed and immovable top wall of the socket for all angular positions of the heel element around the longitudinal axis of the socket, the bottom face of the holder at the front of the socket being substantially flush with the fixed level of the bottom face of the heel element, and the bottom face of the holder being substantially higher than said fixed level of the bottom face of the heel element at the rear and for a distance around the sides of the heel element to a location ahead of that where the heel element and socket are of maximum transverse width.

2. The shoe heel assembly described in claim 1, characterized by a one-piece holder with a recess in its bottom face extending substantially the full width of the heel element adjacent to the front of the heel element but separated from the heel element socket by a wall, and a tread pad in

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the recess with the lower part of the tread pad extending slightly below the bottom face of the holder.

3. The shoe heel assembly described in claim 1 with detachable fastening elements extending through the side wall of the socket and into the sides of the heel element to hold said heel element against both angular and axial displacement.

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