June 26, 1962 J. B. WHITTED, JR 3,040,452

LIFT FOR SHOE HEEL

Filed Jan. 21, 1960

FIG. 1

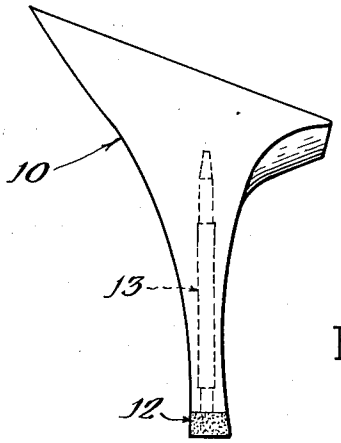


FIG. 2

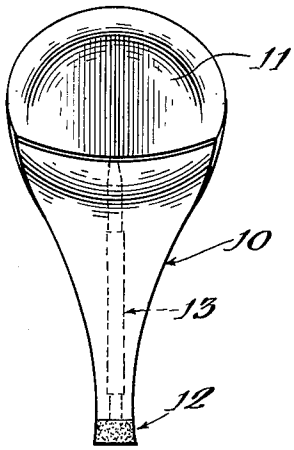


FIG. 3

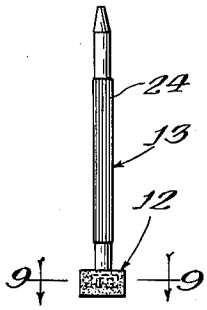


FIG. 4

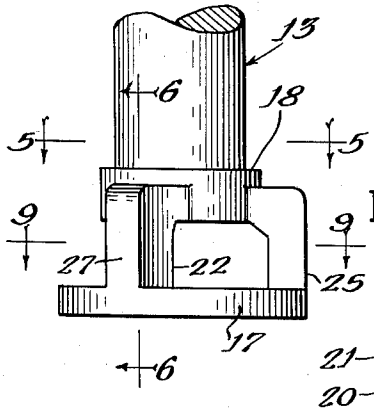


FIG. 6

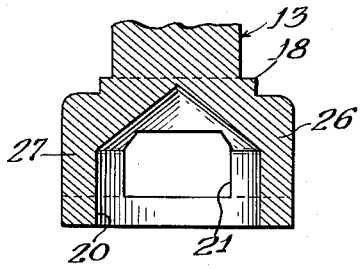


FIG. 8

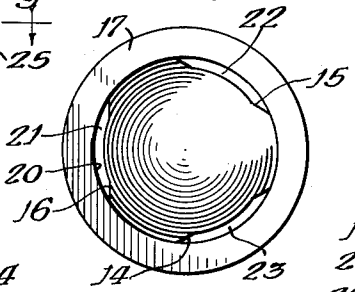


FIG. 7

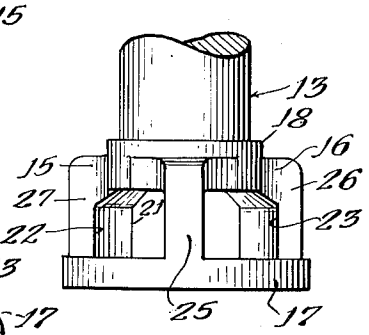


FIG. 5

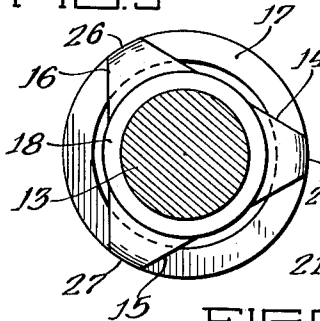
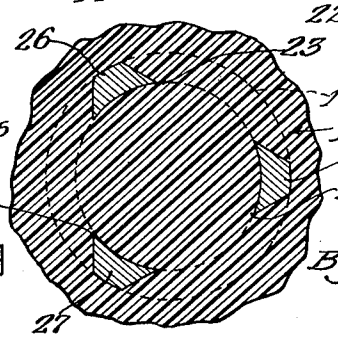


FIG. 9



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3,040,452
LIFT FOR SHOE HEEL

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6 Claims. (Cl. 36—34)

This invention relates to a shoe heel and more particularly to the construction of a new lift for ladies' high heel shoes.

Recently, ladies' shoes have been made with heels which are very narrow and relatively small at the lift end of the heel. Lifts obviously wear and need frequent replacement, and the small size has complicated the problem thus making it virtually impossible to nail leather lifts in place as in the past. Some lifts of metal and others of relatively hard plastics have been used.

It is known that a lift of a softer material than metal, one of the nature of an automobile tire rubber, would give more lasting wear qualities and a more comfortable walking shoe. In the past, such materials could not be used because of the ease with which they were torn from the heel during normal wearing. The present invention provides a novel structure whereby such softer materials may effectively be used in ladies' shoe heels of the character described above.

The primary object of this invention is to provide a better yet less expensive heel lift for ladies' shoes.

Another object is to provide a heel lift for ladies' shoes having a novel structure permitting the use of longer wearing resilient materials.

Another object is to provide a heel lift for ladies' shoes wherein a mechanical bond between the resilient lift material and a metallic base is provided to prevent distortion of the resilient material beyond its elastic limit during normal use.

Other objects, features and advantages of the present invention will be apparent from the following description of a preferred embodiment illustrated in the accompanying drawings, in which:

FIGURE 1 is a side elevational view of a shoe heel embodying the invention of the lift structure;

FIGURE 2 is a front view of the shoe heel shown in FIGURE 1;

FIGURE 3 is an elevational view of the lift structure removed from the heel;

FIGURE 4 is a fragmentary enlarged elevational view of the head portion of the metallic part of the heel lift;

FIGURE 5 is a horizontal sectional view taken along line 5—5 in FIGURE 4;

FIGURE 6 is a fragmentary sectional view taken along line 6—6 in FIGURE 4;

FIGURE 7 is a view similar to FIGURE 4 taken at 90° thereto;

FIGURE 8 is a bottom plan view of the structure shown in FIGURE 4, and

FIGURE 9 is a fragmentary sectional view through the lift taken substantially at the level of line 9—9 in both FIGURES 3 and 4 and showing an enlargement of the section taken along line 9—9 in FIGURE 3.

The type of ladies' shoe heels with which the present invention may be used is shown in FIGURES 1 and 2 wherein the heel body **10** formed of plastic composition, wood or other suitable materials, has an upper surface **11** shaped to fit into a lady's shoe. The heel body narrows to a lower end to which a lift material body **12** is attached to provide the ground or floor engaging portion of the heel. As diagrammatically illustrated in FIGURES 1 and 2, the body of material **12** is attached to a metallic pin **13** which extends upwardly into a bore for that purpose in the heel body **10**.

In the past, the wear surface of heel lifts embodying

a pin, such as the pin **13**, have been generally made of very hard plastics in order to secure the plastic to the metal pin with such firmness that it could not be pulled off in use. In the present invention a mechanical bond between a much softer resilient material is provided by the use of a special and novel structure on the end of the pin **13**. This structure is illustrated in FIGURES 4 through 8. The pin **13** has a stem on which a head is formed in preparation to receive the resilient material. The particular head is one of triangular shape having three sides, **14**, **15** and **16** (FIGURE 5) with a circular flange **17** at the outer extremity of the head. A round shoulder **18** is formed between the stem of the pin and the triangular shaped portion of the head.

The head described above may be formed in a heading die properly shaped to form a triangular head and its flange **17** and shoulder **18**. The next step in the forming of the head is to drill longitudinally of the stem so as to intersect the flat sides **14**, **15** and **16** of the head, forming openings from the interior of the head through the flat sides. Referring to FIGURES 6 and 8, a drill is used to form the bore **20**. This bore has a radius greater than the distance between the center of the pin and any of the flat sides of the head so that the drill will break through each flat side forming an opening therein such as the opening **21** visible in FIGURE 6. Three such openings are formed, one in each flat side of the head, the openings being visible in FIGURES 4, 6, 7 and 8 and being designated by references **22** and **23**. The openings, in effect, are between three post members **25**, **26** and **27** joining the stem of the pin to the flange **17**. Should burrs exist following the drilling operation, the metal pins may be tumbled to remove the burrs from the openings so that there is open communication through the head crosswise of the pin as well as into the bore **20** longitudinally of the pin.

It is preferred to use a soft material much like the rubber of automobile tires since such material gives greater wear resistance than the harder plastics. The forming of the head of the pin, as described above, provides a cage-like structure to which the resilient soft material may anchor itself. The cage or foraminous structure of the head holds the soft material in place, allowing its resiliency to operate under the weight of the person standing on the heel, yet preventing the material from stretching beyond its elastic limit. After the head is formed, the soft plastic material is molded about the head so that the material extends through the openings **21**, **22** and **23** and into the longitudinal bore **20** to fill all space in and around the head. The longitudinal bore provides space for a core of the soft material which is bonded through the three flat sides of the material which extends around the head. Ordinarily, the head of the pin is made as large as possible so that when the soft material is trimmed to the size and shape shown on a finished heel in FIGURES 1 or 2, the steel surface of the flange **17** will not break through the surface on the side of the lift body but will be very close to it. In view of this trimming of the lift body **12**, the core of resilient material within the longitudinal bore **20** aids appreciably in mechanically locking the soft material to the metallic pin.

Many materials for the lift may be molded about a pin having the cage structure as shown herein. The softer materials are preferred for their wear resistance and with this cage structure they may be held in place mechanically although in some instances a chemical bond between the soft material and metal may be used. By employing the heading die and an automatic drilling operation, the pin members may be made quite inexpensively. The stem of the pin may be provided with a knurling **24** to keep the pin from turning in the heel body **10**.

The foregoing detailed description has been given for clearness of understanding only and no unnecessary limitations are to be understood therefrom, for some modifications will be obvious to those skilled in the art.

I claim:

1. A lift for a shoe heel comprising: an elongated pin member for insertion into a shoe heel lengthwise thereof, an integral head on the pin member having a generally round flange at its extremity and including means forming transverse passages through the head between said flange and said pin member and an intersecting longitudinal bore opening to the end of the pin member in communication with the transverse passages, and a body of resilient material about and enclosing the head of the pin member said material extending through and filling said passages and bore, said body providing a wear surface and being mechanically locked to said pin member.

2. A lift for a shoe heel comprising: an elongated pin member for insertion into a shoe heel lengthwise thereof, an integral cage structure on one end of said pin having spaced longitudinally extending members and an integral base portion joining the outer end portions of the longitudinally extending members together forming openings extending laterally through the cage structure, and a body of resilient material extending through said openings and surrounding said cage structure to lock the material to the pin member, said body providing a wear surface of the heel lift.

3. A lift for a shoe heel comprising: an elongated pin member for insertion into a shoe heel lengthwise thereof, an enlarged head on said pin member having spaced longitudinally extending members and an integral base member connecting the outer end portions thereof, said members and base member together forming a central bore opening to the end of the head and cross passages intersecting said bore, and a body of resilient material in and about said head of the pin member to enclose the entire head, said body providing an outer wear surface and having a core of said material reposing within said longitudinal bore in the head to lock the resilient material to the head of the pin member.

4. A lift for a shoe heel comprising: an elongated pin member for insertion into a shoe heel lengthwise thereof, an enlarged head on the pin member having an outer flange and a plurality of spaced legs integral with and supporting said flange, said head having a longitudinal bore extending past said flange and a plurality of lateral passages between said legs connecting said bore laterally to the exterior of the head, a body of resilient material about the head of the pin member filling said bore and passages with the material of said body in said bore and passages locking and holding the body mechanically to the head of said pin member against removal without rupture of said resilient material.

5. A lift as specified in claim 4 wherein said flange has a broad upper surface laterally of the pin and forming one side of said lateral passages, said upper surface preventing extrusion of the flange through the body of resilient material upon application of force tending to remove the body from the pin head.

6. A lift for a shoe heel comprising: an elongated pin member for insertion into a shoe heel lengthwise thereof, an enlarged hollow head on the pin member, said head having a flange at the free end thereof extending about a bore extending lengthwise of the pin past the flange into the head, a plurality of spaced posts connecting said flange to said pin member, said posts providing support for the flange about said bore, said head having laterally extending passages between the posts connected with said bore, said posts being relatively small in cross section relative to said passages, and a body of resilient material about the head of the pin member extending through and filling said bore and passages locking said material mechanically to the head of said pin.

References Cited in the file of this patent

UNITED STATES PATENTS

1,762,170	Gentile et al.	June 10, 1930
1,844,248	Gentile et al.	Feb. 9, 1932
1,947,840	Fitzsimmons	Feb. 20, 1934
1,949,940	Monfils	Mar. 6, 1934
2,069,585	Marchant	Feb. 2, 1937
2,070,229	Gentile	Feb. 9, 1937
2,111,314	Critchley	Mar. 15, 1938
2,189,812	McGill et al.	Feb. 13, 1940
2,656,621	Hoffman	Oct. 27, 1953
2,798,313	Marino	July 9, 1957
2,937,461	Trela	May 24, 1960