Dec. 1, 1942. J. J. BROPHY 2,303,431

SHOE AND SHOE BOTTOM UNIT

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Fig1

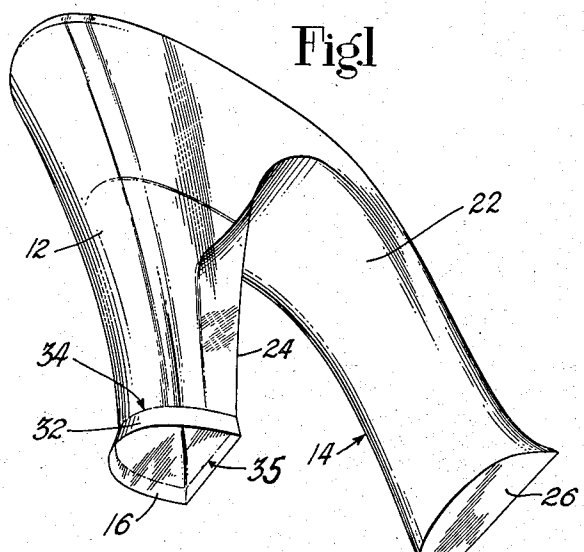

Fig2

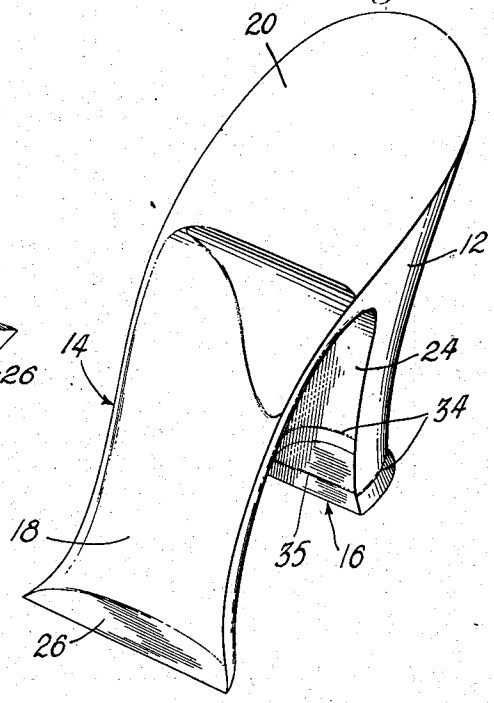

Fig3

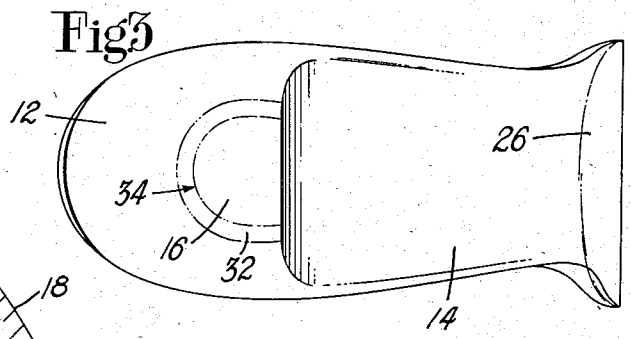

Fig4

INVENTOR
John J. Brophy
By his attorney
Victor Cobb

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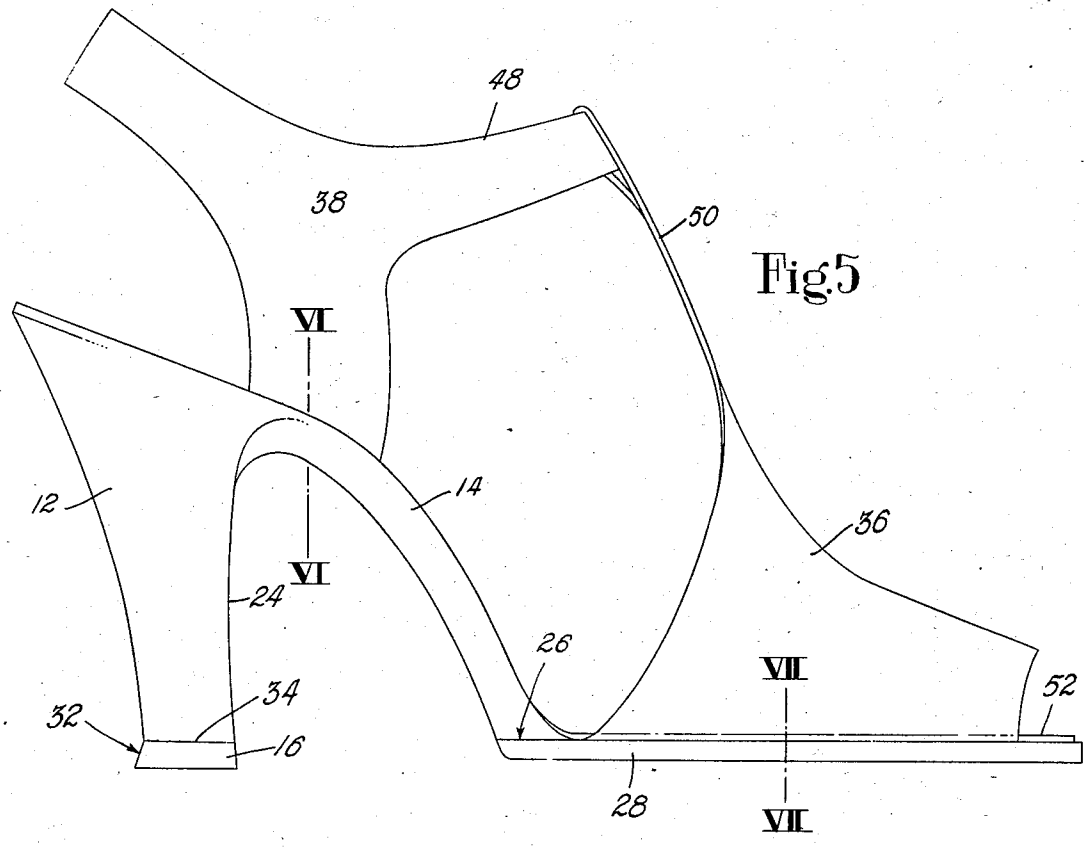


Fig.5

Fig.6

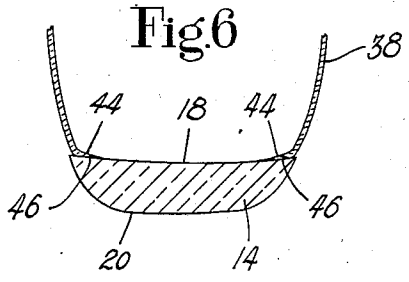
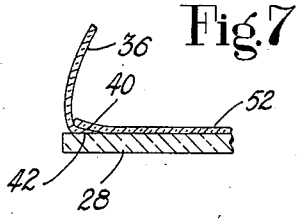


Fig.7



INVENTOR
John J. Brophy
By his attorney
Victor Cobb.

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UNITED STATES PATENT OFFICE

2,303,431

SHOE AND SHOE BOTTOM UNIT

John J. Brophy, Salem, Mass., assignor to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application December 5, 1940, Serial No. 368,683

1 Claim. (Cl. 36—11.5)

This invention relates to improvements in shoes and shoe bottom units.

One object of the present invention is to provide heel and shank units for women's high heel shoes or slippers which will impart to the shoes a novel and artistic appearance and render them cleverly effective in style and attractiveness without sacrifice of the advantageous features of more conventional heel and shank structures.

The heel and shank structure herein illustrated as an embodiment of my invention comprises a high heel having a slender but substantially rigid shank extension formed integrally therewith and extending forwardly and downwardly from its upper portion, the extension being arched to conform to the arch portion of the foot and adapted to provide adequate support therefor. This structure is formed of a moldable plastic composition which is colorless and highly transparent and preferably it is composed of the methyl methacrylate resin, known as "Lucite," which has exceptional light transmitting properties. The surfaces of the structure are highly polished to provide for reflection of light therefrom and to render them impervious to moisture and dust and capable of being easily cleaned. My improved heel and shank structure may be united with a forepart tread sole to provide a full length heel and outsole structure for attachment as a unit to a shoe having a full length inner sole or its equivalent. Advantageously, however, my improved heel and shank unit may be employed as the only bottom element in the heel and shank portions of a shoe in which case the transparency of the unit will render visible the bottom of the entire heel and instep portion of the foot while the shoe is being worn. Preferably, as shown, the heel portion of the unit is made exceptionally high so that the bottom of the instep portion of the foot or the shoe will be exposed to view through the transparent shank extension of the unit even when the tread face of the heel is resting upon the floor or the ground. The novel and stylish appearance of the shoe may be still further enhanced by making the tread sole and the upper, as well as the heel and shank structure itself, of transparent material.

Other features and advantages of the invention will be apparent from the following description, reference being had to the accompanying drawings, in which

Fig. 1 is a perspective view of my improved heel and shank unit as it appears from a point of observation located below and rearwardly of the unit;

Fig. 2 is a perspective view of the unit as it appears from a point of observation located above and forwardly of the unit;

Fig. 3 is a plan view of the unit,

Fig. 4 is a longitudinal sectional view of the unit as it appears after being united with a forepart tread sole to provide a full length heel and tread sole unit;

Fig. 5 is a side elevational view of a shoe embodying the full length heel and tread sole unit shown in Fig. 4; and

Figs. 6 and 7 are fragmentary sectional views taken along the lines VI—VI and VII—VII respectively of Fig. 5.

The improved heel and shank unit shown in the drawings comprises a high heel portion 12, quite similar in shape to a conventional high Louis heel, a shank portion 14 which is integral with the heel portion and extends forwardly and downwardly from the upper part of the latter, and a tread portion 16 which is also integral with the heel portion 12 and which is shaped to simulate an attached top lift. The heel and shank unit is composed of hard, solid material which is transparent and colorless so that the unit, when utilized in accordance with one aspect of my invention as the only bottom element in the heel and shank portions of a shoe, will render clearly visible the bottom of the heel and instep portions of the foot when the shoe is being worn. Various plastic materials are adapted for use in making my improved heel and shank structure, but I prefer to construct it of an acrylic resin such as the methyl methacrylate resin which is known by the trade name of "Lucite," and which has exceptional light-transmitting characteristics and is capable of having its surfaces highly polished to enhance the appearance of the unit and to provide for the reflection of light therefrom so that varied and novel luminous effects will be produced as the shoe assumes different positions while the wearer is walking. The highly polished surfaces provide a permanent and attractive finish which is impervious to moisture and dust and will not easily become soiled and which, if soiled, may be readily cleaned by merely wiping the structure with a cloth or the like. The unit may be formed by molding the material while it is in a plastic state or the unit may be cut or otherwise shaped from the material while the latter is in a hardened state.

The shank portion 14 of the unit extends forwardly and downwardly from the upper breast portion of the heel into the plane of the tread portion 16 and, in width and marginal contour,

the extension 14 corresponds to that of the shank portion of a conventional close edge outer sole. Thus, the shank extension 14 is adapted to underlie the arch portion of the bottom of the foot throughout the full width and length of the latter. The upper surface 18 of the shank extension 14 is a continuation of the upper surface 20 of the heel and, as best shown in Fig. 6, it is transversely curved to conform to the convexity of the bottom of the foot. The lower surface 22 of the shank extension is transversely convex, as also shown in Fig. 6. The breast face 24 of the heel is a plane surface, except in the upper portion of the heel where it is curved to blend with the curvature of the lower surface of the shank extension 14. Although, as shown in the drawings, the shank extension 14 is quite slender, it is substantially rigid and is thus adapted, without reinforcement, to provide firm and adequate support for the arch of the foot. At its forward extremity, the shank extension is formed with a flat sole-attaching face 26 which lies in a plane parallel to the bottom surface of the tread portion 16 of the heel and is located above that plane a distance corresponding to the thickness of a forepart tread sole such as the sole 28 (Figs. 4 and 5) which, as shown, is attached, by means of cement 30, to the face 26. When the tread sole 28 has been thus attached to the shank extension 14 a full length shoe bottom unit is provided and it is only necessary to secure an upper to this unit to make up a shoe the bottom shank portion of which will consist only of the transparent shank extension of the heel and shank unit.

In order that the tread portion 16 of the heel, which as already explained is integral with the latter, shall have the appearance of an attached top lift, the side and rear surfaces 32 of the tread portion 16 are inclined heightwise of the heel at a substantial angle to the adjacent rear and side surfaces of the lower portion of the heel body and meet the latter surfaces so as to form a clearly defined line 34 which is parallel to the bottom face of the tread portion 16. This line 34 is spaced above the tread face of the portion 16 approximately three-eighths of an inch, a distance equal to the thickness of a conventional top lift. Accordingly, the line 34 simulates a top-lift joint at the side and rear surfaces of the heel while a line 35, which may be engraved or indented in the heel material extends across the plain breast face of the heel to simulate a top-lift joint in that portion of the heel.

The forepart sole 28 shown in Figs. 4 and 5 may be made of transparent material, for example, vinylite resin, which has been found to have suitable wearing qualities and which is sufficiently flexible to enable the forepart sole to bend freely to accommodate the flexing movements of the foot in walking.

In making a shoe embodying the full length bottom unit of Fig. 4 the upper may be cut, as shown in Fig. 5, to provide an open toe vamp 36 and an open heel back part or quarter 38, the vamp having inturned lower marginal portions 40 (Fig. 7) which, as shown, may be secured by means of cement 42 to the sole 28 and the back part 38 having narrow inturned bottom flanges 44 (Fig. 6) which, as shown, may be secured by means of cement 46 to the shank extension 14 of the heel unit. Advantageously the back part 38 may be formed with an ankle strap 48 to which may be secured the upper extremity of instep strap 50 formed as part of the vamp. A forepart sock lining 52 may be employed to cover the inturned marginal portions of the vamp. To enhance the novel and ultra fashionable appearance of the shoe one or both of the upper parts 36 and 38, as well as the sock lining 52, may also be made of transparent material such as vinylite resin.

My improved heel and shank structure, either by itself or in combination with a forepart tread sole as illustrated in Fig. 4, may be attached as a unit to the bottom of a shoe comprising an upper having portions which entirely overlie the lower shank portion of an insole or equivalent inside bottom member, in which case the transparent shank extension of my heel and shank structure will serve to reveal the finish and workmanship on the shank portion of the shoe bottom and also to protect that portion of the shoe and maintain it permanently in a clean and attractive condition.

Having described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

A shoe comprising a substantially rigid rear part bottom unit composed entirely of transparent plastic material of such clearness as to render all portions of the unit clearly visible from any selected viewpoint, said unit constituting the only bottom element rearwardly of the forepart of the shoe and consisting of a high heel having formed integrally therewith a bottom portion simulating an attached top lift and a shank extension constructed and arranged to underlie and afford support for the arched portion of a foot as far forwardly as the ball, said extension having a sole attaching face at its forward extremity and the upper surfaces of said heel and said extension being continuous and being shaped to conform to the curvature of the corresponding portions of the bottom of the foot, a flexible transparent tread sole of plastic material arranged to underlie the forepart only of the foot and having its rear portion secured to said attaching face, a transparent upper comprising a vamp having inturned bottom margins secured to said tread sole and an open heel and open shank quarter having narrow inturned bottom flanges secured to said shank extension, and a transparent forepart sock lining secured to said tread sole, said sock lining covering the bottom margins of said vamp and overlapping the forward extremity only of said shank extension thereby leaving substantially the entire upper surface of said bottom unit exposed for direct contact with the foot so as to render the bottom of the foot clearly visible through said unit.

JOHN J. BROPHY.