

Aug. 19, 1952

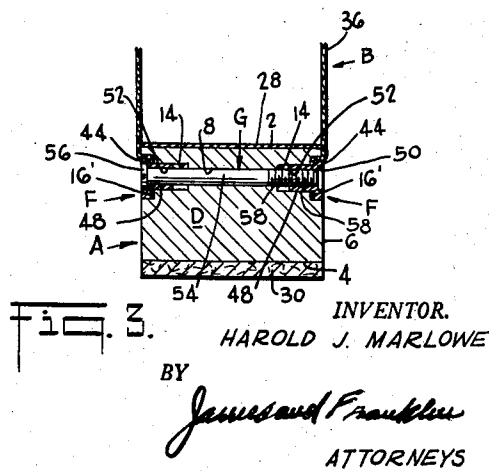
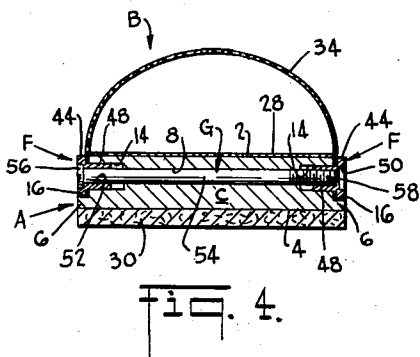
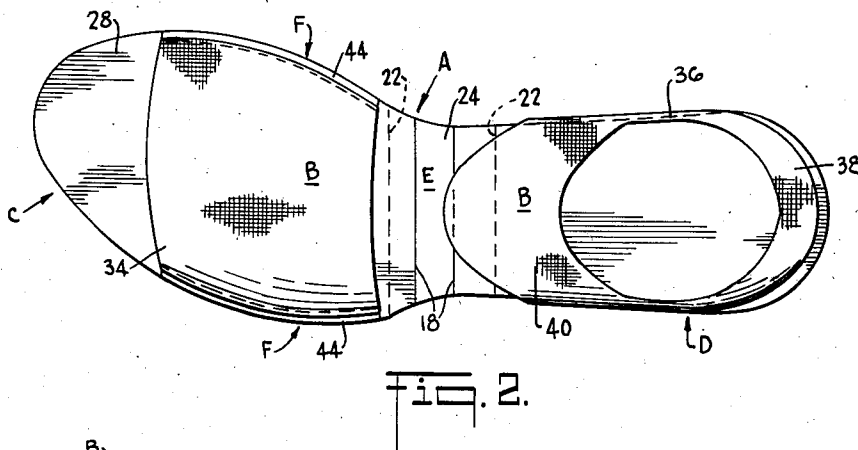
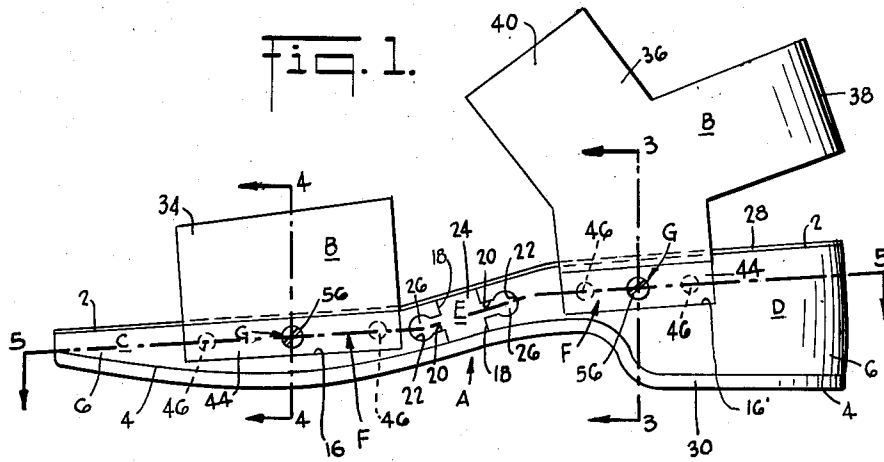
H. J. MARLOWE

2,607,133

SHOE WITH DETACHABLE UPPER

Filed Feb. 11, 1950

2 SHEETS—SHEET 1



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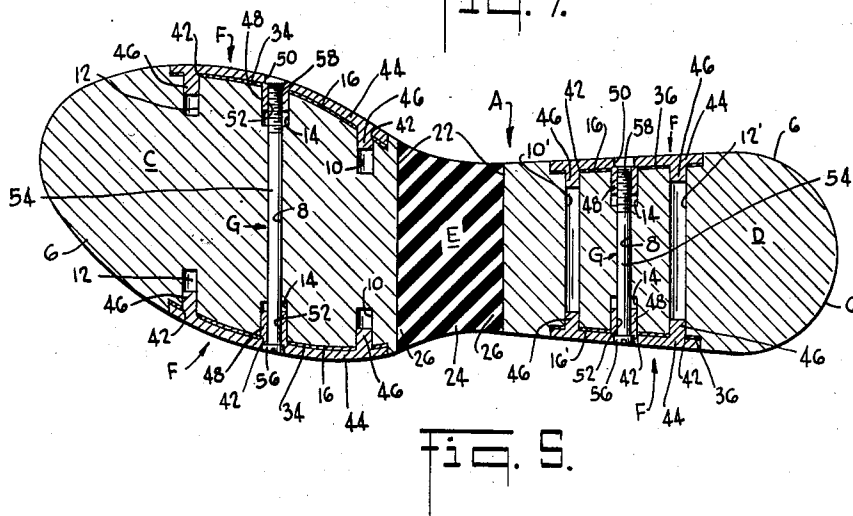
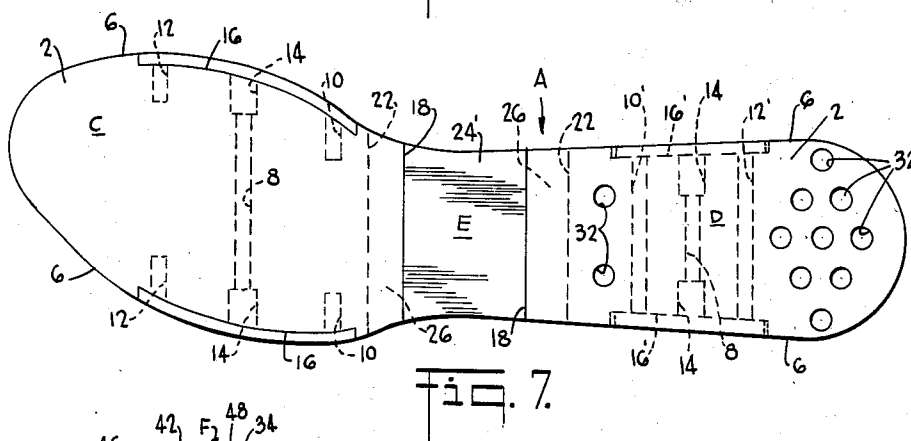
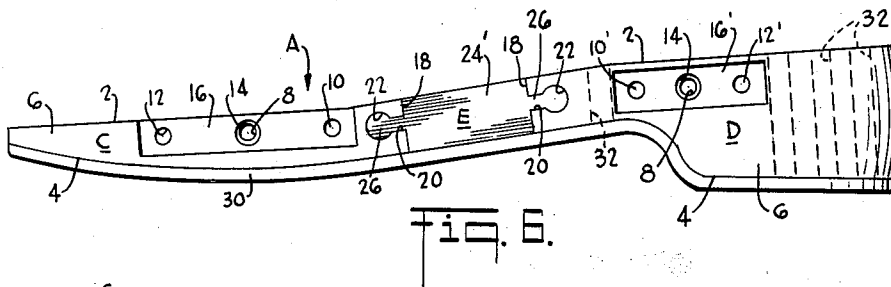
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SHOE WITH DETACHABLE UPPER

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2 SHEETS—SHEET 2



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2,607,133

SHOE WITH DETACHABLE UPPER

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The present invention relates to a novel type of shoe construction which permits shoes of different sizes to be made from standardized parts of fixed size, and which permits an upper to be detachably secured thereto.

It has in the past been necessary, in making shoes of different sizes to manufacture shoes of one size independently of shoes of different sizes. This makes for waste in manufacture and consequently gives rise to expensiveness in the shoe structure itself.

It has been proposed to reduce the expensiveness of shoes, and at the same time increase their effective life, by making the body portion of the shoes of some rigid material such as metal or plastic which may be molded or die-cast in inexpensive quantity production, the rigid portions being interconnected by a resilient insert so that the shoe can conform to the change in shape of the foot in walking. However, even with this construction, different rigid body portions must be made for each shoe size, thus giving rise to considerable additional expense in manufacture, since for each size individual expensive dies or molds must be employed.

It is a prime object of the present invention to avoid the above disadvantages by providing for a shoe construction in which the preferably rigid and metallic body portions are identical for shoes of different sizes, the size of the shoe being determined by the dimensions of the resilient member which interconnects the two rigid body portions. In this way the expensive components of the shoe, the rigid body portions, are the same for different shoe sizes and consequently one set of dies or molds will suffice for the production of a complete line of shoes. Only the relatively inexpensive resilient insert will differ from size to size.

It has also been proposed in the past to provide shoes with uppers which are detachable from the body portion so that uppers may be removed for cleaning or replaced with uppers of a different style or color to vary the effect produced by the shoe and thus harmonize with different types or colors of dress. Moreover, replacement of worn uppers is facilitated. The last situation often occurs when the body portions are made of metal or the like, since such body portions are comparatively indestructible whereas the uppers, being of relatively conventional construction, wear out much more rapidly. A prime drawback of the widespread adoption of this feature has been that no adequate detachable securing means has been provided, the securing means suggested

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heretofore being non-positive in operation, imparting to the shoe a non-decorative or functional appearance, and being difficult to manipulate.

It is another object of the present invention to devise a novel securing means for detachably fastening an upper to a shoe body portion, such securing means being particularly adapted for use with shoe body portions formed of metal or similar rigid material but not necessarily limited thereto. A subsidiary object is to provide such a securing means which protects the side surfaces of the upper against abrasion where those surfaces overlie the side surfaces of the body portion. A further subsidiary object is to provide a securing means which can enhance the decorative appearance of the shoe, as by providing for a color contrast or color matching effect as desired.

Another object of the present invention is to devise a shoe construction which is sturdy, adaptable and inexpensive and which may be made from a plurality of more or less standardized parts.

The present invention is here specifically disclosed as applied to a play shoe of the sandal type, but it obviously has aspects and implications considerably broader than the specific disclosure.

To the accomplishment of the foregoing objects and such other objects as may hereinafter appear, the present invention relates to a shoe construction as defined in the appended claims and as described in this specification taken together with the accompanying drawings in which:

Fig. 1 is a side elevational view of a shoe embodying the present invention;

Fig. 2 is a top plan view thereof;

Fig. 3 is an end cross-sectional view taken along the line 3—3 of Fig. 1;

Fig. 4 is an end cross-sectional view taken along the line 4—4 of Fig. 1;

Fig. 5 is a top cross-sectional view taken along the line 5—5 of Fig. 1; and

Figs. 6 and 7 are side elevational and top plan views respectively of a shoe similar to that of Figs. 1 and 2 but of a larger size, and with the uppers and inner sole removed.

Broadly considered the shoe comprises a body portion generally designated A to which an upper generally designated B is detachably secured. The body portion includes a toe portion C, a heel portion D and a resilient member E secured between the toe portion C and heel portion D so that the shoe may articulate. The toe and heel

portions C and D are identical for shoes of different lengths and are preferably made of some rigid material such as aluminum or the like conveniently die-cast into shape, or of a plastic material which has been molded into shape, although wood or any other rigid or semi-rigid material may be used. The resilient member E varies in length and shape according to the size of shoes desired and consequently shoe body portions A of different sizes (compare the shoe of Fig. 1 with that of Fig. 6) will differ only in the size and shape of the resilient member E. Since the major item of expense in the manufacture of a shoe of this type resides in the cost of the dies or molds required to form the toe and heel portions C and D, it will be appreciated that this results in a very significant saving, since the same pair of molds or dies may be employed for shoes of varying lengths.

The upper B is detachably secured to the body portion A by means of brackets F which fit over the lower surfaces of the uppers B and clamp the uppers B to the body portion A, a securing device G passing through the body portion A and securely and positively clamping brackets F to the body portion A from the interior thereof. The brackets F are preferably made in identical and interchangeable pairs, thus further reducing the cost of manufacture of the shoe.

The toe portion C is cast, molded or otherwise formed into appropriate shape so as to have a top surface 2, a bottom surface 4 and a side surface 6. A transverse aperture 8 is formed therethrough at any appropriate point along its length and preferably additional opposed pairs of apertures 10 and 12, similarly oriented, are provided adjacent to the through aperture 8. The outer ends of the through aperture 8 are countersunk at 14 and recesses 16 are formed in the side surfaces 6 of the toe portion C surrounding the open ends of the apertures 8, 10 and 12, the recesses 16 extending completely to the top surface 2 of the toe portion C. The inner end edge 18 of the toe portion C is provided with a slot 20 extending completely from one side surface 6 to the other, that slot having an enlarged inner portion 22.

The heel portion D is constructed similarly to the toe portion C except for the necessary changes in shape, the same reference numerals being applied to the heel portion D as to the toe portion C for similar constructional elements. The recesses in the side surfaces 6 of the heel portion D are designated by the numeral 16' to indicate that those recesses do not extend all the way to the top surface 2 thereof and the additional apertures in the heel portion D are designated by the numerals 10' and 12' to indicate that they pass completely through the heel portion D, whereas the apertures 10 and 12 in the toe portion C do not pass completely therethrough. These differentiations are merely optional modifications which might be employed in the toe portion C alone, in both the toe and heel portions C and D, or in neither of those portions.

The rigid toe and heel portions C and D are connected by means of a resilient member E in the form of a rubber insert 24 having end projections 26 shaped to fit within the slots 20 and the enlarged portions 22 thereof in each of the toe and heel portions C and D. The top and bottom surfaces of the rubber insert 24 merge smoothly with the top and bottom surfaces 2 and 4 of the toe and heel portions C and D so that the insert E forms a support for the portion

of the foot directly thereover. The insert 24 preferably extends completely from side to side of the shoe so that its side surfaces merge smoothly with the side surfaces 6 of the toe and heel portions C and D. Thus the composite shoe defined by the toe and heel portions C and D and the resilient member E has a peripheral shape at its top, bottom and sides with no irregularities therein and comparable to a normal shoe. In Figs. 1-5 a rubber insert 24 having a relatively short length is employed, the shoe formed by its use being of a relatively small size. By way of comparison, in Figs. 6 and 7 a rubber insert 24' of somewhat greater length is employed with toe and heel portions C and D identical with those in the embodiment of Figs. 1-5. As a result, a shoe of considerably greater length is produced. It will be noted that the curvature of the side surfaces of the insert 24' is different from the curvature of the side surfaces of the insert 24, this being necessary in order to compensate for the different spacing between the toe and heel portions D produced by the greater length of the insert 24' when compared with that of the insert 24. It therefore will be realized that by this means shoes of different sizes can be efficiently and effectively produced merely by varying the length and shape of the resilient member E, that member also serving the function of permitting the shoe structure to articulate to conform to the change of shape of the foot during walking and at the same time aiding in the support of the foot.

The resilient member E may be retained between the toe and heel portions C and D by means of a suitable adhesive effective between its projecting portions 26 and the interior of the slots 20 and the enlarged portions 22 thereof or in any other convenient manner. It will be appreciated that in some applications it might be desirable to have the resilient member E more or less readily removable so that the size of the shoe can be varied at will.

Once the shoe has been constructed it is desirable to secure an inner sole 28 to the top of the body portion A and an outer sole 30 to the bottom thereof, this being accomplished through the use of adhesive.

If the toe and heel portions C and D be made of aluminum or other similar light metal it will be apparent that a light and comfortable shoe will be produced thereby. If desired, the body portion A may be further lightened through the employment of vertical apertures 32 which are shown in the heel portion D in Figs. 6 and 7 but which could also be employed in the toe portion C if desired. Because of the greater thickness of the heel portion D as compared to the toe portion C it is generally preferred that these vertical apertures 32 be provided in the former in order to balance the weight of the shoe.

The upper B is here disclosed as of the sandal type defined by a front strap 34 passable over the forward part of the foot and by a rear strap 36 including a heel strap 38 and an ankle strap 40. The straps 34 and 36 are comparatively wide at the points where they are adapted to lie adjacent the toe and heel portions C and D, and consequently the lower edges of the straps 34 and 36 are of appreciable length compared to the length of the toe and heel portions C and D respectively. They thus differentiate over thongs or comparatively narrow straps such as have been employed in the past in certain types of sandal

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construction. Because of the substantial width of the straps 34 and 36, it is imperative that they not only be secured to the toe and heel portions C and D in such a manner that they will not become separated therefrom under normal usage, but that they also be so secured to the toe and heel portions C and D as to maintain proper orientation with respect thereto, that is to say, so that they will not tend to cant or twist about an axis transverse of the toe and heel portions C and D. The lower edges of the straps 34 and 36 are adapted to be received within the recesses 16 and 16' in the side surfaces 6 of the toe and heel portions C and D respectively and are preferably shaped to snugly fit therein. They are provided with apertures 42 registering with the apertures 10 and 12 and the countersunk portions 14 of the apertures 8 in the toe portion C and the apertures 10' and 12' and the countersunk portions 14 of the apertures 8 in the heel portion D respectively.

For each of the toe and heel portions C and D a pair of brackets F are provided, the brackets of each pair preferably being identical in shape and capable of being matingly received in the recesses 16 and 16' over the lower surfaces of the straps 34 and 36 respectively. Each bracket comprises a body portion 44 having projections 46 passable through the appropriate apertures 42 in the lower ends of the straps 34 and 36 and into the apertures 10 and 12 or 10' and 12' in the toe or heel portions C or D respectively. It also carries another and preferably approximately centrally located projection 48 which is countersunk at 50 and provided with a bore 52 there-through which is internally threaded. This projection 48 is received within the countersunk portion 14 of the transverse aperture 8. A securing device G in the form of a headed bolt 54 passes through the projections 48 and the transverse aperture 8, the head 56 of the bolt being received within the countersunk portion 50 of one projection 48 and the externally threaded tip 58 of the bolt 54 threadedly engaging the internally threaded bore 52 of the opposite projection 48. When the bolt 54 is tightened it will positively and effectively draw the two opposite brackets F together and thus clamp the lower edges of the straps 34 and 36 to the toe and heel portions C and D respectively, the passage of the projections 46 and 48 through the apertures 42 in the straps 34 and 36 ensuring that the uppers, usually made of some tough material such as canvas or duck, cannot become detached from the shoe body portion A. The brackets F are shaped to conform to the side edges of the toe and heel portions C and D respectively and are of a length such as to extend over all or a major portion of the length of the bottom edges of the uppers B. As a result, when the brackets F are clamped in position by the securing device G they will clamp the lower edges of the straps 34 and 36 between themselves and the sides 6 of the toe and heel portions C and D, thus retaining the uppers B in proper orientation with respect to the toe and heel portions C and D respectively. The projections 46 laterally spaced from the central projection 48 and passing through appropriately positioned apertures 42 in the straps 34 and 36 provide a positive means for securing the straps 34 and 36 in proper orientation. The depth of the recesses 16 and 16' is such that the lower surfaces of the straps 34 and 36 and the brackets F are completely received therewithin, the outer surfaces of the brackets F preferably forming smooth continua-

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tions of the outer surfaces 6 of the body portion A (see particularly Figs. 2 and 5), thus avoiding protruding edges which might catch or snag and enhancing the appearance of the shoe, while at the same time the brackets F protect the clamped portions of the straps 34 and 36 against abrasion or other damage. In order to further ensure a positiveness of the clamping effect of the brackets F the apertures 42 in the straps 34 and 36 may be provided with grommets for reinforcement purposes.

The shoe of the present invention may be made up into a very attractive ensemble by using resilient members E of colored rubber and by appropriately coloring the toe and heel portions C and D. This may be done either by painting the side surfaces 6 thereof or by forming the portions C and D of colored metal, as is presently available on the market. The upper B may also be formed of any appropriately colored material, preferably either a fabric or a plastic, and contrasting or matching color effects as desired can be achieved. More particularly, sets of uppers B of different colors may be furnished with the shoes, the appropriate set being securable to the body portion A at will in order to provide any desired decorative effect or to blend with the color scheme of the particular outfit being worn. The upper B may be removed from or secured to the body portion A in a simple manner and by persons without any particular mechanical skill or specialized equipment, the only mechanical operation necessary being the application of a screwdriver to the head 56 of the bolt 54. The construction described is sturdy, simple and inexpensive. It lends itself to mass production and permits the manufacture of shoes in a wide variety of sizes without requiring the extensive capital investment necessary in producing numerous dies or molds. Indeed, shoes of the present invention might be more or less "tailor-made" to the foot of the wearer through the use of a resilient member E of appropriate size, the length of the member E being determined in a fitting operation and the shoe then being assembled by the seller thereof. Moreover, different resilient members E of the same size but of different colors could be purchased by the user of the shoe, these members being frictionally retained between the toe and heel portions C and D but being slidable out therefrom upon the application of lateral pressure in order to permit replacement of a given member E with another of a different color, thus rendering the shoe further capable of exhibiting varied color effect.

It will be apparent that many variations may be made in the shoe construction as here specifically disclosed without departing from the spirit of the invention as defined in the following claims.

I claim:

1. A shoe comprising a body portion and a detachable upper having bottom edges of appreciable length compared to the length of said body portion, said body portion having a transverse aperture therethrough and a pair of additional transverse apertures parallel therewith adjacent thereto on each opposite side of said body portion, said upper having registering pairs of spaced apertures near opposite bottom edges thereof, a pair of independent brackets separate and detachable from said upper and fittable over the outside of the bottom edges of said upper adjacent the apertures therein, said brackets extending over a major portion of the length of the bot-

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tom edges of said upper, said brackets having projections passable through the apertures in said upper and into the apertures in said body portion, and a separate and detachable securing device passable through said transverse aperture and engaging both said brackets so as to secure them and the upper to the shoe, said brackets protecting the outer surface of a portion of said upper along a side of said body portion and, through its projections, retaining the upper in proper orientation on said body portion, said securing device constituting the sole means holding said brackets to said body portion, and said securing device, said brackets and said projections constituting the sole means holding said upper to said body portion, and said body portion, upper and brackets being readily detachable one from the other so that said brackets and said body portion may be used with different uppers.

2. A shoe comprising a body portion and a detachable upper having bottom edges of appreciable length compared to the length of said body portion, said body portion having a transverse aperture therethrough and a pair of additional transverse apertures parallel therewith adjacent thereto on each opposite side of said body portion, said upper having registering pairs of spaced apertures near opposite bottom edges thereof, a pair of independent brackets separate and detachable from said upper and fittable over the outside of the bottom edges of said upper adjacent the apertures therein, said brackets extending over a major portion of the length of the bottom edges of said upper, said brackets having projections passable through the apertures in said upper and into the apertures in said body portion, and a separate and detachable securing device passable through said transverse aperture and engaging said brackets and any projections on

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said brackets which are in the transverse aperture through said body portion so as to secure said brackets and the upper to the shoe, said brackets protecting the outer surface of a portion of said upper along a side of said body portion and, through its projections, retaining the upper in proper orientation on said body portion, said securing device constituting the sole means holding said brackets to said body portion, and said securing device, said brackets and said projections constituting the sole means holding said upper to said body portion, and said body portion, upper and brackets being readily detachable one from the other so that said brackets and said body portion may be used with different uppers.

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