ABSTRACT

A base for articles of footwear and articles of footwear comprising such a base. Such base comprises a rigid platform of which the ground-contacting surface extends in a continuous convex curve from the front (toe) end to the rear (heel) end. Said convex curve includes a middle portion for location beneath the foot-arch of the wearer which has a radius of curvature greater than the portions of said convex curve lying either side of said middle portion.

2 Claims, 6 Drawing Figures
This invention relates to a base for articles of footwear. The term "base" for an article of footwear is used to refer to all that part of the footwear article lying between the foot of the wearer and the ground surface. Such a base can include a lining for the foot and a sole lining at the ground contact surface. The base can be relatively thin, as in a man's shoe, or relatively thick, as in a lady's high-heeled shoe with platform sole. The "upper" of the article of footwear is attached to the base and can be of any style or construction, for example ranging from mere straps as in a sandal to a structure which completely envelopes the wearer's foot, as in a conventional shoe.

The primary object of the present invention is to provide a base for articles of footwear which reduces the time and energy required for walking and which results in a walking movement which is quicker and more comfortable and graceful than has been possible hitherto.

According to a feature of the invention, a base for articles of footwear comprises a rigid platform having a front end to extend below and support the toes of a wearer and a rear end to extend below and support the heel of the wearer, wherein the ground-contacting surface of said platform extends in a continuous convex curve from the front-end to the rear-end of the platform and said convex curve includes a middle portion for location beneath the foot arch of the wearer which has a radius of curvature greater than the portions of said convex curve lying either side of said middle portion.

According to another feature of the invention, an article of footwear comprises a rigid platform base having a front end to extend below and support the toes of a wearer and a rear end to extend below and support the heel of the wearer, and means attached to said platform base for receiving and securing the foot of the wearer, wherein the ground-contacting surface of said platform base extends in a continuous convex curve from the front-end to the rear-end of the platform and said convex curve includes a middle portion for location beneath the foot arch of the wearer which has a radius of curvature greater than the portions of said convex curve lying either side of said middle portion.

An embodiment of the invention will now be described, merely by way of example, with reference to the accompanying drawings in which:

FIG. 1 is a side elevation of a base for footwear according to the present invention;
FIG. 2 is a perspective view from above of the base shown in FIG. 1;
FIG. 3 is a view similar to that of FIG. 1 including an upper and the foot of the wearer;
FIGS. 4a to 4c show views of a base according to the invention in different attitudes at different positions during a walking movement.

Referring to FIGS. 1 to 3 of the accompanying drawings, a base 1 for an article of footwear is of a rigid construction, for example of steel, plastics or wood. The ground-contacting surface 2 has a shape which follows a smooth convex curve, although the radius of curvature through the curve alters. For example, in FIG. 1 the surface 2 has a middle portion 2a which has a greater radius of curvature than the portions 2b or 2c, lying either side of the portion 2a.

This embodiment is a base for a lady's high-heeled shoe, intended for wearing in the manner seen in FIG. 3 in which the upper 3, attached to the base 1, receives the wearer's foot 4. As will be seen, the ground-contacting surface 2 extends in this embodiment beyond the portions 2b and 2c to further portions of reduced radius of curvature 2d and 2e respectively. In practice, it is most unlikely that the portions 2d and 2e will be brought into contact with the ground during normal walking.

Accordingly, the essential embodiment of the invention consists in a footwear base having a ground-contacting surface 2 comprising the portion 2a leading in a smooth curve to the adjacent portions 2b and 2c, both of said latter portions having a radius of curvature less than that of the mid-portion 2a. This embodiment is shown in FIGS. 4a to 4c. The portion 2a of maximum radius of curvature lies under the foot-arch of the wearer and the curve of the ground-contacting surface 2 is such that, during normal walking movement, the centre-of-gravity of the wearer's body is always transposed so as to be concentrated in the foot-arch.

Due to the inventive shape of the ground-contacting surface 2, during a walking movement there is achieved with one action what, with conventional footwear comprising a sole and a separate heel, is achieved with three actions. In other words, when walking with conventional footwear there are three separate actions in a step:

i. supporting the body with the heel in contact with the ground,
ii. pivoting through a position of equilibrium, and
iii. pressing against the ground with the toes. With the footwear base of the present invention, these three separate actions are blended together in a single action, with consequent saving in expended energy and increase in grace and comfort.

As seen in FIG. 4a, the first part of the walking movement brings the portion 2c into contact with the ground, the base moving through the point indicated by the arrow to the position shown in FIG. 4b. The smooth, single-action movement is completed by contacting the ground with the portion 2b, as seen in FIG. 4c. This smooth walking movement reduces both the time and energy required in walking a given distance and this makes walking more comfortable, quick and graceful.

The footwear base of the invention can be of any dimensions to suit lady's, children's or men's footwear. The base can be provided with internal or external linings, if required, and can be solid or hollow or of a lattice structure. The only essential feature is that the ground-contacting surface should be smoothly curved in the manner afore described.

I claim:

1. An article of footwear, comprising a rigid base (1) having a lower ground-contacting surface (2) having a configuration which follows a smooth convex curve, said ground-contacting surface having a middle portion (2a) that is arranged, during use, beneath the arch of the foot of a wearer, and front and rear end portions (2b, 2c) arranged on opposite sides of said middle portion for arrangement in supporting relation below the toes and heel, respectively, of the wearer, said middle portion having a radius of curvature which is greater
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3. A base for an article of footwear, comprising a rigid base (1) having a lower ground-contacting surface (2) having a configuration which follows a smooth convex curve, said ground-contacting surface having a middle portion (2a) that is arranged, during use, beneath the arch of the foot of a wearer, and front and rear end portions (2d, 2e) on opposite sides of said middle portion, respectively, each of said further portions having a radius of curvature that is less than that of the adjacent front and rear end portions, respectively; and upper means (3) connected with said base for receiving the foot of the wearer in such a manner as to position the wearer's arch above said middle portion.

2. A base for an article of footwear, comprising a rigid base (1) having a lower ground-contacting surface (2) having a configuration which follows a smooth convex curve, said ground-contacting surface having a middle portion (2a) that is arranged, during use, beneath the arch of the foot of a wearer, and front and rear end portions (2b, 2c) arranged on opposite sides of said middle portion for arrangement in supporting relation below the toes and heel, respectively, of the wearer, said middle portion having a radius of curvature which is greater than said front and rear end portions, and further portions (2d, 2e) on opposite sides of said front and rear end portions, respectively, each of said further portions having a radius of curvature that is less than that of the adjacent front and rear end portions, respectively.

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