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(11) **EP 0 861 610 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
02.09.1998 Bulletin 1998/36

(51) Int. Cl.⁶: **A43B 13/18**

(21) Application number: **98103028.1**

(22) Date of filing: **20.02.1998**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **27.02.1997 IT BO970031 U**

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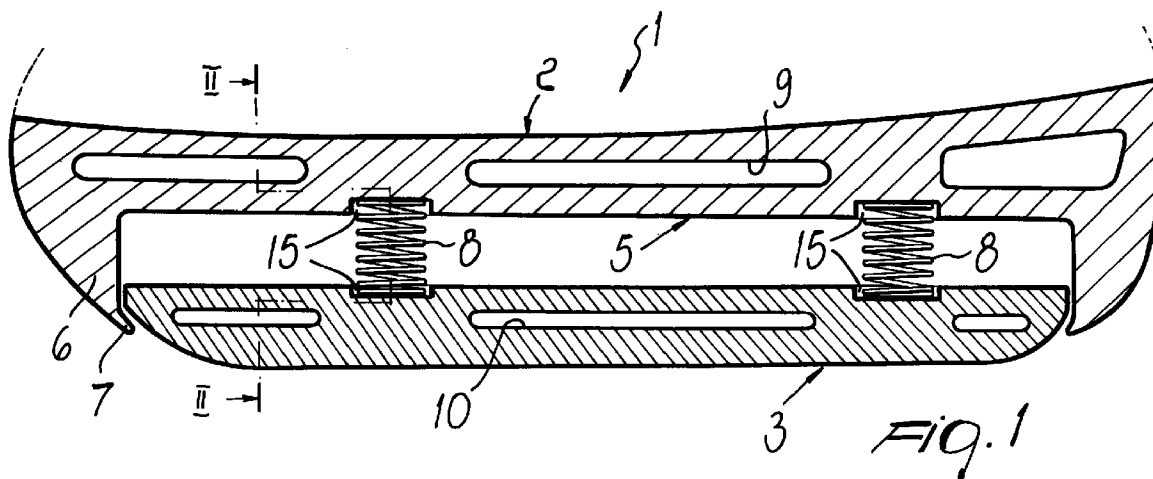
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(54) **Schock-absorbing sole for shoes**

(57) A sole for shoes having shock-absorbing properties, comprising an upper sole (2) which is rigidly coupled to an upper (4) and forms, in a downward region, a seat for a tread sole (3), inside which the tread sole is accommodated and movably retained, so that it can perform strokes towards and away from the upper sole

(2), elastic shock-absorbing means (8) being interposed between the upper sole and the tread sole and being suitable to repel the upper sole (2) into a spaced position with respect to the tread sole (3).



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Description

The present invention relates to a sole for shoes having shock-absorbing properties.

Currently commercially available shoes have a sole made of leather or synthetic material. With respect to leather soles, soles made of synthetic material, generally of the elastic rubber-like type, allow to better cushion the impact of the foot on the ground. However, the characteristics of the synthetic material do not allow adequate foot transpiration and do not allow to maintain its temperature at comfortable levels, especially in hot periods or during certain gymnastic and recreational activities.

The aim of the present invention is to provide an innovative sole for shoes which allows to avoid the typical drawbacks of conventional soles, particularly as regards the impact of the foot on the ground.

Within the scope of this aim, an object of the present invention is to provide a sole for shoes which is structured so that the part that is meant to wear due to friction against the ground can be replaced quickly and inexpensively by any user, therefore without having to resort to troublesome soling operations.

This aim, this object and others which will become apparent hereinafter are achieved by a sole for shoes as defined in claim 1.

Further characteristics and advantages of the shock-absorbing sole according to the present invention will become apparent from the following detailed description of two embodiments thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

figure 1 is a longitudinal sectional view of a sole for shoes according to a first embodiment of the present invention;

figure 2 is a transverse sectional view of the sole, taken along the plane II-II of figure 1;

figure 3 is a side view of a sole according to a second embodiment; and

figure 4 is a sectional view, taken along the plane IV-IV of figure 3.

With reference to figure 1, the sole for shoes, generally designated by the reference numeral 1, comprises an upper part, termed upper sole 2, and a lower part, termed tread sole 3.

The upper sole 2 and the tread sole 3 are preferably produced by molding plastics which has elasticity characteristics, so as to follow the foot during its rolling motion on the ground.

An upper, schematically designated by the reference numeral 4, is peripherally fixed in any conventional manner to the upper sole 2. For the sake of comfort, the upper surface of the upper sole 2 is shaped complementarily to the sole of the foot and is covered by an arch supporting element.

The upper sole 2 forms, in a downward region, a seat 5 which is peripherally surrounded by a wall 6 that descends from the rim of the upper sole.

The tread sole 3 is arranged inside the seat 5. In order to retain the tread sole 3 inside the seat 5, the lower rim of the wall 6 is folded inward, so as to form a lip 7 which acts as an abutment for the resting of the tread sole 3.

Elastic shock-absorbing means, for example springs 8, are interposed between the tread sole 3 and the upper sole 2 and act by compression so as to keep the tread sole 3 rested on the lip 7.

The springs 8 are distributed in particular at the heel and toe regions of the foot; in order to ensure that the springs remain in position, in the upper sole 2 and in the tread sole 3 there are provided mutually opposite recesses 15 in which the opposite ends of the springs 8 engage.

Advantageously, the upper sole 2 and the tread sole 3 have internal cavities 9 and 10 which reduce the weight of the sole and allow to control its flexibility.

It is evident that by means of the sole according to the present invention, the tread sole 3 can perform elastic strokes during walking. The impacts occurring when the heel touches the ground are in fact effectively cushioned by the springs 8.

It is also important that the tread sole 3 can move independently of the upper sole 2. In this manner, it can remain in perfect contact with the ground to follow its inclinations and prevent said inclinations from being transferred to the upper sole and thus absorbed by the articulation of the foot.

It should also be noted that the tread sole 3 can be easily removed from its seat, for example by forcing it through the lip 7 or by providing a specifically formed passage in the wall 6, in order to allow the replacement with another tread sole in case of wear.

The described invention is susceptible of numerous modifications and variations, all of which are within the scope of the same inventive concept.

For example, the springs 8 can be replaced with other elastic elements, for example bodies made of elastic rubber-like material. In a preferred embodiment, instead of the springs 8, elastic pellets of plastic material are used which are filled with air and, being particularly light, do not increase the weight of the sole and offer an effective cushioning action.

Figures 3 and 4 illustrate a second embodiment of the invention in which, in order to avoid an excessive rocking of the upper sole 2 with respect to the ground, the upper sole 2 and the tread sole 3 are mutually articulated by a transverse pivot 11 arranged in a median position of the sole 1.

The pivot 11 is driven through a plurality of ridges 12 formed in the upper sole 2 and engaged with complementary ridges 13 formed in the tread sole 3. The ridges 12, 13 also allow to strengthen the central region of the sole.

Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A sole for shoes having shock-absorbing properties, characterized in that it comprises an upper sole (2) which is rigidly coupled to an upper (4), and a tread sole (3) which is retained so that it can move with respect to said upper sole, elastic shock-absorbing means (8) being interposed between said upper sole and said tread sole and being suitable to repel said upper sole into a spaced position with respect to said tread sole.
2. A sole for shoes according to claim 1, characterized in that it comprises an upper sole (2) which is rigidly coupled to the upper (4) and forms, in a downward region, a seat (5) for a tread sole (3), inside which said tread sole is accommodated and movably retained so that it can move towards and away from said upper sole, elastic shock-absorbing means (8) being interposed between said upper sole and said tread sole and being suitable to repel said upper sole into a spaced position with respect to said tread sole.
3. A sole for shoes according to claim 2, characterized in that the upper sole forms, in a downward region, a seat (5) which is delimited peripherally by a wall (6) that descends from the rim of the upper sole and has a lower edge (7) folded inward so as to form a lip which acts as an abutment for the resting of the tread sole.
4. A sole according to claim 1, characterized in that said upper sole (2) and said tread sole (3) are mutually articulated by a transverse pivot (11) which is arranged in a median position of the sole, said pivot being driven through a plurality of ridges (12, 13) which are formed in the upper sole and are connected to complementary ridges formed in the tread sole.
5. A sole for shoes according to claim 1, characterized in that said elastic means are constituted by springs (8) which act by compression and whose opposite ends are engaged in recesses (15) formed in said upper sole (2) and in said tread sole (3).
6. A sole for shoes according to claim 1, characterized in that said elastic means are constituted by elastic pellets filled with air.
7. A sole for shoes according to claim 1, characterized in that said upper sole (2) and said tread sole (3) have internal lightening cavities (9, 10).

