(12) UK Patent Application (19) GB (11) 2 434 076 (13) A

(43) Date of A Publication 18.07.2007

(21) Application No: 0600849.4

(22) Date of Filing: 16.01.2006

(71) Applicant(s):
Raymond Leon Rose
26 Mansell Road, LONDON, W3 7QH,
United Kingdom

(72) Inventor(s):
Raymond Leon Rose

(74) Agent and/or Address for Service:
i.p.21 Limited
Central Formalities Department,
Norwich Research Park, Colney,
NORWICH, NR4 7UT, United Kingdom

(51) INT CL:
A43B 5/12 (2006.01) ***A43B 7/14*** (2006.01)
A43B 13/14 (2006.01) ***A43B 13/38*** (2006.01)
A43B 13/40 (2006.01) ***A43B 23/28*** (2006.01)

(52) UK CL (Edition X):
A3B B10C B3A B8A1

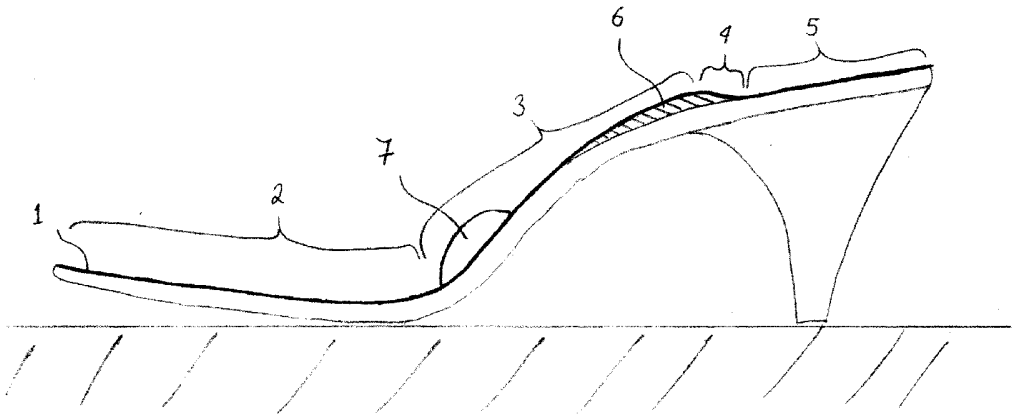
(56) Documents Cited:
GB 2263619 A **WO 2004/093584 A2**
JP 600339402 A1 **US 5724753 A**

(58) Field of Search:
UK CL (Edition X) **A3B**
INT CL **A43B**
Other: **EPODOC, WPI**

(54) Abstract Title: **Dancing shoe having raised portions on footbed**

(57) A high-heeled shoe has an upper surface 1 for engaging the foot of a wearer. The surface has a toe portion 2, a heel portion 5 and a shank portion 3 which connects the toe portion 2 and the heel portion 5. The heel portion 5 is supported at a height above the toe portion 2 that increases with distance from the toe portion 2. The upper surface 1 also has a transition portion 4 between the shank portion 3 and the heel portion 5 and the transition portion 4 is less steep than the heel portion 5. The transition portion 4 allows the wearer's heel to support some of the weight of the wearer and thereby significantly improves posture and comfort.

An additional generally circular and rounded pad 7 may be located at the interface between the toe section and the shank section to provide additional comfort.



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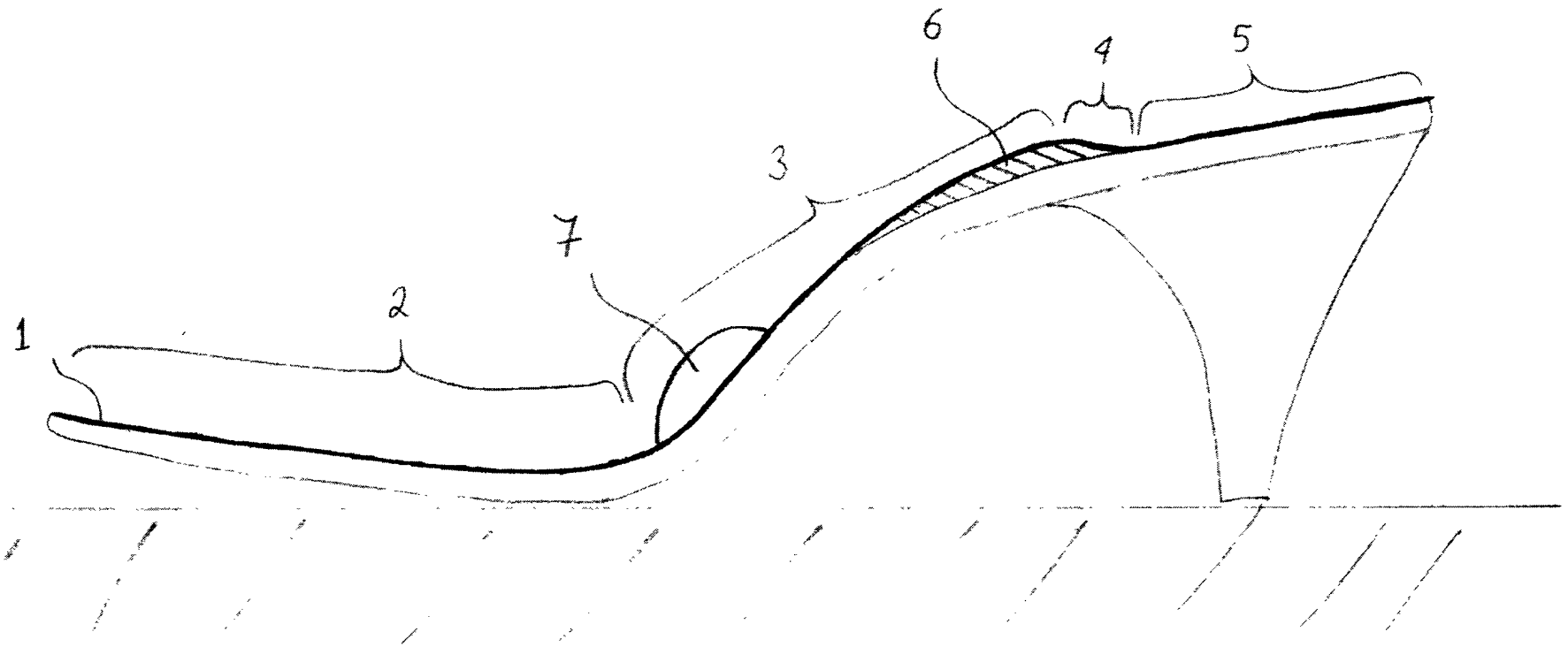
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SHOE

Field of the Invention

This invention relates to a high-heeled shoe, and in particular to a high-heeled shoe for dancing.

Background to the Invention

In dancing and fashion, shoes with high heels are regularly worn by women. For reasons of aesthetic appeal, it is desirable to maximise the height of the heel. For example, three inch (75 mm) heels are often worn. However, such high-heeled shoes can be uncomfortable for the wearer and can lead to poor posture and even medical problems. Such problems are particularly emphasised when the shoes are worn for dancing which can involve very strenuous physical activity.

It would be desirable to provide a high-heeled shoe that alleviates some of the problems of comfort and posture while maintaining the desired aesthetic appearance.

Summary of the Invention

Viewed from a first aspect, this invention provides a high-heeled shoe having an upper surface for engaging the foot of a wearer. The surface comprises a toe portion, a heel portion and a shank portion connecting the toe portion and the heel portion. The heel

portion is supported, in use, at a height above the toe portion that increases with distance from the toe portion. The upper surface comprises a transition portion between the shank portion and the heel portion, the transition portion being less steep than the heel portion.

According to the invention, the transition portion provides a region between the heel portion and the shank portion that is shallower than both the shank portion and the heel portion. In this way, the transition portion provides a region that is more horizontal than either of the adjacent portions and is therefore able to provide some support to the wearer's heel. It has been found that a shoe in accordance with the invention is more comfortable and gives the user better posture than traditional high-heeled shoes.

The height of the transition portion above the toe portion may increase with distance from the toe portion. In this case, the transition portion slopes like the heel portion, but increases in height at a lower rate with distance from the toe portion than the heel portion.

The transition portion may be substantially horizontal in the position of use. This provides a substantially horizontal region of the upper surface to provide some support to the heel. In this case, the transition portion has a substantially zero rate of increase in height with distance from the toe portion.

The height of the transition portion above the toe portion may decrease with distance from the toe portion. In this case, the transition portion has a negative rate of increase in height with distance from the toe portion.

In any of these options, the rate of increase in height of the transition portion with distance from the toe portion is less than the rate of increase in height of the heel portion with distance from the toe portion. In this way, the transition portion is flatter than the heel portion and provides some support to the heel without significantly affecting the aesthetics of the shoe.

The toe portion, the heel portion and shank portion may each be straight or curved. In general, the toe portion is slightly concave (viewed onto the upper surface), the shank

portion is slightly convex and the heel portion is generally straight. Other configurations are possible, however.

The heel portion may be supported at a height of between 4 and 12 cm above the level of the toe portion, usually between 6 and 10 cm.

In one arrangement, the upper surface comprises a projecting portion located substantially at the interface between the toe portion and the shank portion. It has been found that such a projecting portion increases the comfort of the shoe.

Viewed from a further aspect therefore this invention provides a high-heeled shoe having an upper surface for engaging the foot of a wearer, the surface comprising a toe portion, a heel portion and a shank portion connecting the toe portion and the heel portion, the heel portion being supported, in use, at a height above the toe portion, wherein the upper surface comprises a projecting portion located substantially at the interface between the toe portion and the shank portion.

The projecting portion may have a curved cross-section in a plane substantially normal to the upper surface and extending from the toe portion to the heel portion. The projecting portion may have a width across the shoe which is less than the width of the upper surface at the same position on the shoe. The projecting portion may have a substantially circular cross-section in a plane substantially parallel to the adjacent portions of the upper surface. In one embodiment of the invention, the projecting portion is formed by a partially spherical insert bonded to the chassis of the shoe below the upper surface.

Brief Description of the Drawing

An embodiment of the invention will now be described by way of example only and with reference to the accompanying Figure which shows a cross section through a shoe according to the invention.

Detailed Description of an Embodiment

The Figure shows a high-heeled shoe according to an embodiment of the invention. The shoe is shown actual size and is sized as a ladies size four and a half. The upper surface 1

of the shoe comprises four sections: a toe section 2; a shank section 3; a transition section 4 and a heel section 5. The four sections together form the continuous upper surface 1 of the shoe.

The shape of the upper surface 1 is determined by the construction of the shoe, which is not shown in detail in the Figure. In this example, the shoe is constructed of a cardboard moulding supported by a metal shank which is riveted to the underside of the moulding. The cardboard moulding provides the underlying form of the shank, transition and heel sections. A flexible cardboard layer is bonded to the cardboard moulding and extends therefrom to provide the underlying form of the toe section. Additional layers of padding and cushioning may be provided on this underlying form to achieve the required shape of the upper surface 1. In particular, a shaped pad 6 of relatively firm elastomer, rubber or crepe, for example, forms the shape of the transition section 4 and some of the shank section 3, as shown in the Figure.

An additional generally circular and rounded pad 7 may be located at the interface between the toe section and the shank section to provide additional comfort.

The entire upper surface 1 of the shoe may be covered with suede to provide grip and comfort to the wearer.

As can be seen in the Figure, the toe section 2 is curved slightly and is generally concave. The shank section 3 rises steeply up towards the heel section and is slightly convex. The heel section 5 is generally straight but slopes upwardly towards the back of the shoe. Between the shank section 3 and the heel section 5, the transition section slopes slightly downwardly towards the back of the shoe. In this way, the transition section 4 provides support and purchase to the wearer's heel so that the heel can bear some of the weight of the wearer rather than all of the weight being forced onto the wearer's toes (or the ball of the foot). This significantly improves the wearer's posture and comfort when wearing the shoe.

In summary, a high-heeled shoe has an upper surface 1 for engaging the foot of a wearer. The surface has a toe portion 2, a heel portion 5 and a shank portion 3 which connects the

toe portion 2 and the heel portion 5. The heel portion 5 is supported at a height above the toe portion 2 that increases with distance from the toe portion 2. The upper surface 1 also has a transition portion 4 between the shank portion 3 and the heel portion 5 and the transition portion 4 is less steep than the heel portion 5. The transition portion 4 allows the wearer's heel to support some of the weight of the wearer and thereby significantly improves posture and comfort.

Claims

1. A high-heeled shoe having an upper surface for engaging the foot of a wearer, the surface comprising a toe portion, a heel portion and a shank portion connecting the toe portion and the heel portion, the heel portion being supported, in use, at a height above the toe portion that increases with distance from the toe portion,

wherein the upper surface comprises a transition portion between the shank portion and the heel portion, the transition portion being less steep than the heel portion.

2. A shoe as claimed in claim 1, wherein the transition portion is substantially horizontal in the position of use.

3. A shoe as claimed in claim 1, wherein the height of the transition portion above the toe portion decreases with distance from the toe portion.

4. A shoe as claimed in any preceding claim, wherein the upper surface comprises a projecting portion located substantially at the interface between the toe portion and the shank portion.

5. A high-heeled shoe having an upper surface for engaging the foot of a wearer, the surface comprising a toe portion, a heel portion and a shank portion connecting the toe portion and the heel portion, the heel portion being supported, in use, at a height above the toe portion,

wherein the upper surface comprises a projecting portion located substantially at the interface between the toe portion and the shank portion.

6. A shoe as claimed in claim 4 or 5, wherein the projecting portion has a curved cross-section in a plane substantially normal to the upper surface and extending from the toe portion to the heel portion.

7. A shoe as claimed in any of claims 4 to 6, wherein the projecting portion has a width across the shoe which is less than the width of the upper surface at the same position on the shoe.

8. A shoe as claimed in claim 7, wherein the projecting portion has a substantially circular cross-section in a plane substantially parallel to the adjacent portions of the upper surface.

9. A high-heeled shoe substantially as hereinbefore described with reference to the accompanying drawing.

For Innovation

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Application No: GB0600849.4 **Examiner:** Mike Walker

Claims searched: ALL **Date of search:** 25 May 2006

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 to 8	WO2004/093584 A2 (HBN SHOE) see, for example, page 6,l.8 to page 7, l.28
X	1 to 8	US5724753 A (THRONEBURG) eg.figs.8 and 9
X	1 to 8	JP60339402 A1 (YOSHIDA) see abstract and figures
X	5 to 8	GB2263619 A (LAKE) note figs.1 and 4

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

A3B

Worldwide search of patent documents classified in the following areas of the IPC

A43B

The following online and other databases have been used in the preparation of this search report

EPODOC, WPI