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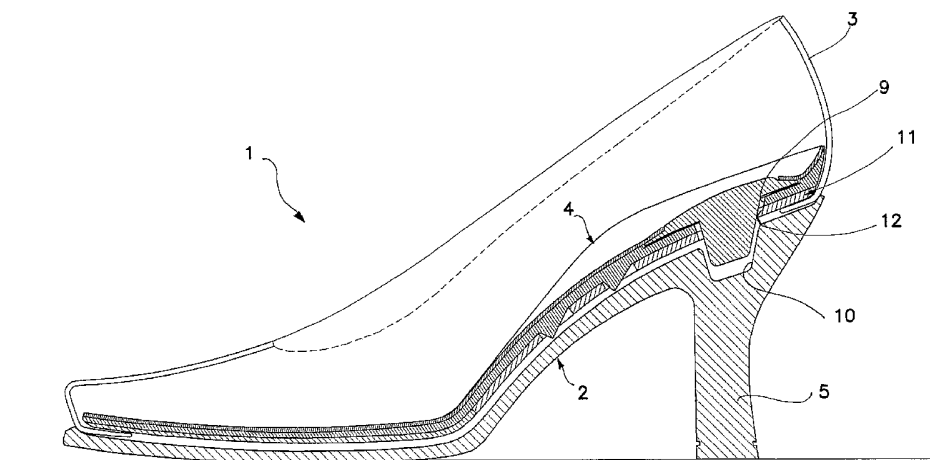
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Declaration under Rule 4.17:

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lowing designations AE, AG, AL, AM, AT, AU, AZ, BA, BB,
BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE,
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European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,

[Continued on next page]

(54) Title: SHOE WITH REMOVABLE INSOLE



(57) Abstract: A shoe (1) with removable insole comprises an insole (4) fastened removably to a sole (2) or to an intermediate sole (11), and an impact-absorbing element (6) including a stem (8) inserted removably into the sole (2) and/or into the intermediate sole (11) through the insole (4) to fasten the insole to the sole and/or to the intermediate sole.

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ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL,
PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI,
CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— with international search report

Shoe with removable insole

DESCRIPTION

Technical field

The present invention relates to a shoe with a removable insole, having the
5 characteristics disclosed in the precharacterizing clause of the main claim.

Background art

In the general field of footwear, there is a known way of making the insole
removably coupled to the sole of a shoe by fastening means and counter-
means provided on the insole and on the shoe respectively.

10 Examples of such solutions are described in International Patent
Applications 87/05192 and 91/11930 and in US Patent 6,442,870, in which
the fastening means and counter-means typically comprise a plurality of
appendages extending from the insole towards the sole, or from the sole
towards the insole, which can engage in corresponding seats formed in the
15 sole or in the insole.

The known solutions are described for application to sports footwear or to
sandals or slippers, in which both the insole and the sole can be made
relatively thick if required, without any particular negative effects on the
overall appearance of the footwear.

20 However, these solutions are less suitable for application to fashion shoes in
which the design and aesthetic style play a fundamental part in the user's
appreciation. In these shoes, particularly in the case of high-heeled shoes,
the soles and insoles are generally very thin, in some cases even to the
point where discomfort is caused to the wearer.

25 Furthermore, in high-heeled shoes the requirement for firm coupling

between the insoles and the soles is accentuated by the particular configuration of the shoes which tend to cause the displacement of the insole relative to the sole.

Description of the invention

5 The problem tackled by the present invention is that of providing a shoe with a removable insole which is structurally and functionally designed to overcome the limitations described above with reference to the cited prior art.

In the context of this problem, a principal object of the invention is to
10 provide a shoe in which the comfort of wearing and walking is enhanced.

A further object is to provide a technical solution which is particularly suitable for application to fashion shoes with high heels.

This problem is resolved and these objects are achieved by the present invention with a shoe with removable insole made in accordance with the
15 following claims.

Brief description of the drawings

The characteristics and advantages of the invention will be made clearer by the following detailed description of a preferred example of embodiment thereof, illustrated, for the purposes of guidance and without restrictive
20 intent, with reference to the attached drawings, in which:

- Figure 1 is a schematic view in longitudinal section of a shoe made according to the present invention;
- Figure 2 is a partially exploded perspective view from below of the shoe of Figure 1;
- 25 – Figure 3 is an exploded view of a detail of the shoe of Figure 1.

Preferred embodiment of the invention

In the figures, the number 1 indicates the whole of a shoe made according to the present invention.

In the preferred example of embodiment described here, the shoe 1 is a lady's fashion shoe, with a high heel, but it is to be understood that the inventive principle on which the present invention is based can be applied similarly to other types of shoe.

The shoe 1 comprises a sole 2, an upper 3 fixed by known methods along a perimetric edge of the sole 2, and an insole 4 positioned inside the shoe 1 in the way described more fully below.

The sole 2 comprises a relatively high heel 5, and is preferably made in one piece by moulding plastics material, based on elastomeric or thermoplastic polymers for example.

The insole 4 is preferably of the type known in the art as a "footbed". It is shaped anatomically to hold and support the user's foot more satisfactorily, and for this purpose it is made by injection moulding from ethylene vinyl acetate (EVA) or polyurethane-based material.

According to a first characteristic of the present invention, the insole 4 is coupled removably to the sole 2 by means of an impact-absorbing element 6, made from a soft material such as latex and/or gel. The impact-absorbing element 6 comprises a head 7 bearing on the insole 4 and intended to support the user's heel, and a stem 8 extending from the head 7 away from the user's foot.

The stem 8 is received in a through hole 9 formed in the insole 4 and in a recess 10 formed in the sole 2 at the top of the heel 5.

In a variant embodiment of the invention, not shown in the figures, the impact-absorbing element 6 can be fixed to the insole 4 or made in one piece with it. However, this variant is considered to be included in the general concept of an insole 4 with the stem of the absorbing element 6 passing through it.

Between the insole 4 and the sole 2 there is also conveniently interposed an intermediate sole 11, better known in the art as a "welt", of which a first portion 11a, corresponding to the heel and foot arch area, is made from plastics material with good mechanical characteristics, for example a material based on acrylonitrile butadiene styrene (ABS), while the remaining portion 11b, corresponding to the forefoot area, is made from a more economical pressed paper material.

However, if the height of the heel 5 is particularly great, for example more than 10 centimetres, the intermediate sole is preferably made entirely from ABS, since the portion 11b will be required to support higher loads.

The intermediate sole 11 is also provided with a through hole 12 for the passage of the stem 8 of the absorbing element 6, and fastening means and counter-means are also provided to couple the intermediate sole 11 removably to the insole 4.

These fastening means and counter-means comprise a plurality of appendages 13 extending from the insole 4 towards the intermediate sole 11 and a corresponding plurality of holes 14 formed in the intermediate sole 11 to receive and engage with the appendages 13.

Preferably, the appendages 13 and the corresponding holes 14 are formed in a foot arch area of the sole 2, in which the inclination of the insole with

respect to the walking plane is more pronounced. To promote the fitting and support of the insole 4 on the intermediate sole 11, the appendages 13 are conveniently tooth-shaped.

5 A layer of leather 15, or other similar material, can also be conveniently provided to cover the insole 4 on the side of the user's foot, this layer being fixed by gluing or sewing to the insole 4 or possibly being formed in one piece with the insole 4 by an overmoulding process. The layer 15 has the primary function of further enhancing the comfort of the shoe 1.

10 The layer 15 is at least partially superimposed on the head 7 of the absorbing element 6, surrounding a peripheral annular area of this head.

To assemble the shoe 1, the intermediate sole 11 is inserted in direct contact with the sole 2, and the insole 4 is then inserted so that the appendages 13 are received and engage in the holes 14 of the intermediate sole 11.

15 Lastly, the absorbing element 6 is inserted, so that its stem 8 is received in the holes 9 and 12 of the insole and intermediate sole respectively, and in the recess 10 of the sole 2.

Thus a secure, effective and removable coupling is achieved between the insole 4, the intermediate sole 11 and the sole 2.

20 In a variant embodiment of the present invention, not shown in the attached figures, the absorbing element 6 is designed to be received only in the hole 12 (which is a blind or through hole) in the intermediate sole 11, without affecting the sole 2, which therefore does not have a recess 10 at the heel 5.

25 The present invention thus resolves the aforementioned problem with

reference to the cited known art, while simultaneously providing numerous other advantages, including a greater comfort for the wearer, which is partially due to the particular configuration of the insole, and greater walking comfort, partially due to the presence of the impact-absorbing
5 element.

CLAIMS

1. Shoe with removable insole, comprising a sole (2) and an insole (4) removably fastened to the said sole (2), characterized in that it comprises an impact-absorbing element (6) including a stem (8) which can be inserted removably into the said sole (2) through the said insole (4) to fasten the said insole (4) to the said sole (2).
2. Shoe according to Claim 1, in which the said stem (8) of the absorbing element (6) is inserted at the heel (5) of the said sole.
3. Shoe according to Claim 1 or 2, in which the said insole (4) is anatomically shaped.
4. Shoe according to Claim 3, in which the said insole (4) is made from EVA-based or polyurethane-based polymer material.
5. Shoe according to any one or more of the preceding claims, in which an intermediate sole (11) is provided between the said sole (2) and the said insole (4), fastening means and counter-means being provided between the said intermediate sole (11) and the said insole to fasten the said insole and the said intermediate sole together.
6. Shoe according to Claim 5, in which the said fastening means comprise a plurality of appendages (13) extending from the said insole towards the said intermediate sole and the said fastening counter-means comprise a corresponding plurality of through holes (14) for receiving the said appendages.
7. Shoe according to Claim 5 or 6, in which the said intermediate sole is made at least partially from ABS.
8. Shoe according to any one or more of the preceding claims, in which

the said sole is of the high-heeled type.

9. Shoe according to Claim 7 or 8, in which the said heel has a height of more than ten centimetres and the said intermediate sole is made entirely from ABS.

5 10. Shoe with removable insole, comprising a sole (2), an intermediate sole (11) and an insole (4) removably fastened to the said intermediate sole, characterized in that it comprises an impact-absorbing element (6) including a stem (8) which can be inserted
10 removably into the said intermediate sole (11) through the said insole (4) to fasten the said insole to the said intermediate sole.

11. Shoe according to Claim 10, in which the said insole is made according to Claim 3 or 4.

12. Shoe according to Claim 10 or 11, in which fastening means and counter-means according to Claim 6 are provided between the said
15 insole and the said intermediate sole.

13. Shoe according to any one or more of Claims 10 to 12, in which the said intermediate sole is made at least partially from ABS.

14. Shoe according to any one or more of Claims 10 to 13, in which the said sole is of the type with a high heel (5).

20 15. Shoe according to Claim 14, in which the said heel has a height of more than ten centimetres and the said intermediate sole is made entirely from ABS.

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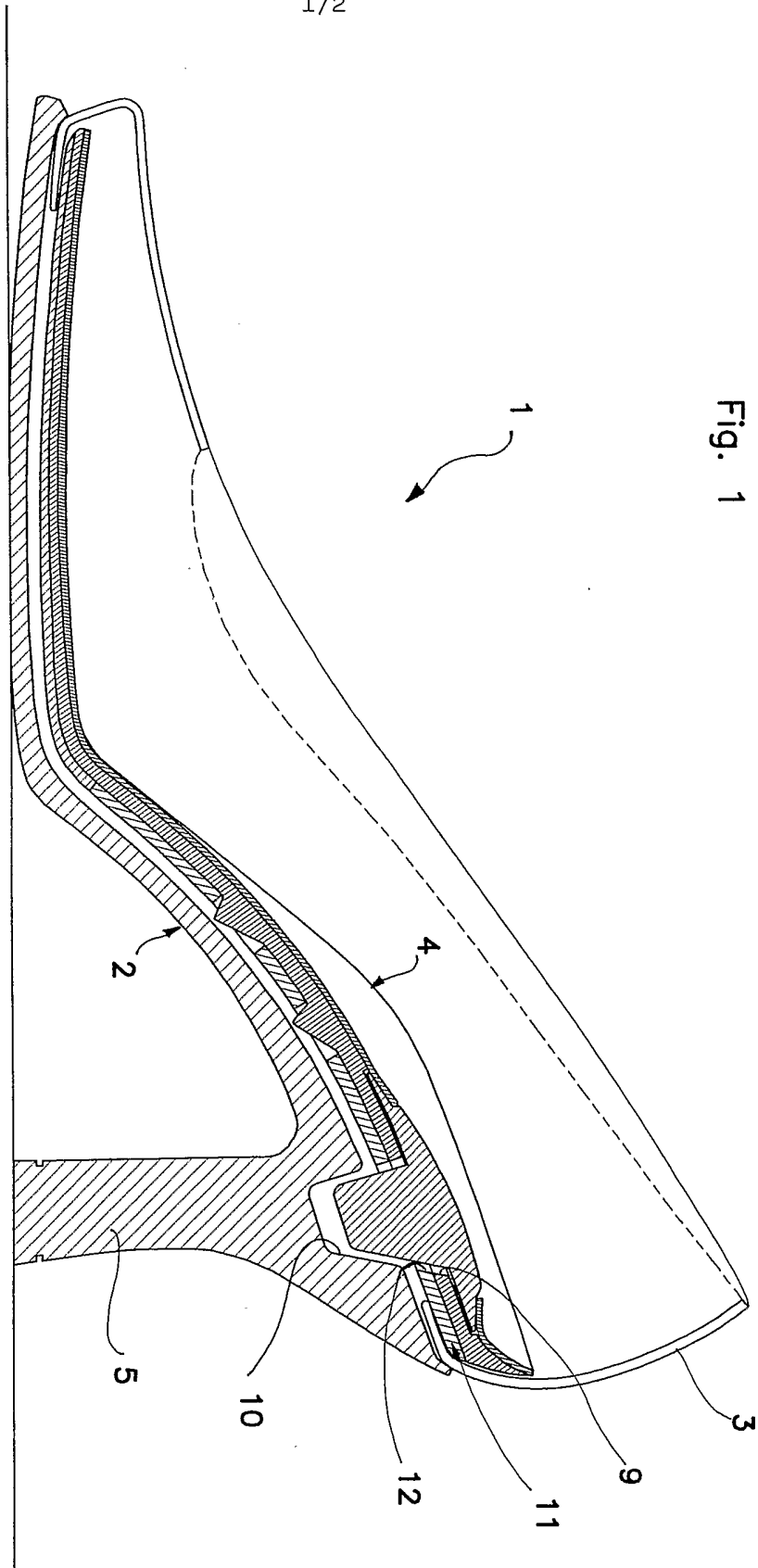


Fig. 1

Fig. 2

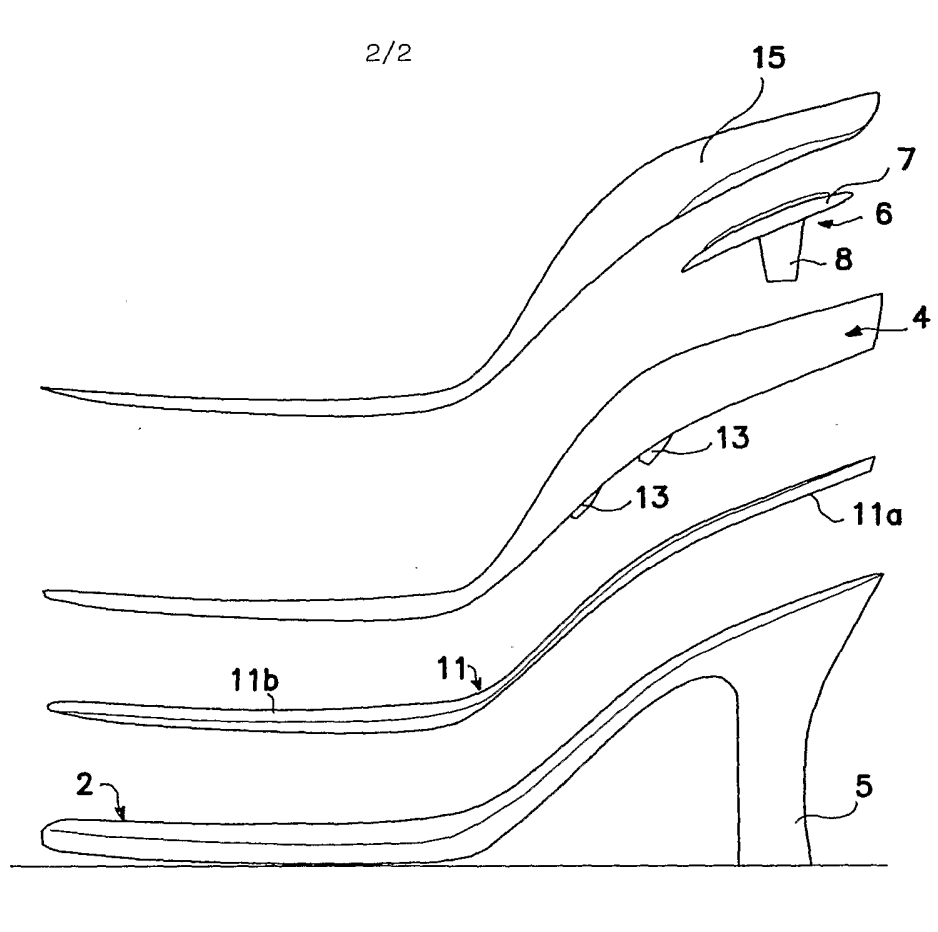
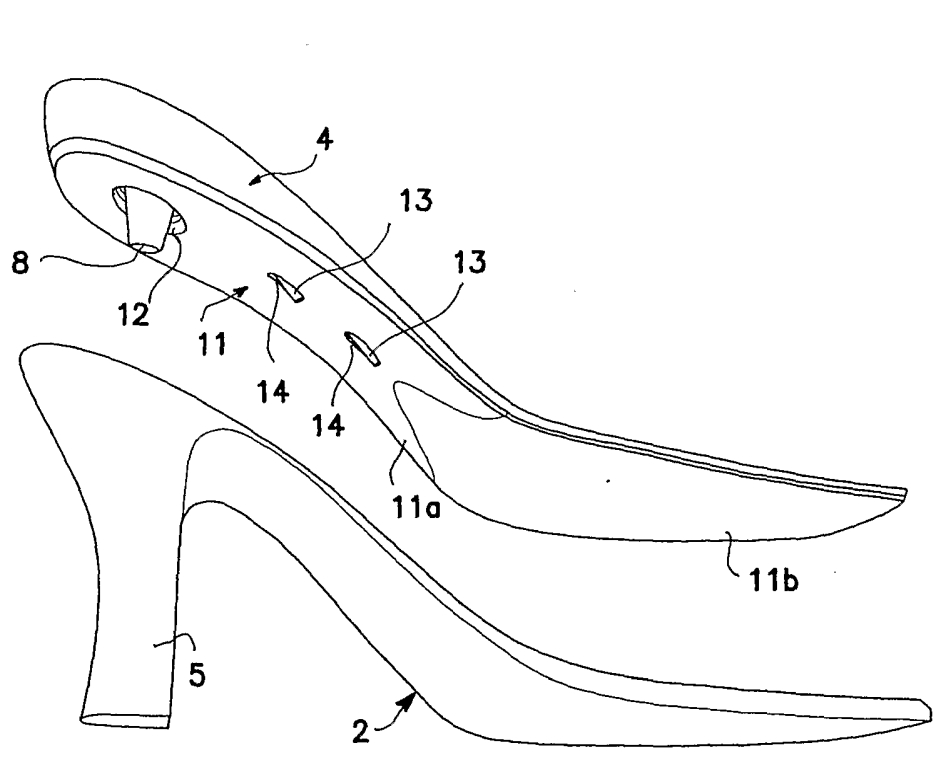


Fig. 3



INTERNATIONAL SEARCH REPORT

Inte: Application No
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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 A43B13/36 A43B21/26 A43B17/18

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 A43B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
 EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 219 942 B1 (FINI CARLO) 24 April 2001 (2001-04-24) column 6, lines 28-42 column 8, lines 4-8	1-10, 13-15
A	DE 195 09 636 A1 (SPIESS SCHUHFABRIK GMBH, 76848 SCHWANHEIM, DE) 19 September 1996 (1996-09-19) claims; figures	1-10, 13-15
A	US 2003/070322 A1 (MASSERON BENOIT) 17 April 2003 (2003-04-17) paragraph '0029! - paragraph '0038!	1-10, 13-15
A	US 6 519 874 B1 (DEAN NORMAN) 18 February 2003 (2003-02-18) column 2	1-10, 13-15
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Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents:

<p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>* & * document member of the same patent family</p>
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Date of the actual completion of the international search 4 May 2005	Date of mailing of the international search report 11/05/2005
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Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Claude1, B
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INTERNATIONAL SEARCH REPORT

In Application No
PCT/IT2005/000064

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6 269 555 B1 (BROWN DENNIS N) 7 August 2001 (2001-08-07) column 12; figures 5,6 ----- -----	1-10, 13-15

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 11,12

Claims 11 and 12 are not clear because the claims to which they refer concern a shoe and not an insole, nor a counter-means. i.e. claims 3, 4, 6 begin with "shoe according to..."

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2)-declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IT2005/000064

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.: 11, 12
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int national Application No PCT/IT2005/000064
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6219942	B1	24-04-2001	NONE
DE 19509636	A1	19-09-1996	NONE
US 2003070322	A1	17-04-2003	FR 2830725 A1 18-04-2003 EP 1302119 A1 16-04-2003
US 6519874	B1	18-02-2003	CA 2458944 A1 13-03-2003 CN 1547439 A 17-11-2004 JP 2005502400 T 27-01-2005 MX PA04001772 A 31-05-2004 WO 03020066 A1 13-03-2003
US 6269555	B1	07-08-2001	US 6125557 A 03-10-2000 CA 2287110 A1 26-04-2000 US 6601320 B1 05-08-2003