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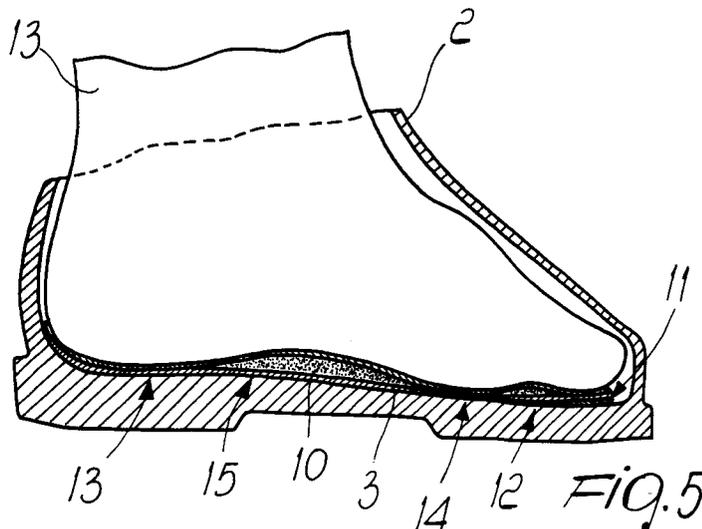
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**Insole particularly for items of footwear.**

An insole, particularly usable for items of footwear, includes a semirigid inner sole (3) to which a fabric or synthetic material is perimetrically stitched so as to define an internal pocket. A closeable opening for the insertion of a curing material (10) in the pocket is also defined below the inner sole. Once this operation has been performed, the open-

ing is closed and the insole is inserted within the boot (2) and then the user inserts his foot inside the boot until the curing material has set. One thus obtains an insole which has an optimum configuration for the foot in the condition in which the item of footwear is used.



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The present invention relates to an insole, particularly usable for items of footgear, such as ski boots, roller skates, ice skates and mountain, trekking or leisure footgear.

With particular reference to the ski boots it is currently a strongly felt problem that of achieving optimum fit of the foot, in order to allow both good comfort and the best transmission of efforts to the ski.

US patent no. 3,121,430, for example, discloses an insole, which can be associated inside an upper, which has a pocket in which it is possible to inject a plastic material suitable to adapt to the shape of the foot, once the foot has been inserted in the item of footgear and through an adapted channel which is external to said item of footgear.

This solution has some inherent problems, since it is thought necessary to inject material into the pocket prior to the insertion of the insole in the item of footgear and to inject further material, after this operation has been performed and the foot has been inserted, in order to fill any empty spaces.

Furthermore, the presence of the channel is in itself a hindrance to the movements of the foot, thus causing discomfort to the user while walking.

French patent no. 88.11.652 provides a pocket for the injection of a curing material which is suitable to assume the impression of the foot sole in order to form the sole of an item of footgear, whose peculiarity resides in that it entails a lower part and an upper part, both formed by a material which is impermeable to the curing product, and an intermediate reinforcement fabric inserted between the two parts, the entire assembly being joined peripherally and so as to form a seal with respect to the curing product. There is also an injection tab, the lower part being impermeable to gases and the upper part being permeable to gases.

The use of this solution entails a first step in which a curing product is injected into the pocket defined between the lower part and the upper part. The product is uniformly distributed manually or mechanically. The pocket thus prepared is then arranged on an elastically deformable pad which is in turn arranged in a container having an appropriate shape; then the foot sole of the user is rested on the pocket until the impression of the foot resting regions in the curing material sets; the foot is then removed and the material is allowed to stabilize in the pocket to then disengage the sole obtained from the elastic pad, which can then be removed.

This solution, too, has problems, since the process for obtaining the sole is per se specifically performed to obtain a shape which does not mate with the entire sole of the foot but only with the heel and metatarsus resting regions; furthermore, it is performed by taking the impression of the foot

outside the item of footgear and therefore requires elastic containment pads.

One aim of the present invention is to eliminate the problems described above in known types by providing a sole for items of footgear which allows to achieve optimum adaptation of the foot, said adaptation matching the one which can be achieved by the foot during the use of the item of footgear.

Within the scope of the above aim, an object is to provide an insole which can be obtained with a simple and rapid process without requiring supports or pads arranged outside the item of footgear.

Another important object is to provide an insole which has low manufacturing costs and can be obtained by means of a process which is reliable and safe in use.

This aim, these objects and others which will become apparent hereinafter are achieved by an insole, particularly for items of footgear, composed of a semirigid inner sole to which a fabric, leather or synthetic material is stitched perimetrically so as to define an internal pocket, characterized in that at least one closeable opening for the insertion of a curing material in said pocket is formed below said inner sole.

This aim, these objects and others which will become apparent hereinafter are also achieved by a method for obtaining an insole, composed of a semirigid inner sole to which a fabric, leather or a synthetic material is perimetrically stitched so as to define an internal pocket, characterized in that it entails the following steps:

- a) providing at least one opening below said inner sole and
- b) inserting said curing material in said pocket and
- c) closing said at least one opening and
- d) inserting said insole within said item of footgear and
- e) inserting the foot inside said item of footgear in order to distribute said curing material in said pocket and
- f) removing the foot once said curing material has set.

Further characteristics and advantages of the present invention will become apparent from the detailed description of a particular but not exclusive embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

- figure 1 is a perspective view of the insole;
- figure 2 is an exploded view of the components of said insole;
- figure 3 is a side view of the insole prior to the insertion of the curing material;

figure 4 is a view, similar to the preceding one, of the insertion of the curing material within the pocket defined between the inner sole and the fabric;

figure 5 is a partially sectional side view of the arrangement of the insole inside the item of footwear and of the shape which the material assumes once the foot has been inserted.

With reference to the above figures, the numeral 1 designates an insole, usable for items of footwear such as for example the ski boots 2, which is substantially constituted by a semirigid inner sole 3 to which a fabric, leather or synthetic material 5 is stitched at the perimetric edge 4.

At least one opening 7, preferably formed as a slit, can be provided at the lower surface 6 of the inner sole 3. The opening allows access at a pocket 8 defined between said inner sole 3 and said fabric 5.

A curing material 10 can be injected at said at least one opening 7, by means of an adapted injector 9, and partially or totally fills said pocket 8.

The opening 7 can then be closed by applying an appropriate gusset 11 at the opening itself.

Said gusset 11 can, for example, be glued at said at least one opening 7, which is preferably formed at the region underlying the tip 12 of the foot 13 of the user.

Once this has been done, the insole thus obtained can be arranged inside the item of footwear 2, and the foot is then inserted in the latter.

In this manner, the foot, with the pressure due to the weight, distributes the curing material 10 inside the pocket 8 according to exactly the anatomical shape of the foot. The foot inside the item of footwear, in fact assumes a shape which differs from the shape assumed when rested on an external flat support.

It is sufficient to keep the foot inside the item of footwear for the time required to achieve the setting of the curing material and then remove the foot in order to achieve an insole which exactly duplicates the anatomical shape of the foot during use.

It has thus been observed that the invention has achieved the intended aim and objects, an insole having been obtained which has optimum precision as regards the shape of the foot sole, since for example the curing material can have no thickness at the points of the heel 13 and of the metatarsus 14, whereas the thickness at the plantar arch 15 and at the lateral, rear and toe regions is such as to allow optimum resting and thus direct transmission of efforts to the boot and thus to the ski.

The insole thus has a shape which corresponds to the real condition of use of the item of footwear and thus to the true shape which the foot

assumes during this use.

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

The materials and the dimensions which constitute the individual components of the invention may naturally also be the most appropriate according to the specific requirements.

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 scope of each element identified by way of example by such reference signs.

### Claims

1. Insole, particularly for items of footwear, composed of a semirigid inner sole (3) to which a fabric, leather or synthetic material (5) is stitched perimetrically so as to define an internal pocket (8), characterized in that at least one closeable opening (7) for the insertion of a curing material (10) in said pocket is formed below said inner sole.
2. Insole according to claim 1, characterized in that said at least one opening is formed as a slit, and is defined at the lower surface (6) of said semirigid inner sole and allows access at said pocket defined between said semirigid inner sole and said fabric.
3. Insole according to claim 2, characterized in that curing material is injected at said at least one opening by means of an adapted injector (9) and partially or totally fills said pocket.
4. Insole according to claim 3, characterized in that after said filling, said at least one opening can be closed by applying an adapted gusset (11) at said opening.
5. Insole according to claim 4, characterized in that said at least one opening is formed at a region underlying the tip (12) of the foot (13) of the user.
6. Method for obtaining an insole, composed of a semirigid inner sole (3) to which a fabric, leather or synthetic material (5) is perimetrically stitched so as to define an internal pocket (8), characterized in that it comprises the following steps:

- a) providing at least one opening (7) below said inner sole;
- b) inserting a curing material (10) in said pocket;
- c) closing said at least one opening; 5
- d) inserting said insole within said item of footgear;
- e) inserting the foot inside said item of footgear in order to distribute said curing material in said pocket; 10
- f) removing the foot once said curing material has set.

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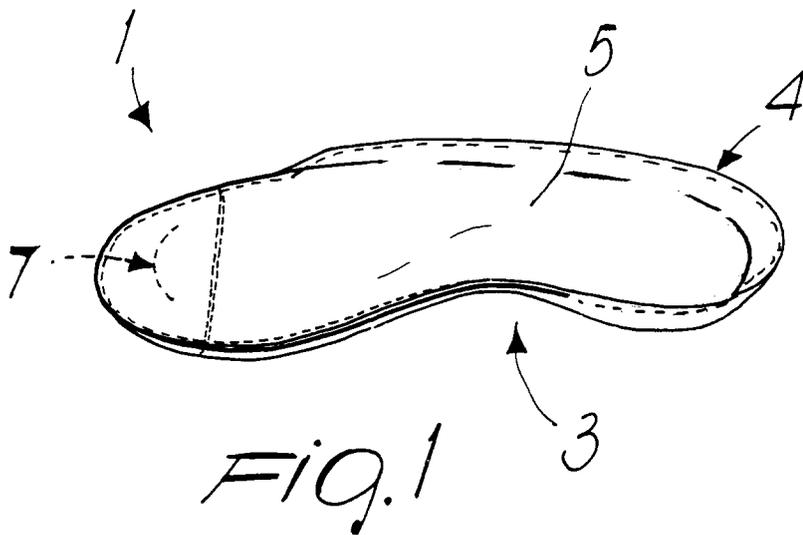
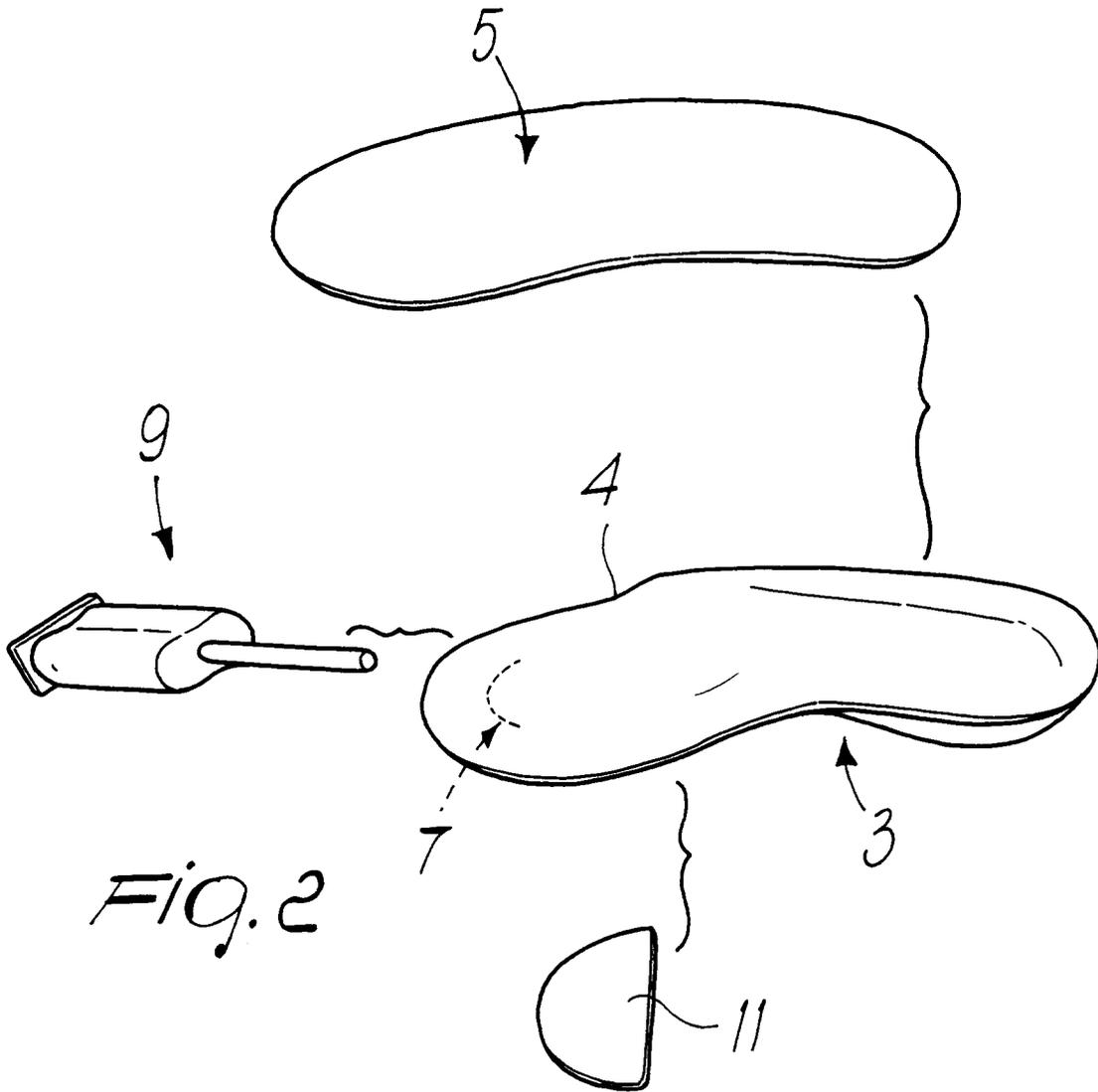
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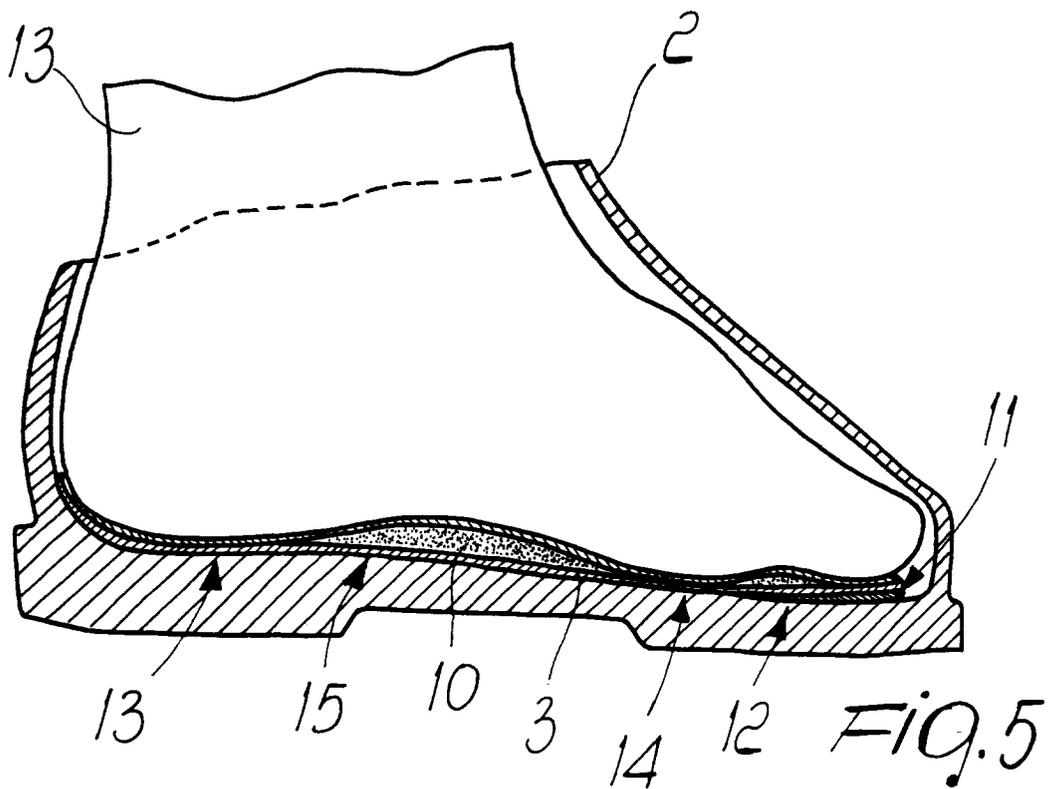
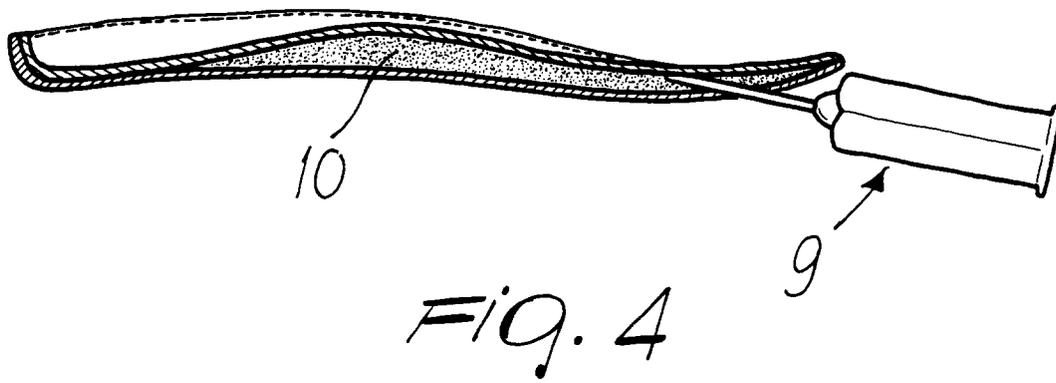
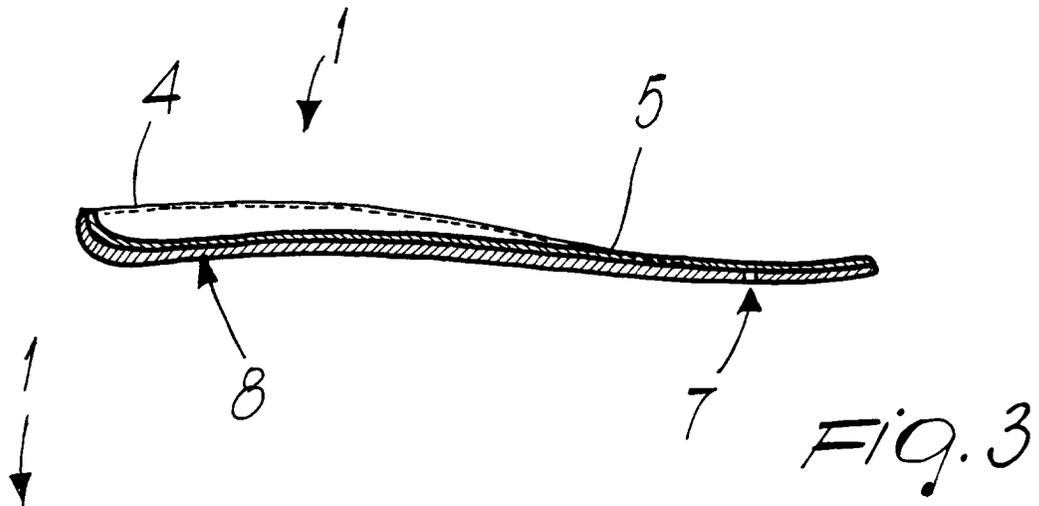
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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	EP-A-0 085 657 (D. TRICARICO) * the whole document * ---	1-6	A43B7/28
X	DE-A-2 926 246 (STEFAN SPORTSCHUHE) * the whole document * ---	1,6	
A	US-A-3 914 881 (R. STRIEGEL) * the whole document * ---	1	
A	DE-A-3 344 119 (M. KOTULLA) * the whole document * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A43B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 15 JUNE 1993	Examiner DECLERCK J.T.
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
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