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(54) Method for making anatomic elements for supporting a foot and element made by this method

(57) A method for making anatomic elements for supporting and/or containing a foot is characterized by comprising the following steps:

- preparation of an element composed of two containing sheets, with a solidifyable substance interposed therebetween in the fluid state,
- injection, at the time of use, of a catalyst for said substance through an aperture provided in said element,
- placing a foot on said element, and
- waiting for said solidifyable substance to solidify.

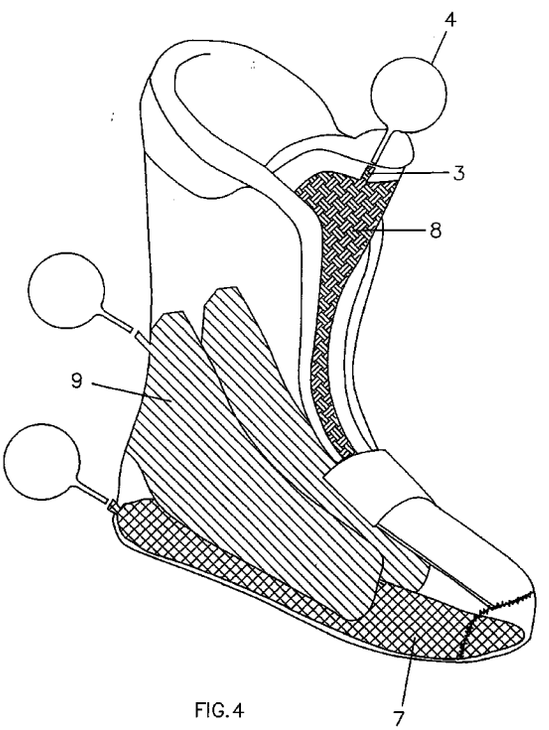

FIG. 4

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Description

The present invention relates to a mothod for making anatomic elements for supporting and/or containing a foot, and to an element made by this method.

Elements for containing and/or supporting the foot are known in the form of liners, inlay soles and the like for use in sports footwear such as ski boots. These elements are in the form of bags made of one or several impermeable sheet layers and accessible from outside. After such an element has been placed inside a boot, and the latter has been put on a foot of the user, a solidifyable substance such as a silicone composition is injected into the element together with a catalyst therefor.

The silicone compound and the catalyst are usually contained in a cartridge divided into two chambers opening into a common mixer nozzle. At the time of use, the two components are injected into the element by means of a syringe, whereupon the injected product is left to solidify to thus form a liner substantially fitting the shape of the user's foot.

This method suffers from a number of shortcomings, in particular:

- it requires specialized equipment for finishing the anatomic element, it being necessary to employ a specific "syringe pistol" powered by an electric compressor. The use of a manual syringe would in any case offer certain difficulties for the sales personnel, apart from the fact that the amount of silicone compound thus injected would be rather modest,
- high cost caused by the specialized equipment,
- the possibility of soiling the boot during the injection process due to the escape of silicone compound at the connection between the syringe and the bag,
- loss of time for the user, who has to stay at the salesroom for the time required for the solidification of the silicone compound, and a similar loss of time for the sales personnel, aggravated by the fact that the fitting of such elements is carried out during short periods of the year (christmas season).

It is an object of the invention to eliminate these shortcomings and to provide a simple and usefull method for finishing an anatomic element for sports footwear.

Another object of the invention is the provision of an anatomic element whose final fitting does not require the intervention of specialized personnel or the employ of particular equipment.

These objects and others to become evident from the following description are attained according to the invention with a method for making anatomic elements for supporting and/or containing a foot, characterized by comprising the following steps:

- preparation of an element composed of two containing sheets, with a solidifyable substance interposed therebetween in the fluid state,
- injection, at the time of use, of a catalyst for said substance through an aperture provided in said element,
- placing a foot on said element, and
- waiting for said solidifyable substance to solidify.

The method according to the invention is useful for making an anatomic element for supporting and/or containing a foot, characterized in comprising a bag containing a solidifyable substance in the fluid state, said bag being provided with a valve for the injection of a catalyst for said substance.

The present invention will become more clearly evident from the following description of three preferred embodiments thereof, given by way of example with reference to the accompanying drawings, wherein:

Fig. 1 shows an element in the form of an inlay sole according to one embodiment of the invention,
fig. 2 shows an element similar to the one depicted in fig.1 according to another embodiment of the invention,
fig. 3 shows a sectional view of the element of fig. 2, and
fig. 4 shows a perspective view of a boot lined with elements according to a third embodiment.

As illustrated in the drawings, the method according to the invention provides the employ of an element 1 shaped as an inlay sole and having its hollow interior filled with a silicone compound in the fluid state. The thus configured element 1 is provided with an outwards sealing non-return valve 3.

The invention further provides the employ of a bulb syringe 4 filled with a suitable catalyst for the silicone compound.

At the time of use, the tip of the bulb syringe 4 is inserted into valve 3 for injecting the contents of bulb 4 into element 1 and thus causing intimate mixing of the catalyst with the silicone compound.

Element 1 is then placed into a boot which is then put on the foot of the user, so that element 1 is modelled to the anatomic shape of the foot while waiting for the complete solidification of the silicone compound.

In the embodiment illustrated in figs. 2 and 3, the bulb 4 containing the catalyst is fixedly attached to the anatomic element and provided with a thin membrane 5 acting as a barrier between the catalyst contained in the bulb and the silicone compound contained in the inlay sole.

At the time of use, the compression of the bulb with a certain force is sufficient to cause membrane 5 to rupture, thus permitting the catalyst to mix with the silicone compound.

From what has been explained it is clearly evident that the method for making the inlay sole according to the invention presents numerous advantages, in particular:

- it can be directly carried out by the user,
- its cost is reduced thanks to the elimination of expensive equipment,
- there is no danger of leaking of the silicone compound so as to permit a clean product to be obtained.

In the embodiment illustrated in fig. 4, a boot 6 is lined with the silicone compound at three different locations, namely, at the locations of an inlay sole 7, the tongue 8 and the ankles 9, the respective elements being each provided with a respective valve 3.

For modelling the boot's lining about a foot, at least one bulb syringe 4 is used for injecting the catalyst into the three bag-shaped elements which are then positioned in the boot, whereupon the foot is inserted thereinto and maintained there until the modelling process is completed.

Although the present invention has been illustrated and described with reference to three preferred embodiments, it is understood that it may be subject to numerous variations without thereby going beyond the scope of protection of the present patent application.

Claims

1. A method for making anatomic elements for supporting and/or containing a foot, characterized by comprising the following steps:

   - preparing an element composed of two containing sheets, with a solidifyable substance interposed therebetween in the fluid state,
   - injecting, at the time of use, a catalyst for said substance through an aperture provided in said element,
   - placing a foot on said element, and
   - waiting for said solidifyable substance to solidify.

2. A method according to claim 1, characterized in that a silicone compound is used as said solidifyable substance.

3. An anatomic element for supporting and/or containing a foot, obtained by the method according to claims 1 and 2, characterized by comprising a bag (2) containing a solidifyable substance in the fluid state, said bag being provided with a valve (3) for the injection therethrough of a catalyst for said substance.

4. An anatomic element for supporting and/or containing a foot, according to claim 3, characterized in that said catalyst is contained in a bulb syringe (4).

5. An anatomic element for supporting and/or containing a foot, according to claim 4, characterized in that said bulb syringe (4) is fixedly connected to said anatomic element (1) and separated from the interior of said bag by destructible membrane (5).

6. An anatomic element for supporting a foot according to claim 3, characterized in that it is formed as an inlay sole.

7. An anatomic element for containing a foot according to claim 3, characterized in that it is formed as a boot lining.

8. An anatomic element for containing a foot according to claim 7, characterized in that said boot lining comprises three separately injectable portions, namely, an inlay sole portion (7), a tongue portion (8), and an ankle portion (9).

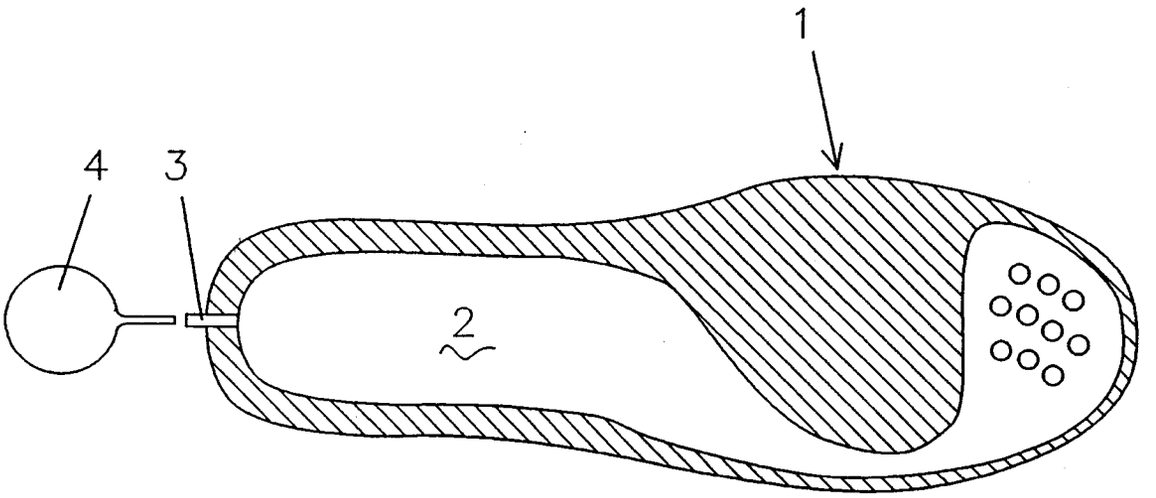

FIG.1

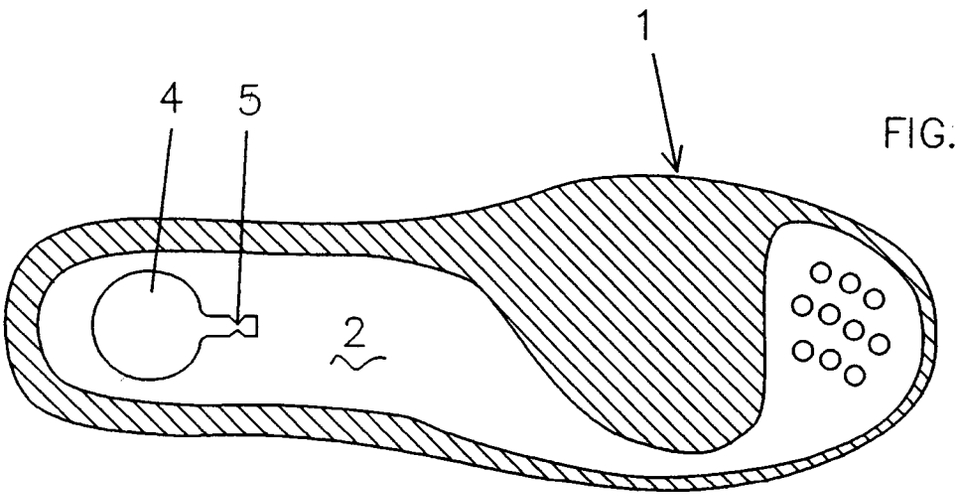

FIG.2

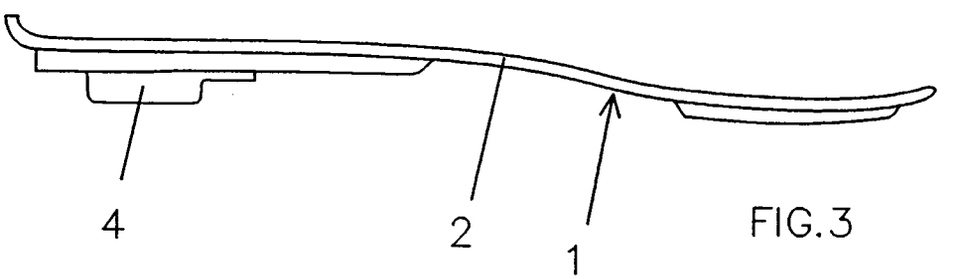

FIG.3

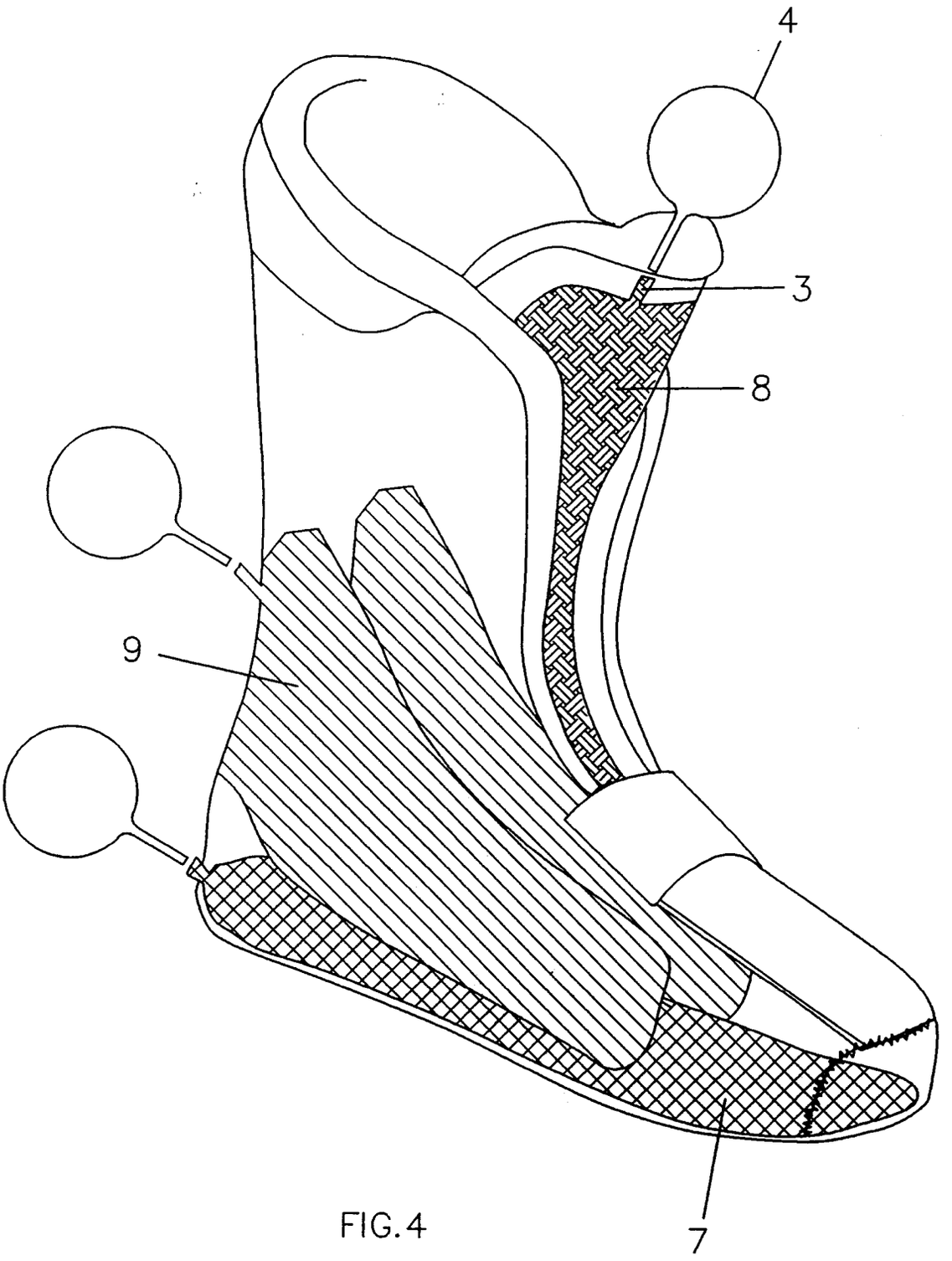

FIG. 4