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(54) **Shell, particularly for sports shoes**

(57) A shell (1), particularly for sports shoes, such as for example skates, has a size, preselected during production, that is obtained by selectively connecting a

separate front toe portion (6) and a separate rear heel portion (7) to a central body (2) for supporting the sole of the foot.

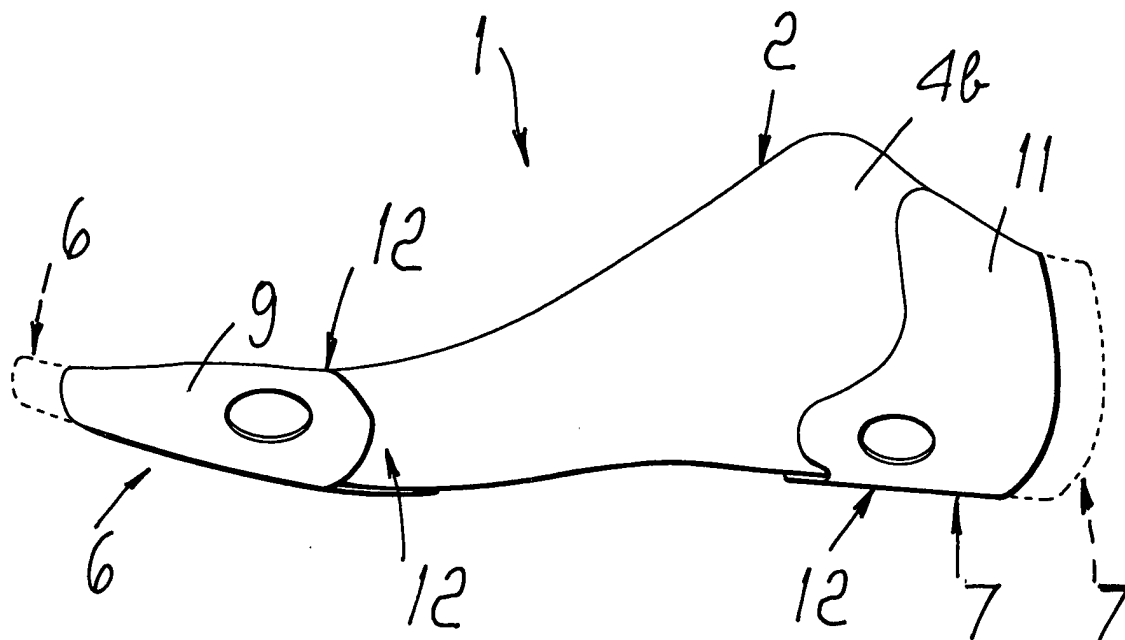


Fig. 3

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Description

[0001] The present invention relates to a shell, particularly for sports shoes such as, for example, a skate.

[0002] Shells made for example of plastics or carbon and constituted by a single body, obtained by molding, are currently known.

[0003] A conventional shell is shaped complementarily to the foot, so as to wrap around its sole, tip and heel, and also covers the region located proximate to the malleoli.

[0004] In conventional skates, a soft shoe, an upper cuff, and a lower frame for connection to a plurality of wheels or to a blade for gliding over ice, are associated with such conventional shell, which is rigid.

[0005] However, such conventional structure requires providing, for each skate size, a specific mold suitable to obtain the corresponding shell having the required size.

[0006] Moreover, in order to offer better comfort to the user, in some cases the shells are produced also in intermediate sizes between two successive standard sizes, but this requires the use of additional padding to compensate for the greater space.

[0007] The need to provide as many molds as there are sizes, entails even higher costs if one wishes to manufacture skates in intermediate sizes.

[0008] Accordingly, the manufacturing process described above, suitable to obtain conventional shells, clearly has the drawback of requiring a large number of molds.

[0009] Such drawback therefore translates into a high production cost for each individual shell and accordingly also translates into a high production cost for the sports shoe.

[0010] Moreover, when the number of required items per size varies, the time required to reset the machines is long, and this entails a further increase in production costs.

[0011] The aim of the present invention is therefore to solve the noted technical problems, eliminating the drawbacks of the cited prior art, by providing a shell that can be produced with reduced production costs particularly for manufacturing roller skates and ice skates.

[0012] An important object of the invention is to provide a shell that allows to reduce the number of molds required to produce shells of every required size.

[0013] Another important object is to provide a shell that allows high flexibility in the production of shells for sports shoes by allowing to vary the number of manufactured items per size rapidly and with shorter machine resetting times.

[0014] Another object is to reduce inventory costs and simplify inventory management.

[0015] Another object is to provide a structurally simple shell that can be obtained with conventional machines.

[0016] This aim and these and other objects that will

become better apparent hereinafter, are achieved by a shell, particularly for sports shoes, characterized in that it has a size, preselected during production, that is obtained by selectively connecting to a central body for supporting the sole of the foot a separate front toe portion and a separate rear heel portion.

[0017] Further characteristics and advantages of the invention will become better apparent from the detailed description of a particular embodiment, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a perspective exploded view of the shell according to the invention;

Figure 2 is a perspective view of the shell;

Figure 3 is a side view of the shell according to the invention.

[0018] With reference to the above cited figures, the reference numeral 1 designates a shell, particularly usable in the manufacture of sports shoes, such as for example in-line skates or ice skates.

[0019] The shell 1 comprises a central body 2, for supporting the sole of the foot, constituted by a first surface 3, shaped approximately complementarily to the sole of the foot, and from which two wings 4a and 4b protrude laterally. The wings constitute two first lateral containment rims for the user's foot.

[0020] The first front end 5a and the second rear end 5b of the central body 2 are substantially flat and the toes or the metatarsal region and the heel of the foot protrude from the first surface 3.

[0021] The central body 2 is associated with a separate toe portion 6, arranged at the front, and with a separate rear heel portion 7.

[0022] The toe portion 6 has a second flat surface 8, from which a second raised rim, designated by the reference numeral 9, for containing the tip of the user's foot protrudes laterally and frontally.

[0023] The heel portion 7 is constituted by a third flat surface 10, from which a third raised rim designated by the reference numeral 11 protrudes laterally and to the rear, in order to contain the user's heel.

[0024] The first and second ends 5a and 5b of the central body 2 are arranged above the second and third flat surfaces 8 and 10, respectively of the toe portion 6 and of the heel portion 7, so that the second and third raised rims 9 and 11 thereof are arranged externally to the pair of wings 4a and 4b, constituting a single perimetric rim 12 which contains the foot and prevents lateral movements thereof.

[0025] The shape of the central body 2, of the toe portion 6 and of the heel portion 7 is such that they can be selectively mutually associated, the toe portion 6 and the heel portion 7 being able to slide longitudinally with respect to the central body 2, as schematically shown in Figure 3.

[0026] Once the position of the toe portion 6 and of

the heel portion 7, with respect to the central body 2, has been determined, according to the required size, the toe and heel portions may be fastened to the central portion.

[0027] In this manner it is possible to obtain shell structures of different sizes, so as to cover at least two successive sizes, without the need to have a mold for each size, including intermediate sizes.

[0028] It is in fact sufficient to have a mold for each one of the three parts that compose the invention; in this manner, one also has a distinct reduction in the space required for inventory and in the minimum number of parts in stock, with a substantial cost reduction.

[0029] It has thus been found that the invention has achieved the intended aim and objects, a shell having been provided that allows to reduce production costs for the manufacture of shells for sports shoes, since it reduces the number of molds required to manufacture shells of any required size and also reduces inventory costs while simplifying inventory management.

[0030] The invention also allows high flexibility in the manufacture of shells for sports shoes, since it is possible to vary the number of items manufactured per size simply by acting on the procedures for mutually connecting the central body, the toe portion and the heel portion.

[0031] The materials used, as well as the dimensions that constitute the individual components of the invention, may of course be more pertinent according to specific requirements.

[0032] The disclosures in Italian Utility Model Application No. TV2001U000014 from which this application claims priority are incorporated herein by reference.

[0033] 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 shell, particularly for sports shoes, **characterized in that** it has a size, preselected during production, that is obtained by selectively connecting a separate front toe portion and a separate rear heel portion to a central body for supporting the sole of the foot.

2. The shoe according to claim 1, **characterized in that** said central body is constituted by a first surface that is shaped approximately complementarily to the sole of the foot and from which two wings protrude laterally, said wings constituting two first lateral containment rims for said foot.

3. The shoe according to claim 1, **characterized in**

that said central body has a first front end and a second rear end, which are flat and allow respectively the toes or the metatarsal region of the foot and the heel to protrude from the central body.

4. The shoe according to claim 1, **characterized in that** said toe portion has a second flat surface, from which a second raised rim for containing the tip of the foot protrudes laterally and to the front.

5. The shoe according to claim 1, **characterized in that** said heel portion has a third flat surface, from which a third raised rim for containing the foot's heel protrudes laterally and to the rear.

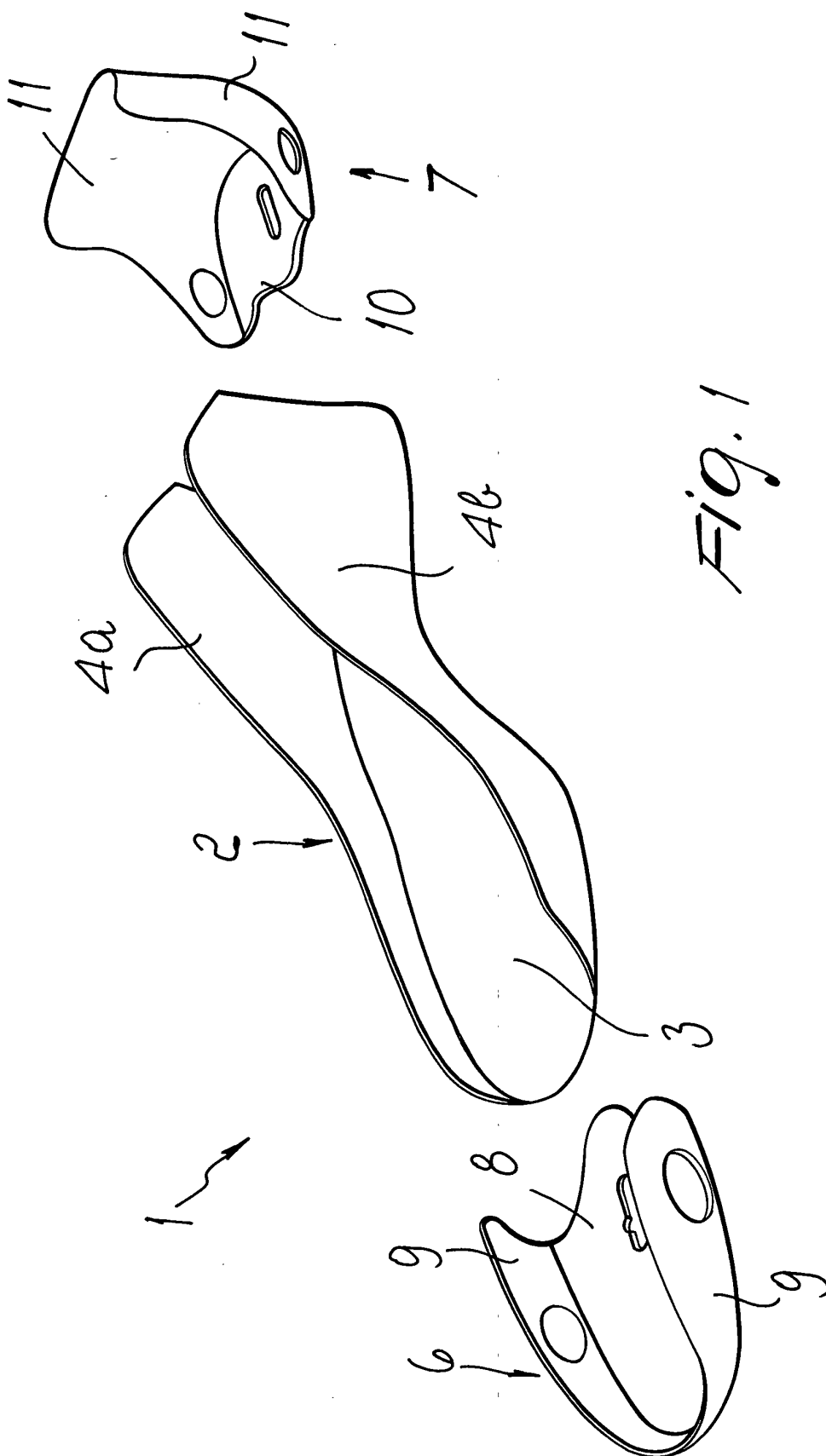
6. The shoe according to one or more of the preceding claims, **characterized in that** said first end of said central body is arranged above said second flat surface of said toe portion, so that said second raised rim of said toe portion is arranged outside said pair of wings of said central body.

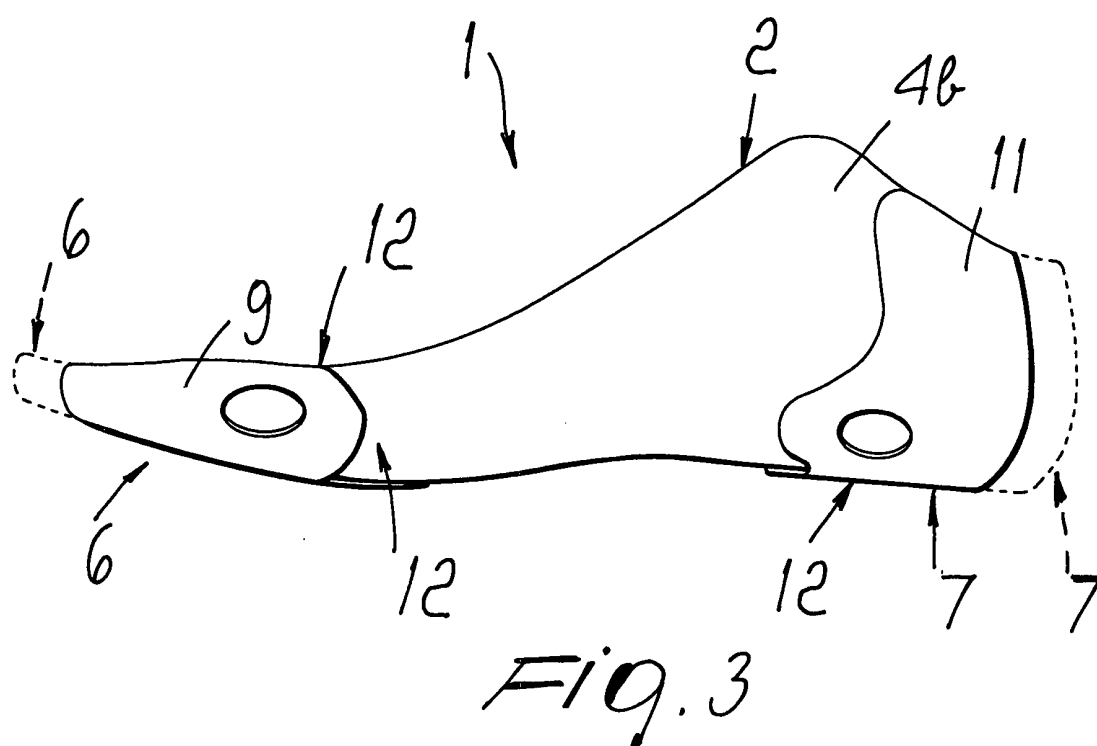
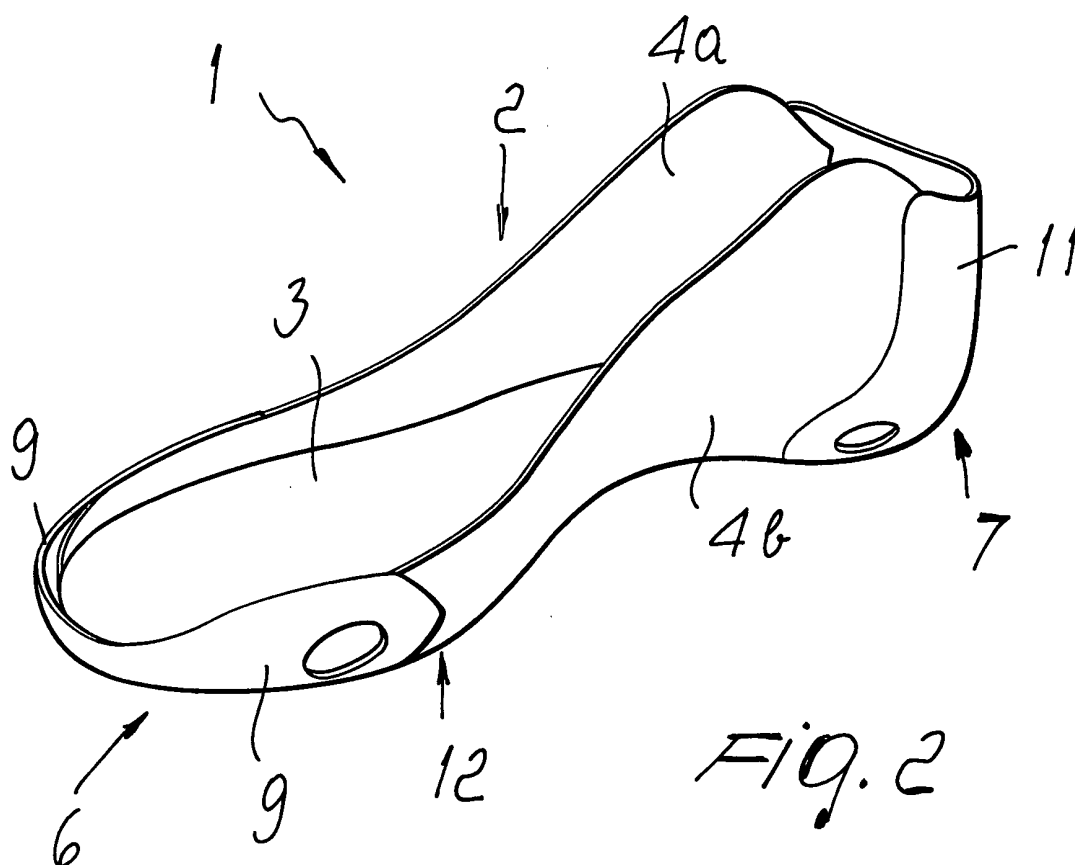
7. The shoe according to one or more of the preceding claims, **characterized in that** said second end of said central body is arranged above said third flat surface of said heel portion, so that said third raised rim thereof is arranged outside said pair of wings of said central body.

8. The shoe according to claim 7, **characterized in that** said pair of first containment rims and said second and third raised rims constitute, when the shell is assembled, a single perimetric rim containing the foot and preventing lateral movements thereof.

9. The shoe according to one or more of the preceding claims, **characterized in that** the shape of said central body, said toe portion and said heel portion is such as to allow their selective mutual connection, said toe portion and said heel portion being able to slide temporarily longitudinally with respect to said central body.

10. The shoe according to one or more of the preceding claims, **characterized in that** said toe portion and said heel portion are fastened to said central body after setting the size of the shell.







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EUROPEAN SEARCH REPORT

Application Number
EP 02 00 0783

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X	US 5 794 362 A (LUEDKE ADAM L ET AL) 18 August 1998 (1998-08-18)	1-8,10	A43B5/16
Y	* column 5, line 57 - column 8, line 59; figures 2,6 *	9	A43B3/26
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		7 May 2002	Cianci, S
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document 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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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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