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(54) **Accident prevention footwear**

(57) A accident prevention footwear (10) of the type comprising a sole (12) and a upper (14), at a front part of said footwear (10) a substantially hull-shaped safety toe-cap (16, 116, 216, 316, 416, 516) being provided, in which a substantially planar base portion (18) and a substantially vault-shaped cover portion (24) are defined, connected together by a side portion (22); the safety toe-cap (16, 116, 216, 316, 416, 516) is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%.

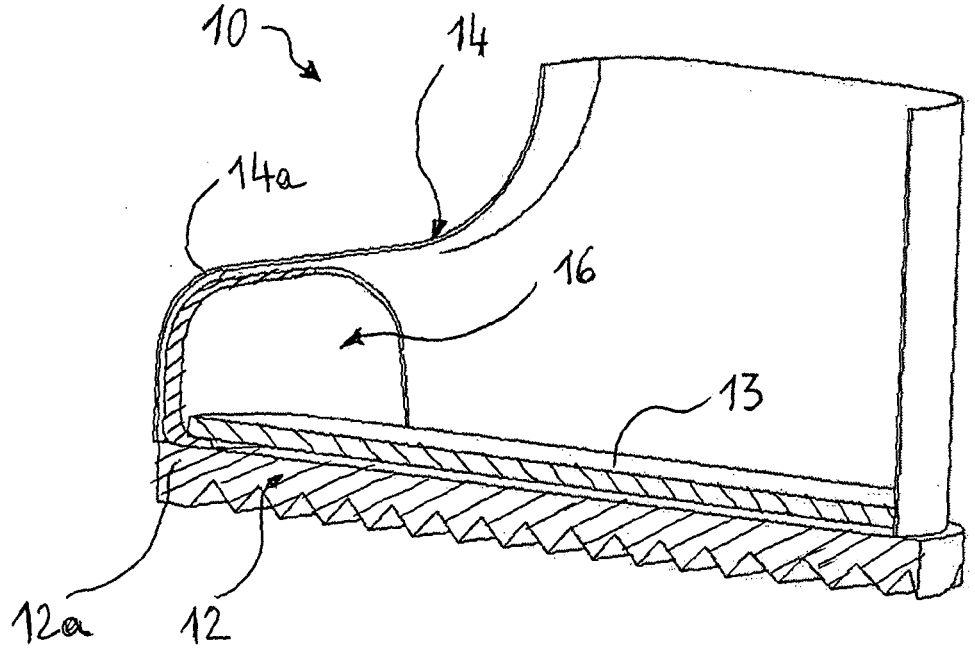

Fig.1

EP 1 776 885 A1

Description

Field of application

[0001] The present invention refers, in its most general aspect, to a accident prevention footwear.

[0002] In particular, the invention refers to a accident prevention footwear of the type comprising a sole and a upper, at a front part of said footwear a substantially hull-shaped toe-cap being provided, in which a substantially planar base portion and a substantially vault-shaped cover portion are defined, connected together by a lateral portion.

[0003] The invention also refers to a safety toe-cap for a accident prevention footwear.

Prior Art

[0004] In the field of accident prevention footwear safety toe-caps are well known that are arranged on the front part of the footwear itself, so as to satisfy the requirement of protecting the phalanges of the foot of an operator wearing it, for example in the case of an object accidentally falling onto the foot, or - more generally - in the case of any occurrence that can subject the tip of the foot to high compression.

[0005] More specifically, safety toe-caps of the accident prevention footwear must meet specific mechanical strength requirements, according to a whole series of international standards, nowadays well-established, which indicate - amongst other things - the values of compression resistance and of resistance to the impact energy that the aforementioned toe-caps must withstand in order to be able to be approved.

[0006] The aforementioned safety toe-caps are generally made from steel. Preferably, cold molded steel from a deep-drawn metal sheet is used, which is characterized by a good compromise between characteristics of cost-effectiveness and of mechanical strength.

[0007] Alternatively, the safety toe-caps are made from die-cast aluminum.

[0008] Again alternatively, there are safety toe-caps made from plastic polymers, preferably obtained by injection moulding.

[0009] Although advantageous from various points of view, the accident prevention footwear structured in the ways schematically described above, have recognized drawbacks.

[0010] Indeed, the accident prevention footwear with safety toe-cap made from cold-molded steel is heavy and may also be unadvisable in the proximity of many industrial plants, which frequently use automations equipped with electromagnetic sensors: often, indeed, the response of such sensors is altered by the presence of accident prevention footwear with steel toe-caps.

[0011] The accident prevention footwear with safety toe-cap made from die-cast aluminum has the drawback that the toe-cap can give a level of resistance to the impact energy that is very low, just above the limits provided by the international standards. Therefore, basically, such footwear is unable to ensure a satisfactory level of protection because the toe-cap could crack when receiving an impact, and could yield at the next impact.

[0012] The accident prevention footwear with safety toe-cap made from plastic polymers has the drawback that such a toe-cap, even if it does not disturb the magnetic fields created by possible electromagnetic sensors, must be made with very high thicknesses to withstand the mechanical strength tests and also has a limited use temperature, which limits its use in many cases.

Summary of the invention

[0013] The technical problem forming the basis of the present invention is that of devising and providing a accident prevention footwear of the type considered above, which is particularly light and that can be used in most industrial environments, and which at the same time is able to overcome the quoted drawbacks with reference to the prior art in a simple and effective manner.

[0014] This problem is solved, according to the present invention, by a accident prevention footwear of the type comprising a sole and a upper, at a front part of said footwear a substantially hull-shaped safety toe-cap being provided, in which a substantially planar base portion and a substantially vault-shaped cover portion are defined, connected together by a lateral portion, characterized in that said safety toe-cap is made at least partially from a magnesium metal alloy, in which the magnesium is present in a percentage between 92,5% and 98%. Preferably, the magnesium percentage is between 94% and 96%.

[0015] Further characteristics and the advantages of the accident prevention footwear according to the present invention shall become clearer from the following description of a preferred embodiment thereof, given for indicating and not limiting purposes with reference to the attached drawings.

Brief description of the drawings

[0016]

Figure 1 schematically represents a perspective view, in section, of a accident prevention footwear according to the present invention.

Figure 2 schematically represents a elevation view, in section, of the accident prevention footwear of figure 1.

Figure 3a schematically represents a perspective view of a first embodiment of a component of the accident prevention footwear of figure 1.

Figure 3b schematically represents a elevation view,

in section, of the component of figure 3a.

Figure 4a schematically represents a perspective view of a second embodiment of a component of the accident prevention footwear of figure 1.

Figure 4b schematically represents a elevation view, in section, of the component of figure 4a.

Figure 5a schematically represents a perspective view of a third embodiment of a component of the accident prevention footwear of figure 1.

Figure 5b schematically represents a elevation view, in section, of the component of figure 5a.

Figure 6a schematically represents a perspective view of a fourth embodiment of a component of the accident prevention footwear of figure 1.

Figure 6b schematically represents a perspective view, in section, of the component of figure 6a.

Figure 7a schematically represents a perspective view of a fifth embodiment of a component of the accident prevention footwear of figure 1.

Figure 7b schematically represents a perspective view, in section, of the component of figure 7a.

Figure 7c schematically represents a elevation view, in section, of the component of figure 7a.

Figure 8a schematically represents a elevation view, in section, of a sixth embodiment of a component of the accident prevention footwear of figure 1.

Figure 8b schematically represents a section view, in elevation, of the component of figure 8a, taken according to the traced plane VIII-VIII of figure 8a itself.

Figure 8c schematically represents a perspective view, in section, of the component of figure 8a.

Figure 8d schematically represents another perspective view, in section, of the component of figure 8a, taken from an opposite part in comparison with figure 8c.

Figure 8e schematically represents a further perspective view of the component of figure 8a.

Figure 9 schematically represents a elevation view, in section, of a seventh embodiment of a component of the accident prevention footwear of figure 1.

Detailed description of preferred embodiments

[0017] With initial reference to figures 1, 2, 3a and 3b, a accident prevention footwear in accordance with the present invention is shown wholly indicated with 10.

[0018] The accident prevention footwear 10 comprises a sole 12 and a upper 14, at a front part of said footwear 10, and inside it, a substantially hull-shaped safety toe-cap 16 being provided.

[0019] In the safety toe-cap 16 a substantially planar base portion 18, juxtaposing a front end 12a of said sole 12, and a substantially vault-shaped cover portion 24, arranged substantially below a front end 14a of said upper 14, in contact with it, are defined. The two aforementioned portions 18 and 24 are connected together by a side portion 22, comprising opposite walls.

[0020] The aforementioned portions 18 and 24 are tapered and converge towards the front end of the toe-cap 16, going from the fitting end 17 thereof.

[0021] In the example of figures 1 and 2 an insole 13 is also shown that is arranged above the base portion 18 and, in part, above the sole 12.

[0022] More specifically, the base portion 18 is substantially circular half-crown shaped, in which an outer half-circumference 18a and an inner half-circumference 18b are substantially defined.

[0023] The side portion 22 extends, substantially perpendicular to the base portion 18, for a determined height going from the outer half-circumference 18a.

[0024] The cover portion 24, in the illustrated example, is shaped substantially like a spherical cap portion, is arranged above the side portion 22, has overall dimensions, in plan, substantially equal to that of the side portion 22, and extends from an upper half-circumferential end of the side portion 22 in such a way as to be positioned above said substantially planar portion 18, at a height substantially equal to said determined height of the side portion 22.

[0025] In particular, in accordance with an aspect of the present invention, such a safety toe-cap 16 is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%. Preferably, the magnesium percentage is between 94% and 96%. Examples of alloys that can advantageously be used are alloys known - according to the ASTM standard - as AM20, AM50 and AM60.

[0026] A first embodiment of the toe-cap 16 is shown in figures 3a and 3b.

[0027] In this embodiment, the side portion 22 has a thickness substantially equal to the thickness of the cover portion 24. The base portion 18 has a thickness substantially equal to that of the cover portion 24 and to that of the side portion 22.

[0028] Moreover, in accordance with this embodiment, a synthetic fiber-based element 26 is glued below a determined zone of the cover portion 24. In particular, an example of synthetic fiber that can advantageously be used is Kevlar®, trademark registered by Du Pont de

Nemours International SA. More generally, aramidic fibers, carbon fibers, glass fibers, polyester or polyamide fibers can be used.

[0029] Moreover, examples of bonding agents that can advantageously be used to glue the element 26 are epoxy, acrylic, cyanoacrylic, phenolic and polyurethane bonding agents.

[0030] In the example of figure 3a and 3b, the element 26 is substantially parallelepiped, flattened shape and is applied in the highest zone of the cover portion 24.

[0031] In an alternative, the synthetic fiber-based element is glued above a determined zone of the cover portion 24. In a further alternative, two or more synthetic fiber-based elements are glued to the cover portion 24, for example one below and one above the cover portion 24.

[0032] A second embodiment of the toe-cap is shown in figures 4a and 4b, this toe-cap being wholly indicated with 116. In these figures, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 16 of figures 3a and 3b described above, the same reference numerals are attributed and they are not described any further.

[0033] In this embodiment, said side portion 22 has a greater thickness than the substantially uniform thickness of said cover portion 24. Preferably, the thickness of the side portion 22 is more than about two times with respect to the thickness of the cover portion 24: indeed, it has surprisingly been noted that with such thicknesses the cover portion 24 is able to deform without breaking in the mechanical test of resistance to the impact energy.

[0034] The substantially planar portion 18 has a thickness substantially equal to that of the side portion 22.

[0035] A third embodiment of the toe-cap is shown in figures 5a and 5b, this toe-cap being wholly indicated with 216. In these figures, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 116 of figures 4a and 4b described above, the same reference numerals are attributed and they are not described any further.

[0036] This embodiment differs from the toe-cap 116 in that it provides a synthetic fiber-based element, glued to the cover portion 24, and that is indicated with 26 because it is of the same type as that indicated with 26 in figures 3a and 3b. For the characteristics of such an element and for the gluing methods we refer to what was described previously in reference to the toe-cap 16 of the aforementioned figures 3a and 3b.

[0037] A fourth embodiment of the toe-cap is shown in figures 6a and 6b, this toe-cap being wholly indicated with 316. In these figures, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 16 of figures 3a and 3b described above, the same reference numerals are attributed and they are not described any further.

[0038] In this embodiment, the side portion 22 has differentiated thicknesses in its substantially half-circumferential extension and to be precise the thickness of its tip section 316a, which is situated at the front end of the safety toe-cap 316 itself, is greater than the thickness of the remaining two side sections 316b of the side portion 22.

[0039] Preferably, the thickness of the two side sections 316b is less than half the thickness of the tip section 316a.

[0040] The cover portion 24 and the substantially planar portion 18 have thicknesses substantially equal to that of the side sections 316b of the side portion 22. Basically, therefore, in this case, a part of said side portion 22, i.e. the tip section 316a, has a greater thickness than the substantially uniform thickness of said cover portion 24.

[0041] A fifth embodiment of the toe-cap is shown in figures 7a, 7b and 7c, this toe-cap being wholly indicated with 416. In these figures, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 316 of figures 6a and 6b described above, the same reference numerals are attributed and they are not described any further.

[0042] This embodiment differs from the toe-cap 316 in that it provides a synthetic fiber-based element, glued to the cover portion 24, and that is indicated with 26 because it is of the same type as that indicated with 26 in figures 3a and 3b. For the characteristics of such an element 26 and for the gluing methods we refer to what was described previously in reference to the toe-cap 16 of the aforementioned figures 3a and 3b.

[0043] A sixth embodiment of the toe-cap is shown in figures 8a, 8b, 8c, 8d and 8e, this toe-cap being wholly indicated with 516. In these figures, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 316 of figures 6a and 6b described above, the same reference numerals are attributed and they are not described any further.

[0044] This embodiment differs from the toe-cap 316 in that the cover portion 24, at least in its central area, has tapered thickness from the front end of the toe-cap 516, where it has thickness that is substantially equal to the thickness of the tip section 316a of the side portion 22, up to the fitting end 17 of the toe-cap 516 itself. Figure 8b shows a transversal section of the toe-cap 516, in which it is pointed out the transversal profile of the thickness of the cover portion 24: in practice, the lower surface of the cover portion 24 comprises, in its central area, a substantially planar portion 530, said plane being convergent towards the upper surface of the cover portion 24 near the fitting end 17.

[0045] It is pointed out that, as for the toe-cap 316, the tip section 316a has thickness that is greater than the thickness of said cover portion 24, but in this case the thickness of the cover portion is not uniform.

[0046] Advantageously, in the mechanical test of resistance to the impact energy, with this embodiment, it was noticed a extremely regular failure line of the rear part of the cover portion of the toe-cup, i.e. it was noticed the absence of considerable curvatures in the central ar-

ea of the cover portion.

[0047] In an alternative, the toe-cap 516 may provide a synthetic fiber-based element, glued to the cover portion 24. The characteristics of such an element and the gluing methods are the same that have been described previously in reference to the element 26 of the toe-cap 16 of the figures 3a and 3b. Furthermore, a seventh embodiment of the toe-cap is shown in figure 9, this toe-cap being wholly indicated with 616. In this figure, to structural elements that are identical or equivalent from the functional point of view to those of the toe-cap 16 of figures 3a and 3b described above, the same reference numerals are attributed and they are not described any further.

[0048] The toe-cap 616 is structurally identical to any one of the aforementioned toe-caps 16, 116, 216, 316, 416 or 516, with the difference of also being coated, at least partially, with thermoplastic material 627.

[0049] More specifically, the toe-cap 616 is overinjected with thermoplastic material 627. Alternatively, the thermoplastic material 627 is cast to at least partially cover the toe-cap 616.

[0050] With this thermoplastic coating operation by injection or casting, a protection against the corrosion is advantageously obtained, which is required by the standards.

[0051] Moreover, it is possible to provide, at an upper section of the fitting end 17, an edge 628, suitably shaped to fit together with the upper 14 of the footwear 10, so that it is no longer necessary to take care of manually applying a thermoplastic profile, through a self-adhesive , as occurs in the prior art.

[0052] From the above description it can clearly be seen that the accident prevention footwear according to the invention solves the technical problem and achieves numerous advantages the first of which lies in the fact that the footwear, as well as satisfying all of the requirements of mechanical strength imposed by the specific standards, is unusually light, with the consequence of providing greater comfort for the operator, thus improving - all in all - the safety conditions.

[0053] Of course, a man skilled in the art can make numerous modifications and variations to the accident prevention footwear described above, in order to satisfy specific and contingent requirements, all of which are in any case covered by the scope of protection of the present invention as defined by the following claims.

Claims

1. Accident prevention footwear (10) of the type comprising a sole (12) and a upper (14), at a front part of said footwear (10) a substantially hull-shaped safety toe-cap (116, 216, 316, 416, 516, 616) being provided, in which a substantially planar base portion (18) and a substantially vault-shaped cover portion (24) are defined, connected together by a side portion (22), **characterized in that** said safety toe-cap (116, 216, 316, 416, 516, 616) is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%, and **in that** at least a part of said side portion (22) has a greater thickness than the thickness of said cover portion (24).

2. Accident prevention footwear (10) according to claim 1, **characterized in that** at least one synthetic fiber-based element (26) is glued at said cover portion (24).

3. Accident prevention footwear (10) of the type comprising a sole (12) and a upper (14), at a front part of said footwear (10) a substantially hull-shaped safety toe-cap (16, 216, 416, 616) being provided, in which a substantially planar base portion (18) and a substantially vault-shaped cover portion (24) are defined, connected together by a side portion (22), **characterized in that** said safety toe-cap (16, 216, 416, 616) is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%, and **in that** at least one synthetic fiber-based element (26) is glued at said cover portion (24).

4. Accident prevention footwear (10) according to claim 1 or 2, **characterized in that** the thickness of said at least one part of said side portion (22) is about two times the thickness of said cover portion (24).

5. Accident prevention footwear (10) according to claim 1 or 2 or 4, **characterized in that** said at least one part of said side portion (22) is a tip section (316a), which is situated at the front end of the safety toe-cap (316, 416, 516, 616).

6. Accident prevention footwear (10) according to claim 5, **characterized in that** the cover portion (24), at least in its central area, has tapered thickness from the front end of the toe-cap (516, 616), where it has thickness that is substantially equal to the thickness of the tip section (316a) of the side portion (22), up to a fitting end (17) of the toe-cap (516, 616) itself.

7. Accident prevention footwear (10) according to any one of the previous claims, **characterized in that** said safety toe-cap (616) is at least partially coated with overinjected or cast thermoplastic material (627).

8. Safety toe-cap (116, 216, 316, 416, 516, 616), for a accident prevention footwear (10) of the type comprising a sole (12) and a upper (14), said safety toe-cap (116, 216, 316, 416, 516, 616) being provided at a front part of said footwear (10) and substantially hull-shaped, in which a substantially planar base portion (18) and a substantially vault-shaped cover por-

tion (24) are defined, connected together by a side portion (22), **characterized in that** it is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%, and **in that** at least a part of said side portion (22) has a greater thickness than the thickness of said cover portion (24).

9. Safety toe-cap (216, 416, 616) according to claim 8, **characterized in that** at least one synthetic fiber-based element (26) is glued at said cover portion (24).

10. Safety toe-cap (16, 216, 416, 616), for a accident prevention footwear (10) of the type comprising a sole (12) and a upper (14), said safety toe-cap (16, 216, 416, 616) being provided at a front part of said footwear (10) and being substantially hull-shaped, in which a substantially planar base portion (18) and a substantially vault-shaped cover portion (24) are defined, connected together by a side portion (22), **characterized in that** it is at least partially made from a magnesium metal alloy, in which the magnesium is present in a percentage of between 92.5% and 98%, and **in that** at least one synthetic fiber-based element (26) is glued at said cover portion (24).

11. Safety toe-cap (116, 216, 316, 416, 516, 616) according to claim 8 or 9, **characterized in that** the thickness of said at least one part of said side portion (22) is about two times the thickness of said cover portion (24).

12. Safety toe-cap (316, 516, 616) according to claim 8 or 9 or 11, **characterized in that** said at least one part of said side portion (22) is a tip section (316a), which is situated at the front end of the safety toe-cap (316, 516, 616) itself.

13. Safety toe-cap (516, 616) according to claim 12, **characterized in that** the cover portion (24), at least in its central area, has tapered thickness from the front end of the toe-cap (516, 616), where it has thickness that is substantially equal to the thickness of the tip section (316a) of the side portion (22), up to a fitting end (17) of the toe-cap (516, 616) itself.

14. Safety toe-cap (616) according to any one of claims 8 to 13, **characterized in that** said safety toe-cap (616) is at least partially coated with overinjected or cast thermoplastic material (627).

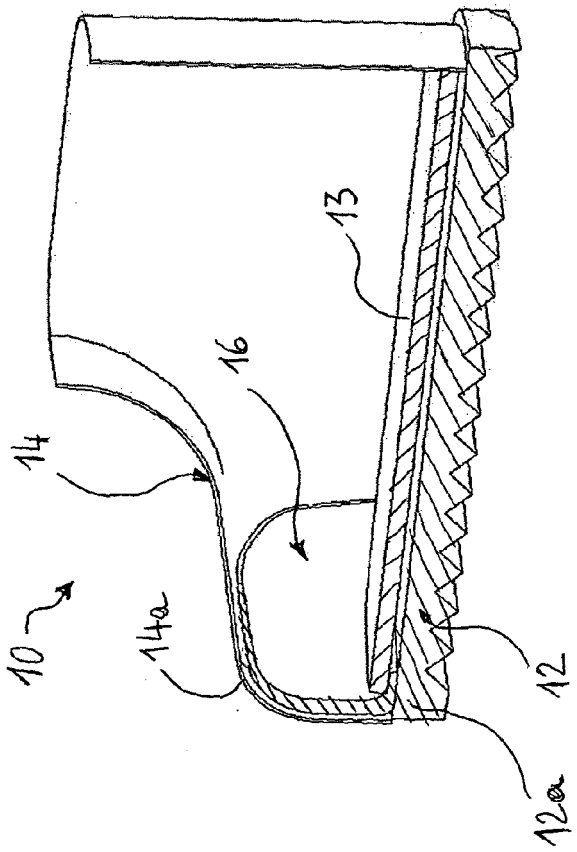

Fig.1

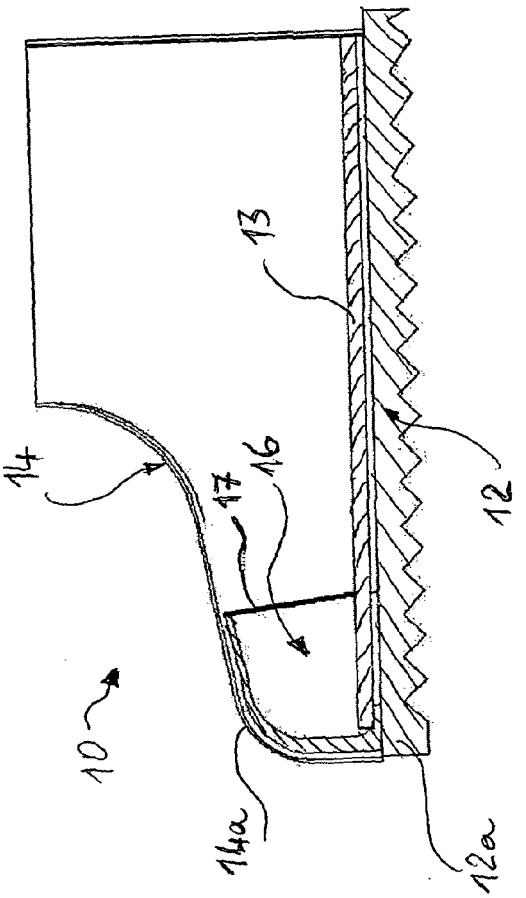

Fig.2

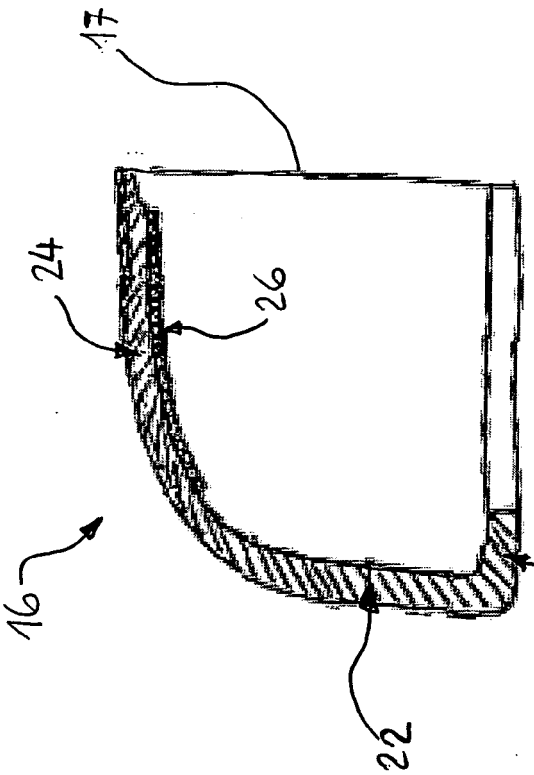

Fig.3b

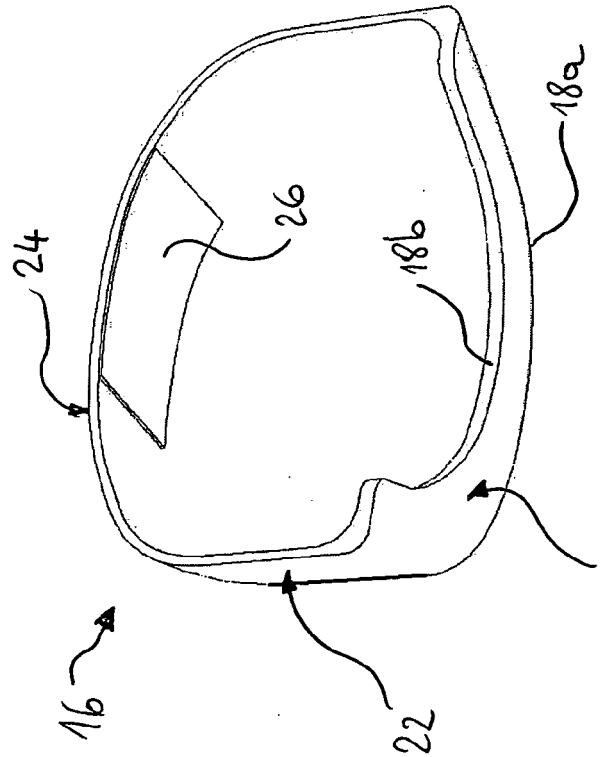

Fig.3a

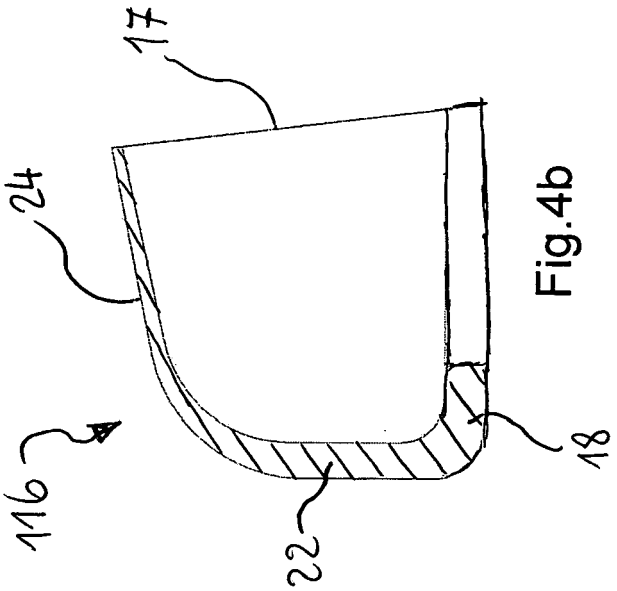

Fig.4b

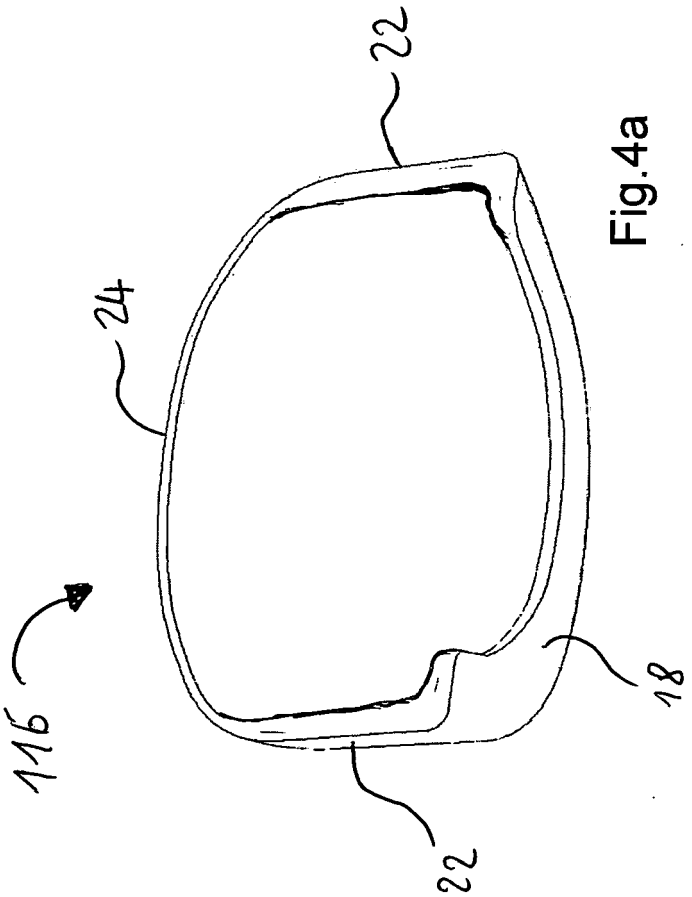

Fig.4a

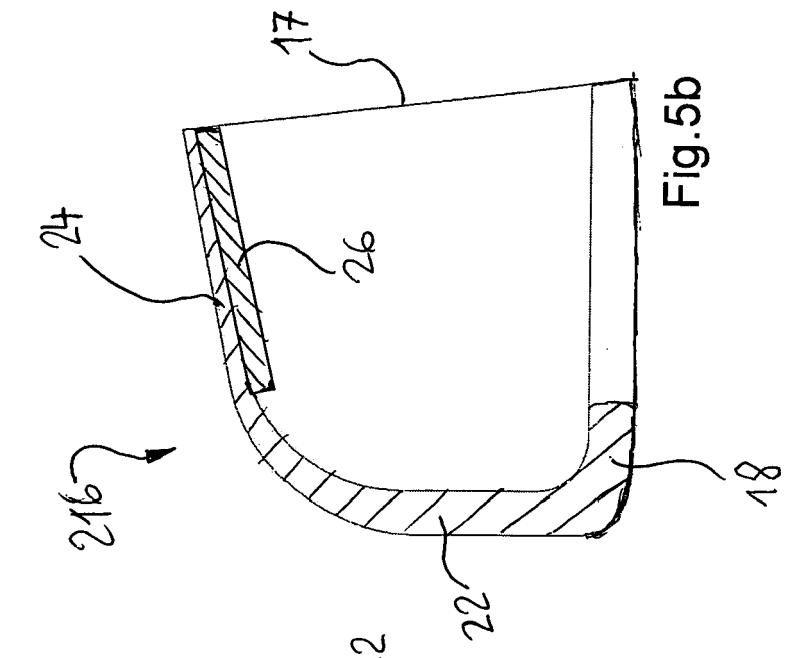

Fig.5b

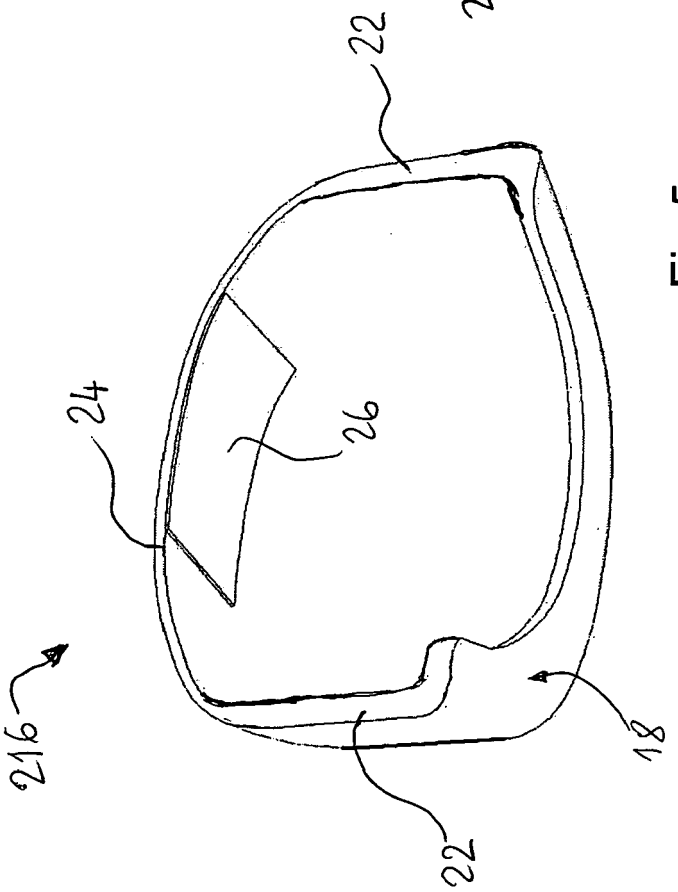

Fig.5a

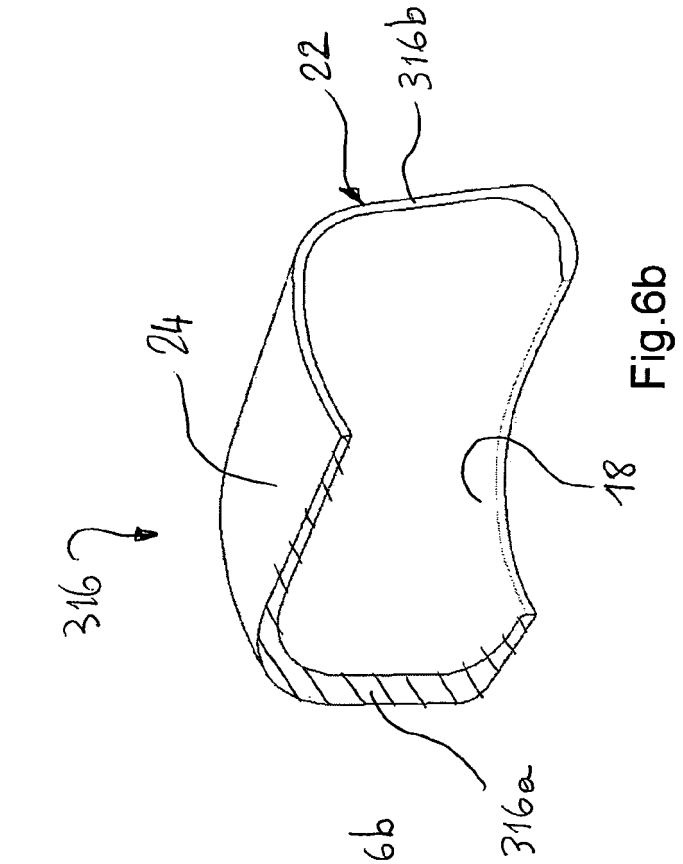

Fig.6b

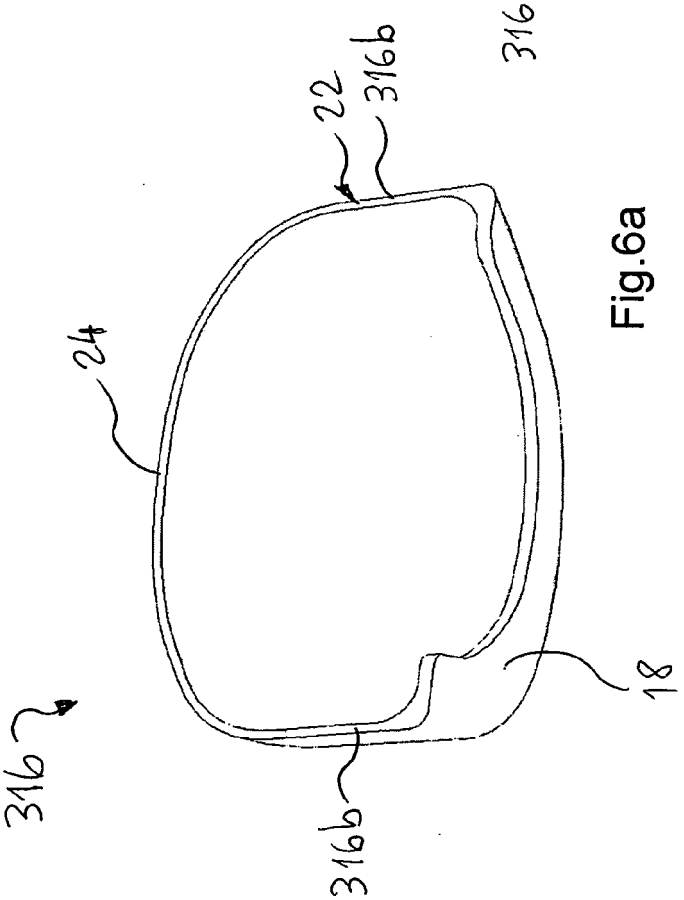

Fig.6a

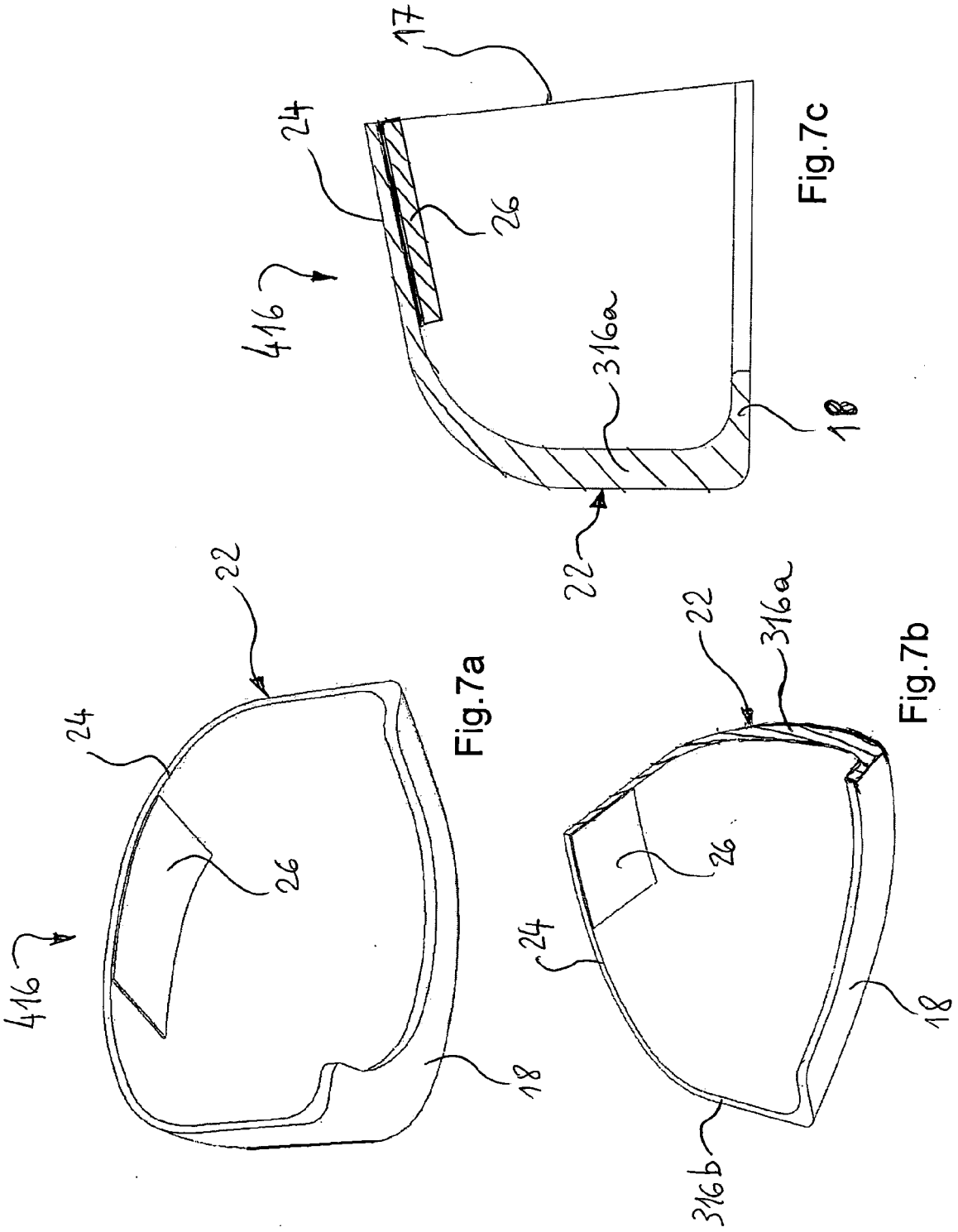

Fig.7a

Fig.7b

Fig.7c

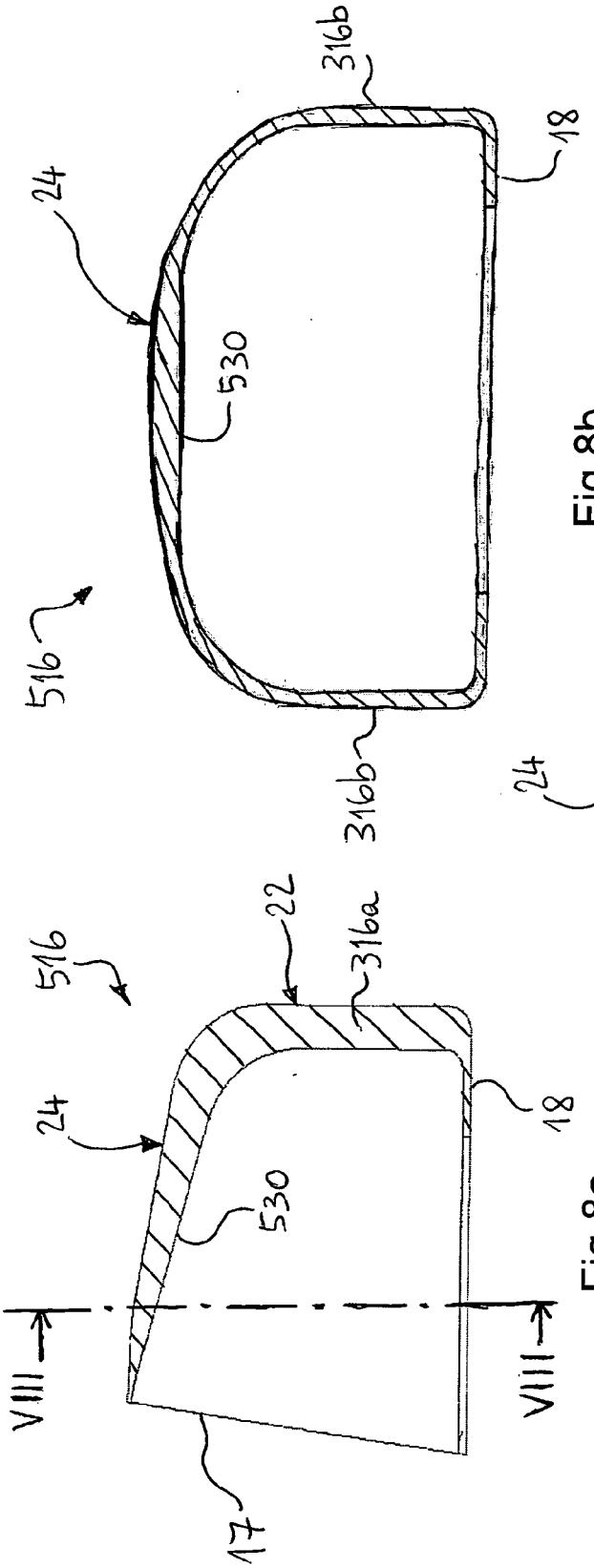
516
24
530
316b
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Fig.8b
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Fig.8c
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316a
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Fig.8a

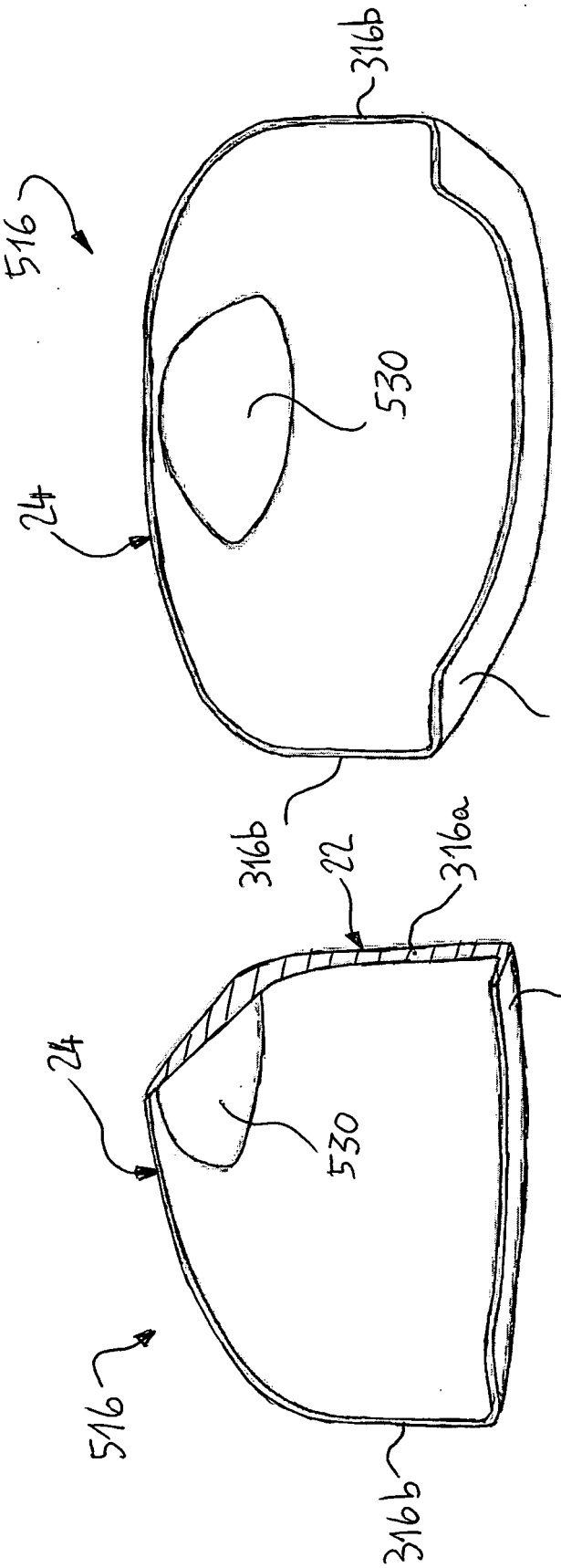

Fig.8e

Fig.8d

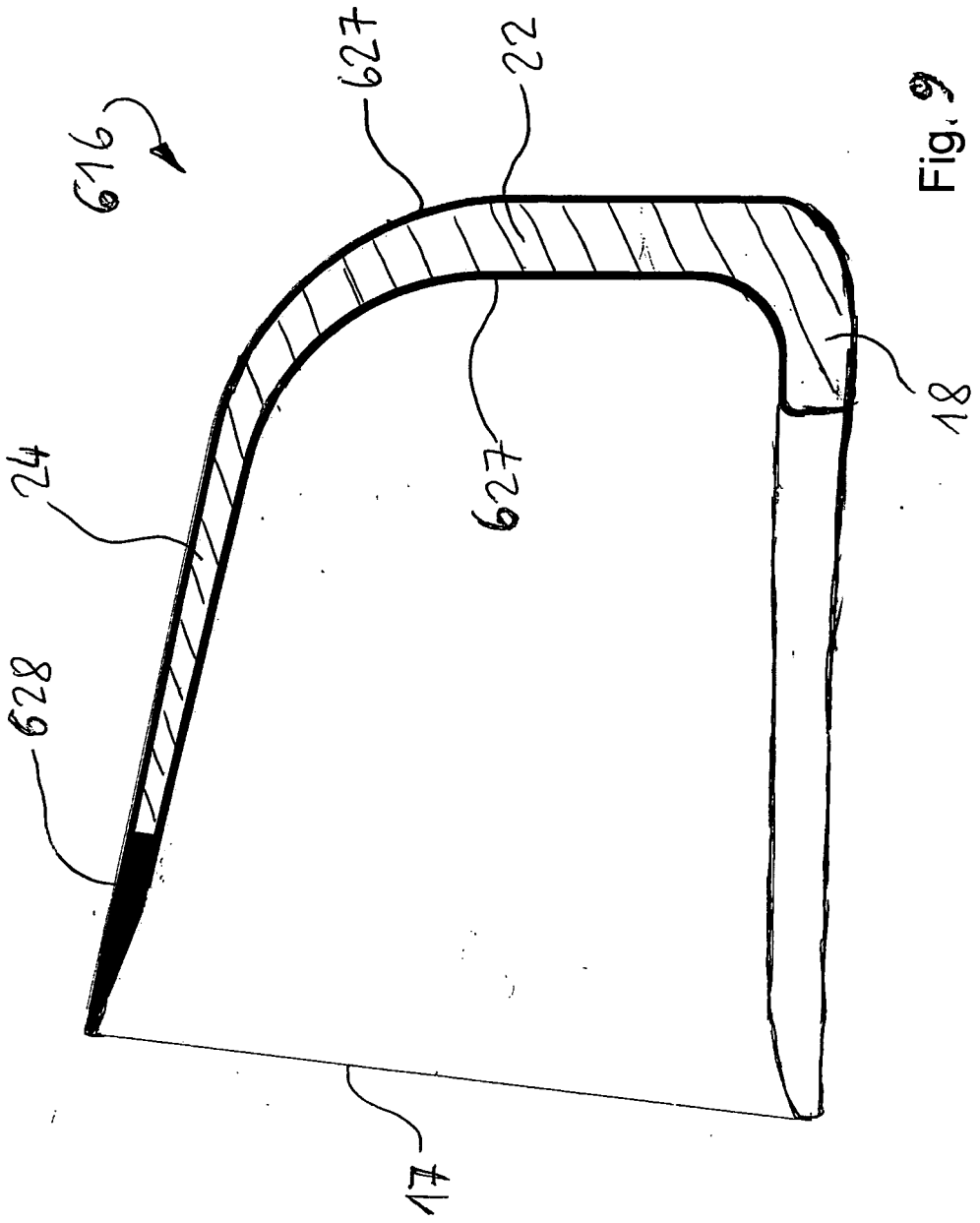

Fig. 9

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 02 3057

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	DE 202 19 131 U1 (MAGNETECH GMBH) 17 April 2003 (2003-04-17) * page 1; claims *	1,2,4-8, 10-14	INV. A43B23/08 A43B7/32
Y	PATENT ABSTRACTS OF JAPAN vol. 1995, no. 10, 30 November 1995 (1995-11-30) -& JP 07 177905 A (NHK SPRING CO LTD), 18 July 1995 (1995-07-18) * abstract *	1,2,4-8, 10-14	
A	GB 2 022 395 A (ESJOT WERK SCHIEMEISTER & JUNKER) 19 December 1979 (1979-12-19) * page 2, line 10 - line 13; figures *	2,9	
A	DE 297 12 881 U1 (HAIMERL, EWALD, 84048 MAINBURG, DE) 19 November 1998 (1998-11-19) * claim 3; figure *	2,9	
A	US 2 795 868 A (SHULTZ EDWARD L) 18 June 1957 (1957-06-18) * column 4, line 6 - line 11; figures *	2,9	TECHNICAL FIELDS SEARCHED (IPC) A43B
A	DE 29 35 959 A1 (ESJOT-WERK SCHIERMEISTER U. JUNKER) 2 April 1981 (1981-04-02) * claim 2; figure 5 *	7,14	
A	DE 23 40 146 A1 (ETABLISSEMENTEN VANDEPUTTE,N.V; ETABLISSEMENTEN VANDEPUTTE, N.V., BOEC) 28 February 1974 (1974-02-28) * page 4, last paragraph; figure 2 *	7,14	

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
The Hague	3 March 2006	Schölvinck, T.S.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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EPO FORM 1503 03.82 (P04C01)

European Patent Office

Application Number
EP 05 02 3057

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1, 2, 4-9, 11-14

European Patent Office

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 05 02 3057

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1,2,4-9,11-14

   Toecap and accident prevention footwear with toecap made of magnesium alloy with 92,5% to 98% Mg, side portion is thicker than cover portion.

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2. claims: 3,10

   Toecap and accident prevention footwear with toecap made of magnesium alloy with 92,5% to 98% Mg, one synthetic fiber-based element is glued at said cover portion.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 02 3057

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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03-03-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 20219131 U1	17-04-2003	NONE	
JP 07177905 A	18-07-1995	NONE	
GB 2022395 A	19-12-1979	DE 2822872 A1	29-11-1979
		FR 2426421 A1	21-12-1979
		IT 1120760 B	26-03-1986
		NL 7904067 A	28-11-1979
DE 29712881 U1	19-11-1998	NONE	
US 2795868 A	18-06-1957	NONE	
DE 2935959 A1	02-04-1981	NONE	
DE 2340146 A1	28-02-1974	BE 787435 A2	01-12-1972
		DE 7329021 U	22-11-1973

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82