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(54) Helmet provided with aerating holes and its manufacturing process

(57) The invention concerns an helmet provided with holes for aerating the user's head in which is provided a cap (1) having holes (10', 10", 10"') formed by two cap portions (1a-1d), each having a plurality of holes having axes substantially parallel to each other. The invention refers moreover to the process for manufacturing said helmet.

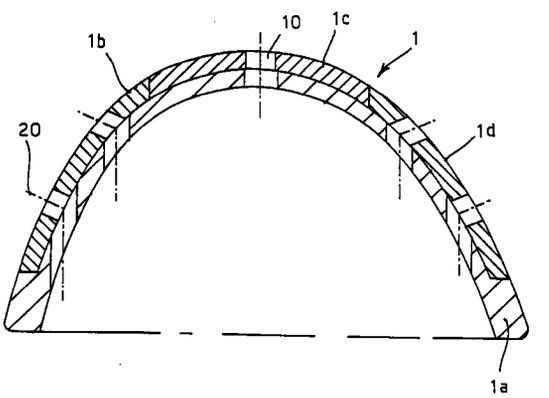

FIG. 7

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Description

[0001] The present invention refers to an helmet provided with aerating holes and to its manufacturing process.

[0002] More particularly the invention refers to an helmet of the type comprising a cap provided with a plurality of holes for transpiration of user's head and to the process for producing such helmet.

[0003] As it is well known the helmets, whether for sports or for working spaces, are generally realised coupling in an outer cap made of plastic material, an internal padding made of a soft material, subsequently covered with a tissue or other material for a better comfort.

[0004] The outer cap can be further covered by a decorative cap, made of plastic material, having printed decorations and various colourings.

[0005] Particularly in the sport field it is moreover well known the use of helmets provided with holes for allowing transpiration of the user's head.

[0006] This kind of helmets provided with transpiration holes is used particularly by those who practice cycling, skate-boarding, roller-skating, etc.

[0007] Providing holes in helmets used in the above mentioned sports has moreover the object of lighten the helmet itself making less wearisome its presence on user's head.

[0008] The diffusion of helmets provided with holes and the customer's demand of helmets having colours and shapes particularly pleasant, caused diffusion of helmets provided with holes having various shapes and so molded that the air flow through them is facilitated.

[0009] The production, according to fashion, of helmets provided with holes needs however large economic investments in order to realise special molds for the realisation of the perforated cap.

[0010] As it is in fact well known the cap has a substantially hemispherical shape and the holes must be placed all over the surface of the cap according to axes substantially converging to the centre of the sphere.

[0011] In figure 1 it is shown schematically a section of a cap 1 of a prior art helmet provided with holes.

[0012] As it is visible in figure 1, the holes 10a-10e have axes 20a-20e substantially converging towards the cap's centre.

[0013] Traditional type molds should not be used because it wouldn't be possible to extract the cap from the mold.

[0014] In order to realise perforated caps using molds for plastic materials are therefore used special molds, very expensive, that allows the extraction of the cap according to different directions.

[0015] A first object of the present invention it is therefore to provide a helmet provided with holes having low production costs.

[0016] The production of helmets provided with holes results further on expensive because it is necessary, for reasons connected to fashion and customer's wishes, to realise a range of perforated helmets for every single speciality.

[0017] It is therefore necessary to have special molds for perforated caps always different and replace such molds very frequently in order to modify the helmet range.

[0018] Another object of the present invention it is therefore to provide a process for manufacturing perforated helmets which permits the use of a reduced number of molds allowing however the realisation of a almost infinite range of perforated caps.

[0019] The above objects of the present invention are reached from an helmet and a manufacturing process as claimed in the accompanying claims.

[0020] According to the invention the helmet's cap comprises a plurality of cap portions each provided with holes and coupled together by gluing.

[0021] In this way each cap portion can be cheaply obtained starting from a cheap mold in which it is possible to extract the molded object in only one direction.

[0022] Thanks to the provision of tangential channels for the passage of air that connect together the various holes provided in the cap, the helmet according to the invention shows moreover better transpiration characteristics in respect to prior art and permits to obtain a better refreshment of the cap when the helmet is wore.

[0023] The above objects will result more clear from the detailed description of a preferred embodiment of the helmet according to the invention with particular reference to the accompanying drawings in which:

figure 1 is a schematic sectional view of an helmet cap provided with holes according to the prior art;
figure 2 is a top view of a first portion of an helmet cap according to the invention;
figure 3 is a lateral view of the helmet cap without a portion of cap;
figure 4 is a lateral view of the cap portion missing in the view of figure 3;
figure 5 is a top view of the complete cap of the helmet according to the invention;
figure 6 is a top view of the decorative cap of the helmet assembled on the cap of figure 5;
figure 7 is a schematic sectional view of an helmet cap provided with holes according to the invention.

[0024] With reference to figure 1 it is schematically shown a cap 1 made of foamed plastic material, for example polystyrene, provided with a plurality of radial holes 10a-10e substantially made on all its surface.

[0025] As pointed out by dashed lines referenced by 20a to 20e, the holes 10a-10e have axes arranged radially as regards to the centre of the hemisphere defined by cap 1 in order to let air flowing towards the outside and thus facilitating transpiration of the user's head.

[0026] The need to realise radial holes makes impossible to extract along only one direction the cap 1 from

the mold in which the cap is molded.

[0027] As shown in figure 7, according to the present invention the helmet's cap 1 is obtained by overlapping and joining of cap portions or shells 1a-1d, each provided with a plurality of holes 10.

[0028] Said holes 10 are realised so that each portion of cap 1a-1d can be extracted from respective mold along only one output direction.

[0029] For this purpose, as shown in figure 7, holes 10 have axes 20 substantially parallel for every cap portion 1a-1d.

[0030] As better shown in figures 2 to 5 the helmet according to the invention provides a plurality of cap portions or shells 1a-1d provided with holes 10', 10" and coupled together by gluing.

[0031] More precisely, as shown in figure 2, the helmet according to the invention comprises a first inner cap or shell portion 1a shaped substantially hemispherical in which it are present a plurality of holes 10' realised according to axes substantially parallel each other.

[0032] In this way, the cap portion 1a results removable along only one direction out of the mold in which it has been molded.

[0033] It will be thus possible to obtain the cap portion 1a from a simple and cheap mold for plastic materials.

[0034] With reference to figures 3 to 5, the whole helmet cap is obtained by gluing on said inner shell 1a outer shells 1b-1d presenting themselves a plurality of holes 10" realised according to axes substantially parallel to each other.

[0035] As better shown in figure 3, in order to obtain a perfect centering between outer shells 1b-1d, each of them provides a plurality of inserts 3a that couple with corresponding holes 3b.

[0036] Advantageously, said inner shell 1a has a perimetrical edge 7 flat and without aerating holes, suitable for supporting said outer shells 1b-1d.

[0037] Said edge 7 is moreover provided with inserts 3a and holes 3b alternately placed for centering of shells 1b-1d when these are coupled to said inner shell 1a.

[0038] Advantageously moreover on the inner shell 1a are obtained grooves 4 that ramify on the surface of said inner shell 1a between holes 10'.

[0039] A corresponding number of grooves, ramifying between holes 10", are made on the surface of outer shells 1b-1d that will be coupled with inner shell 1a.

[0040] In this way, between holes 10', 10" provided in cap 1 for transpiration, is defined a plurality of channels for the passage of air following a path that facilitates its downflow when the helmet's user advances in the direction indicated by arrow 5 in figures 2 and 3.

[0041] Advantageously, the passage of air between said channels defined by grooves 4 permits to refresh the inside of the helmet and to increase the transpiration through holes 10', 10".

[0042] With reference to figure 6 it is shown a decorative shell 6 mounted on the helmet's cap 1.

[0043] The shell 6 is preferably made of transparent polycarbonate and it is substantially flexible, provided with holes 10"' and with decorations.

[0044] Said shell 6 is applied to the cap 1 by gluing.

[0045] The effect resulting by applying the shell 6 on the cap 1 is substantially the same as the effect that should be obtained with a cap realised in a single part.

[0046] The process for the realisation of the helmet provided with holes according to the invention provides therefore the following steps:

- to obtain by molding a first portion of an inner cap or shell having a shape substantially hemispherical and provided with holes having axes substantially parallel to each other, so that said cap can be extracted from the mold substantially along only one direction;
- to obtain by molding a plurality of cap portions or outer shells provided with holes having axes substantially parallel to each other, so that said shells can be extracted from the mold substantially along only one direction;
- to couple by gluing said outer shells on said inner shell obtaining a cap of said helmet;
- to apply by gluing on the cap so obtained a decorative shell provided with holes.

[0047] Alternatively, the helmet according to the invention can be realised according to the known co-molding technique that provides for simultaneously molding of the foamed material cap and the decorative shell.

[0048] According to this alternative realisation technique, each cap portion 1b-1d is co-molded with the corresponding portion of decorative shell.

[0049] The complete helmet is obtained by gluing the cap portion 1b-1d already provided with the decorative shell on the hemispheric portion 1a.

[0050] According to a further embodiment of the helmet, the cap can be obtained by gluing along adjacent edges of two cap portions each corresponding to a quarter of a sphere thus obtaining a complete hemispherical cap.

[0051] Advantageously according to the invention it is possible to realise different helmets with holes placed and shaped in different ways using always the same inner shell 1a and applying on it different outer shells and decorative shells cheap and easy to realise.

[0052] Moreover realising inner shells 1a having different thickness it is possible to realise helmets of different sizes using always the same outer shells and the same decorative shells.

Claims

1. Helmet provided with aerating holes comprising a perforated cap (1), substantially hemispherical, characterised in that said cap is obtained by the union of at least two cap portions (1a-1d).

2. Helmet according to claim 1, wherein each of said cap portions has a plurality of holes (10', 10", 10"') having axes substantially parallel.

3. Helmet according to claim 2, wherein said at least two cap portions (1a-1d) comprise an inner shell (1a) having a shape substantially hemispherical and at least an outer shell (1b-1d) suitable to be applied on said inner shell (1a), said plurality of holes (10', 10", 10"') provided in said inner shell (1a) and said plurality of holes provided in said at least one outer shell (1b-1d) being substantially coincident and defining passages for air towards the helmet's centre.

4. Helmet according to claim 1 or 2, wherein said at least two cap portions (1a-1d) comprise a couple of shells each corresponding to a quarter of sphere.

5. Helmet according to claim 3, wherein said at least one outer shell (1b-1d) comprises three outer shells, each provided with centering means (3a, 3b) for centering with the other outer shells (1b-1d) and with said inner shell (1a).

6. Helmet according to claim 5, wherein said inner shell (1a) has a flat perimetrical edge (7), suitable for supporting said outer shells (1b-1d).

7. Helmet according to claim 6, wherein said centering means (3a, 3b) comprise a plurality of inserts alternated with holes provided laterally in said outer shells (1b-1d) and on said perimetrical edge (7).

8. Helmet according to any of the preceding claims 5 to 7, wherein between said inner shell (1a) and said at least one outer shell (1b-1d) is present a plurality of grooves (4) ramifying between said holes (10', 10", 10"'), said grooves (4) defining channels suitable for allowing an air flow through a path substantially tangential to said cap (1) between said holes (10', 10", 10"') when the user of the helmet is moving.

9. Cap for the realisation of an helmet provided with aerating holes, characterised in that said cap comprises at least two cap portions (1a-1d).

10. Cap according to claim 9, wherein said cap portions have each a plurality of holes (10', 10", 10"'), and wherein the holes of each of said plurality of holes (10', 10", 10"') have axes substantially parallel to each other.

11. Process for the realisation of an helmet provided with aerating holes comprising the steps of:

obtaining by molding a first portion of a inner cap or shell having a shape substantially hemispherical and provided with holes having axes substantially parallel to each other, so that said cap can be extracted from the mold substantially along only one direction;

obtaining by molding a plurality of cap portions or outer shells provided with holes having axes substantially parallel to each other, so that said shells can be extracted from the mold substantially along only one direction;

coupling by gluing said outer shells on said inner shell obtaining a cap of said helmet;

applying by gluing on the cap so obtained a decorative shell provided with holes.

12. Process for the realisation of an helmet provided with aerating holes comprising the steps of:

obtaining by molding a first portion of a inner cap or shell having a shape substantially hemispherical and provided with holes having axes substantially parallel to each other, so that said cap can be extracted from the mold substantially along only one direction;

obtaining by co-molding a plurality of outer shells made of foamed material provided with a polycarbonate decorative shell, said outer shells being provided with holes having axes substantially parallel to each other, so that said outer shells can be extracted from the mold substantially along only one direction;

coupling by gluing said outer shells on said inner shell.

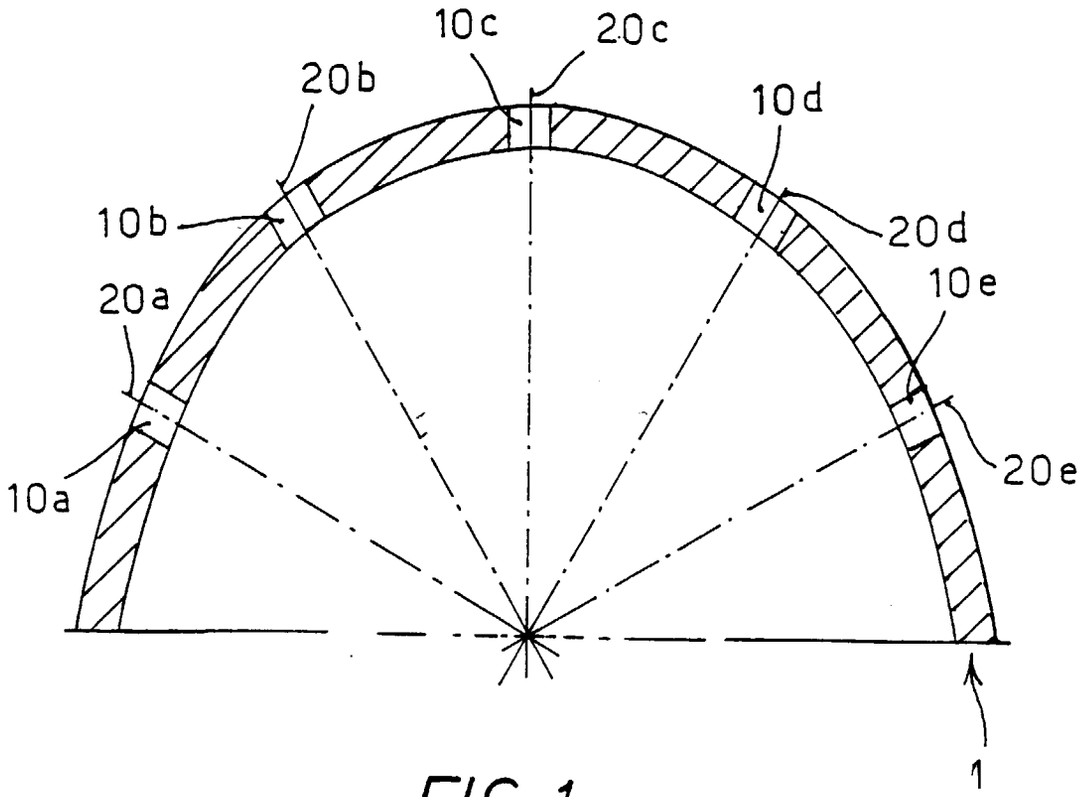
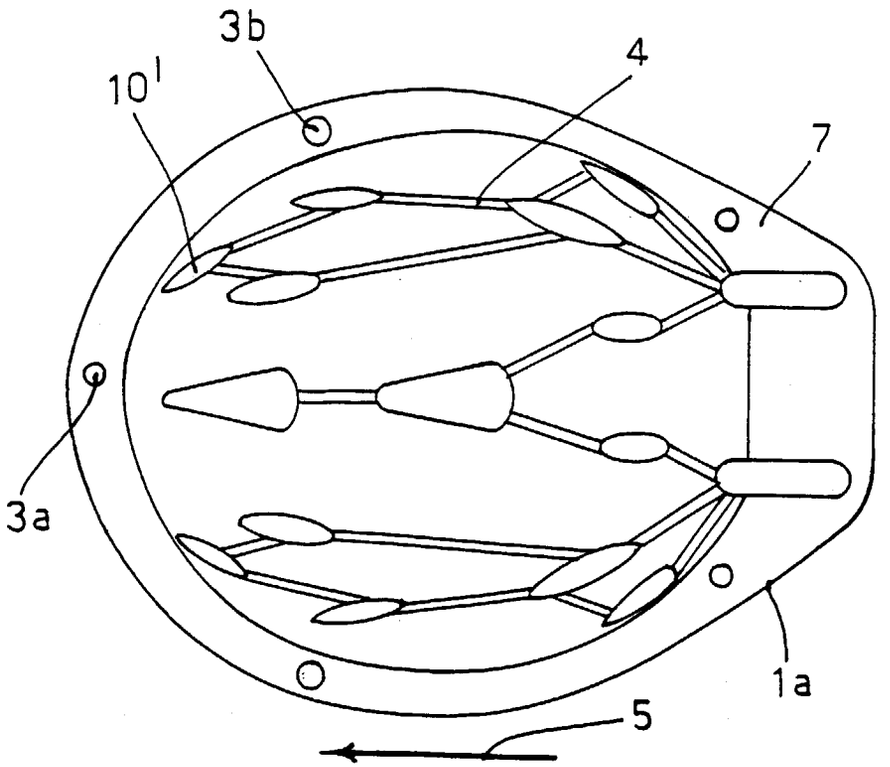


FIG. 1

FIG. 2



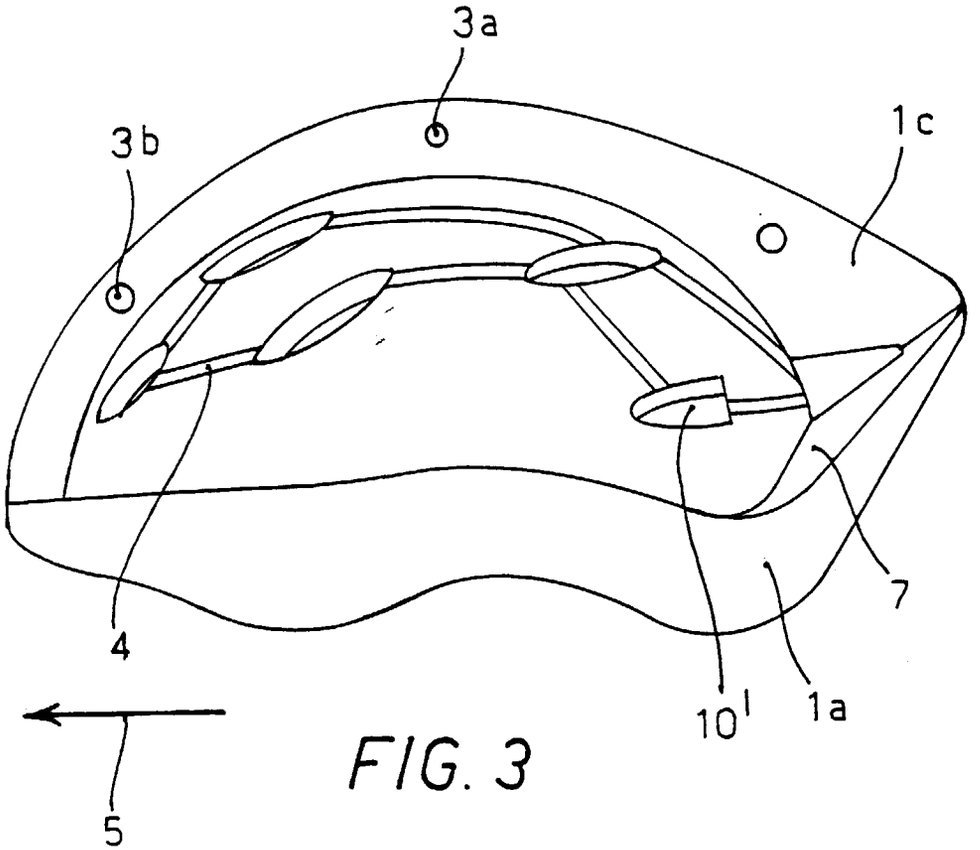
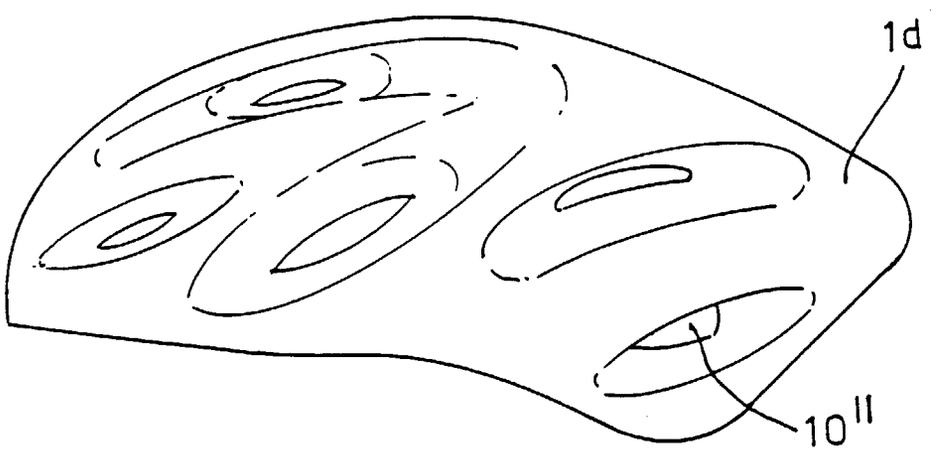


FIG. 3

FIG. 4



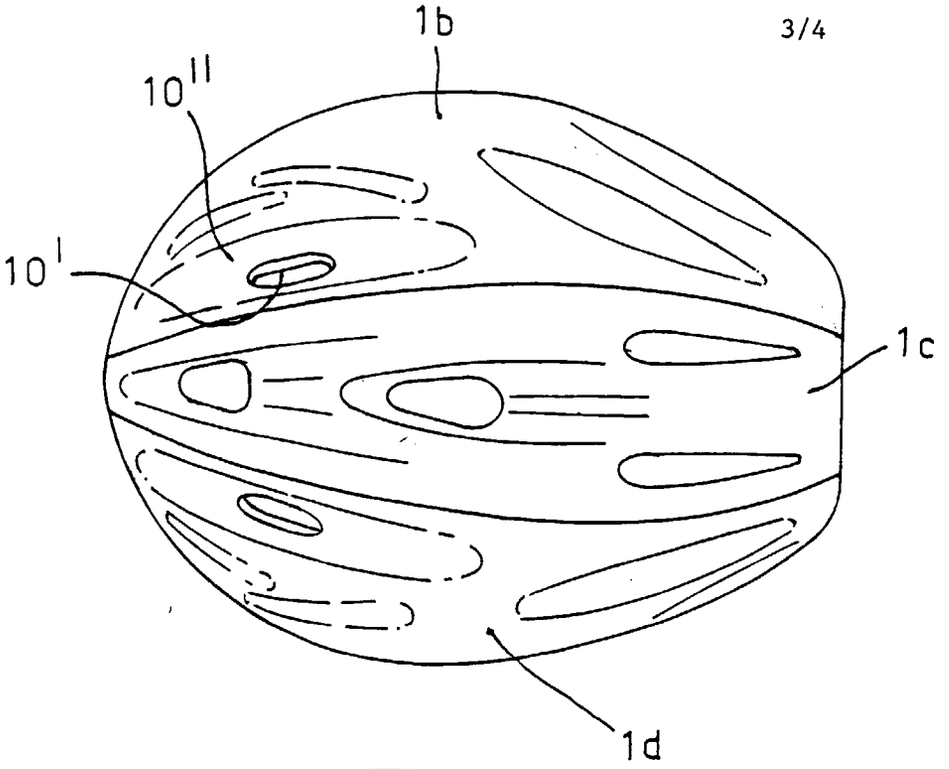
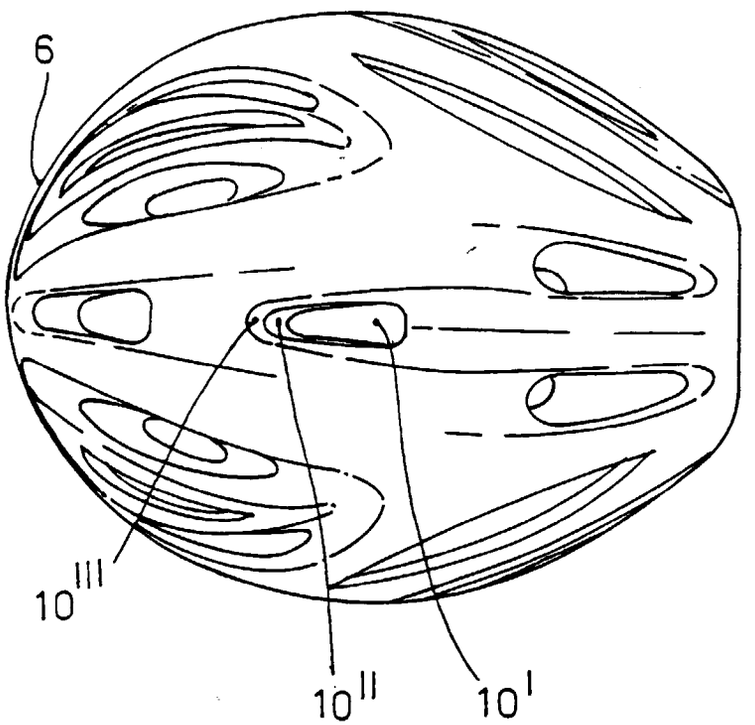
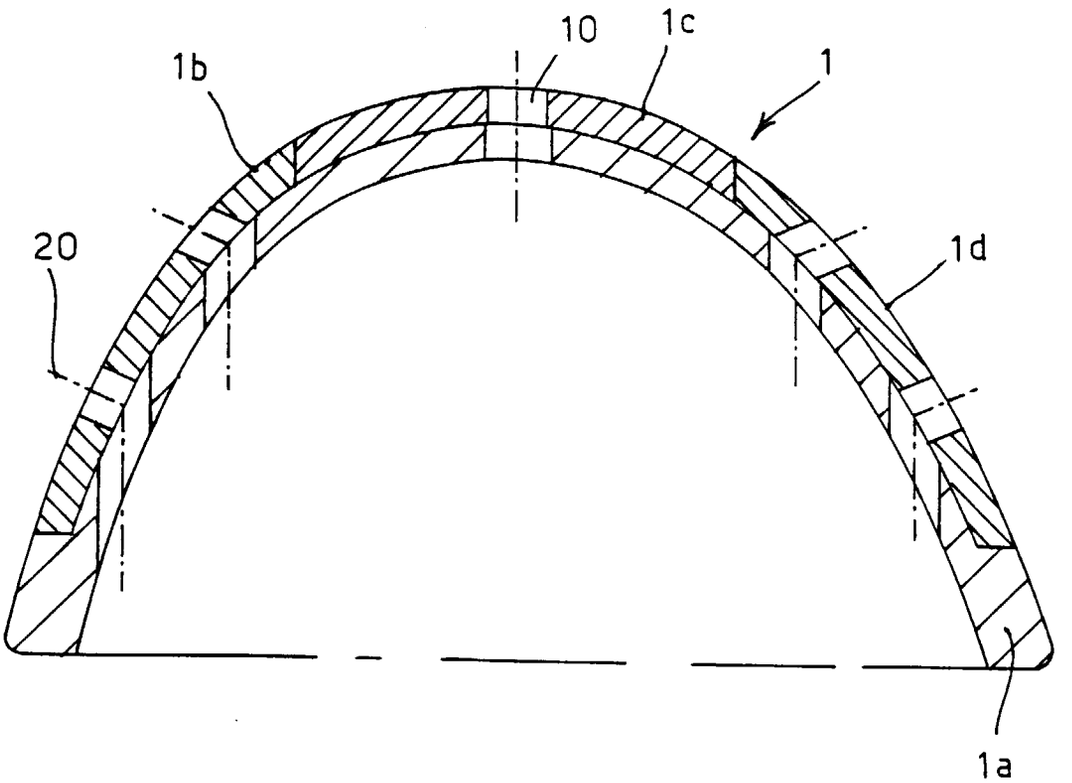


FIG. 5

FIG. 6





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