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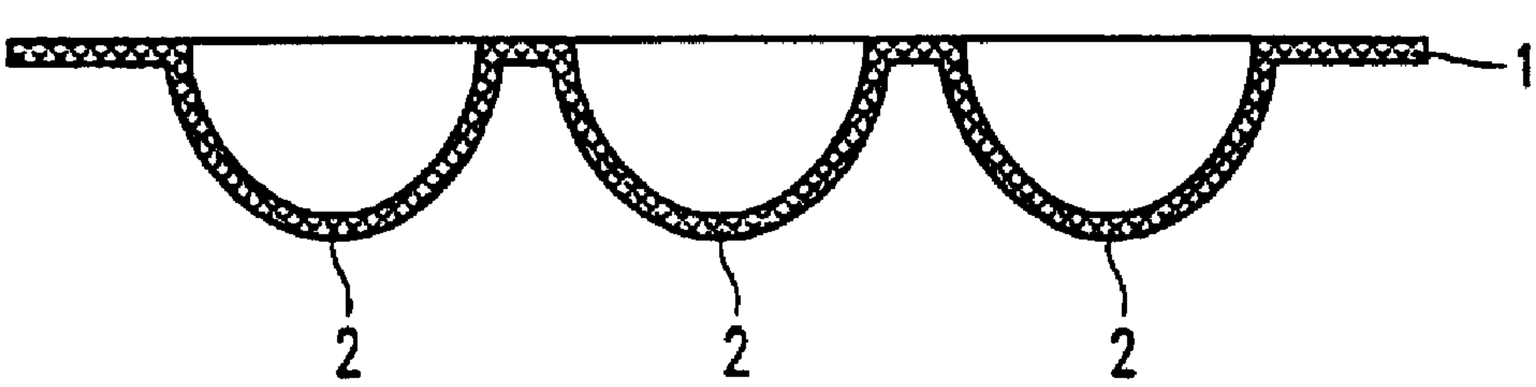
(54) Title: METHOD FOR PREPARING EDIBLE, CRUNCHY MATERIAL AND PRODUCT COMPRISING SUCH MATERIAL



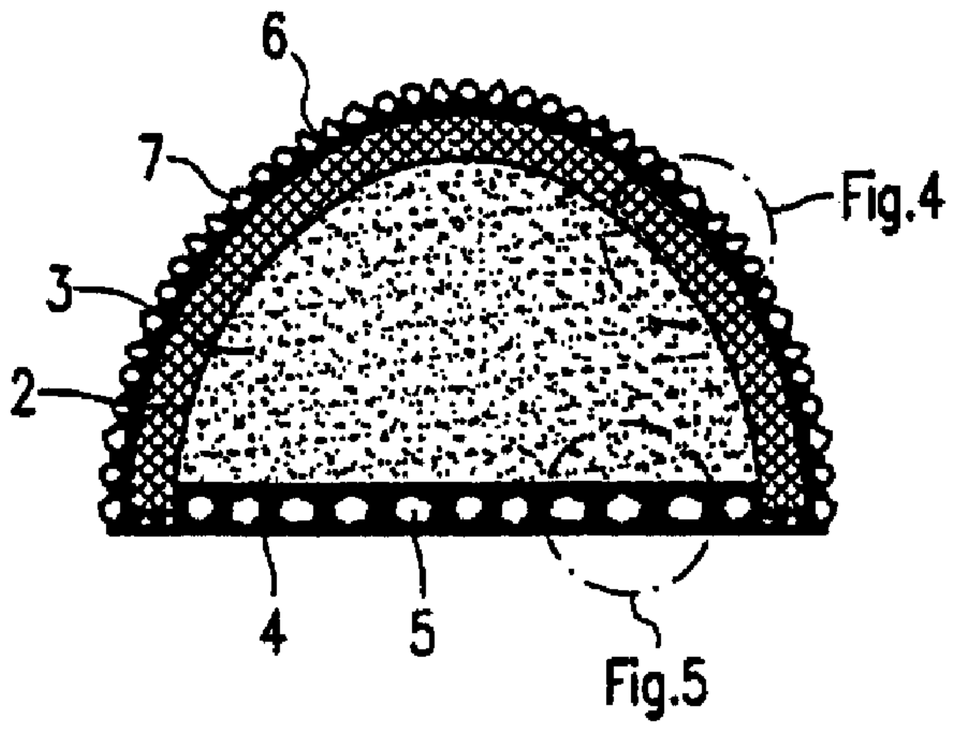


Fig.4

Fig.5

(57) Abrégé/Abstract:
Method for preparing an edible, crunchy material (2) which contains sugar and nut material, wherein a batter containing, apart from moisture, at least 25 % sugar and at least 8 % nut material, is heated at a temperature of at least 100 °C for more than 30 seconds. Preferably the batter contains a small amount of protein and 8-45 % moisture and, apart from said moisture, 35-60 % sugar and 12-63 % nut material (3), and the batter is heated at a temperature of 100-180 °C for a period of 30-420 seconds. The crunchy material preferably serves as an envelope (2) for another material, which may be softer and which may also contain nut material.

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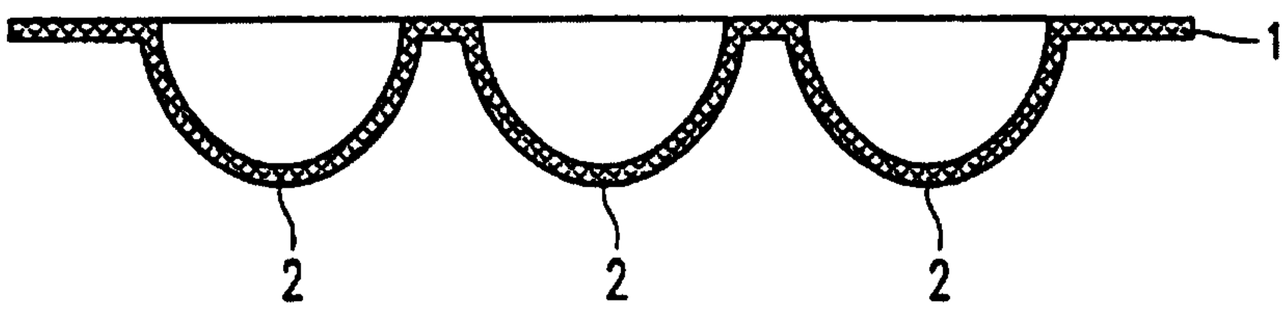
(54) Title: METHOD FOR PREPARING EDIBLE, CRUNCHY MATERIAL AND PRODUCT COMPRISING SUCH MATERIAL



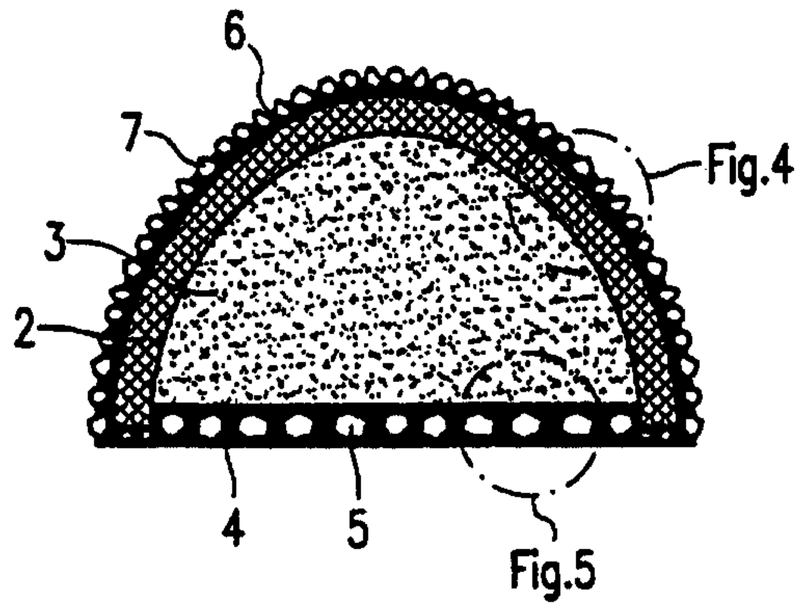


Fig.4

Fig.5

(57) Abstract

Method for preparing an edible, crunchy material (2) which contains sugar and nut material, wherein a batter containing, apart from moisture, at least 25 % sugar and at least 8 % nut material, is heated at a temperature of at least 100 °C for more than 30 seconds. Preferably the batter contains a small amount of protein and 8–45 % moisture and, apart from said moisture, 35–60 % sugar and 12–63 % nut material (3), and the batter is heated at a temperature of 100–180 °C for a period of 30–420 seconds. The crunchy material preferably serves as an envelope (2) for another material, which may be softer and which may also contain nut material.

AMENDED DESCRIPTION

METHOD FOR PREPARING EDIBLE, CRUNCHY MATERIAL AND PRODUCT COMPRISING SUCH MATERIAL

The invention relates to a method for preparing an edible product provided with an envelope formed by a three-dimensionally curved layer or plate of edible crunchy material filled with soft material. Such product may be marketed in such a form that it is easy to eat and/or that it has an attractive appearance. When using said crunchy material as part of an edible product, the hardness and consistency of the material may be used to give the edible product a particular form and to envelope the soft material.

Especially when the crunchy material is used to give an edible product, which partially consists of a soft material, a selected shape or to envelop said other material, a relatively large part of the edible product will consist of said crunchy material. Partially in connection therewith there is a need for crunchy material having a special and/or recognizable taste, which either harmonizes well with the taste of said other parts of the edible product or which adds a special element to said edible product. Such a crunchy material must have an attractive appearance, a special taste and a pleasant texture. The texture determines the mouth feel of the product.

The object of the invention is to provide a method for preparing an edible product, comprising crunchy material having a distinctly recognizable and special taste and texture, which is used to form a delicacy in combination with other materials, whereby the crunchy material can be given various forms, in particular the form of a plate, more in particular a three-dimensionally curved plate.

In order to accomplish that objective a batter containing between 30% - 50% dry weight sugar and between 40% - 70% dry weight nut material is heated between two curved surfaces of a baking device at a temperature between 100°C and 180°C for a period of 30 - 420 seconds to form the crunchy envelope, and whereafter the envelope is filled with soft material.

To bake products with a relatively high content of nut material is known. US-A-4,752,484 discloses a method for baking cookies containing up to 40% nut material. However, it is not disclosed to produce a layer or plate of crunchy material containing more than 40% nut material, which layer or plate can form an envelope for softer material.

WO 92/10938 discloses a method for producing envelopes of edible material, especially to be filled with ice cream. It is mentioned that an ingredient such as coconut can be added, but such ingredient is only added as a flavoring ingredient and it is not a major ingredient with a functional purpose.

The term 'nut material' means pieces or particles of nuts, such as hazelnut, almond or coconut. The term coconut that is used in this connection is understood to refer to the dry, white meat of the coconut. These nuts are presented as examples in this specification. Also other nuts can be used.

The batter is made by mixing sugar, water and pieces of the nut material, which pieces of nut material are preferably dried and/or toasted and/or roasted, and whereby it is preferred to add a small amount of egg solution. The dimensions of the pieces are preferably smaller than 2 mm, preferably smaller than 1.5 mm.

The crunchy material thus prepared appears to have a very pleasant, special and recognizable taste and texture and is

very suitably for forming a delicacy in combination with other edible materials. Due to its relatively hard and consistent nature it can readily serve as an envelope for other edible materials, in particular softer materials, and it is capable of forming the delicacy of which it forms part into a selected shape.

Preferably the batter contains 8 - 45% moisture, more preferably 8 - 25% moisture and is heated at a temperature of 120 - 160 °C, preferably at a temperature of 135 - 150 °C, for a period of 100 - 350 seconds, preferably 120 - 200 seconds.

Furthermore it is possible to add other substances, whereby maximally 40% dry weight coconut milk powder and maximally 2% dry weight egg product is added to the batter. Preferably the amount of coconut milk powder being added ranges from 10% to 40% and the amount of egg product being added ranges from 0.5% to 1.5% (dry weight).

In the above-described manner an edible material having a tasty, crunchy texture and having a blended taste of caramelized sugar and toasted/roasted nuts may be obtained. This material may very well be used as an individual edible product, but it may also be used as part of an edible product, especially as an envelope of a softer part of said edible product.

The heating of the batter in order to obtain the crunchy material, which heating process may also be indicated by the term baking, is preferably carried out at substantially atmospheric pressure, preferably at less than 0.1 bar overpressure, which appears to produce significantly better results than when the batter is baked at a higher pressure, which is generated when steam is formed during the baking process, which steam cannot escape to an unlimited degree. This latter way of baking is a conventional baking process

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for producing waffles.

The batter may either have a low viscosity or a higher viscosity, whereby the batter cannot be poured but must be introduced into a baking tin as a dollop. The batter is preferably formed into the shape of a plate or a layer and heated in that shape, so that the edible, crunchy material is plate-shaped. Preferably it is three-dimensionally curved thereby, so that the plate comprises a space, at least partially so. Such a space, which is enveloped by the crunchy material, may be filled with another edible material, which may be softer, thus forming an edible product comprising both materials.

The shells of crunchy material, into which the soft material may be introduced, are preferably made by forming a plate of crunchy material, which comprises several partially formed spaces, whereby parts of the plate which each comprise one or more spaces are separated from each other. In itself this is a usual way of producing shell-shaped waffles.

Preferably the batter is heated between two heated surfaces of a baking device, whereby said two surfaces have a mutually corresponding shape, so that the material is heated in the shape of a three-dimensionally curved plate between said two surfaces. This method, which is a usual method for producing waffles, may be used for producing the crunchy material according to the invention, albeit that the baking process is preferably carried out at substantially atmospheric pressure. It is possible to heat either one of the surfaces or both surfaces, and said surfaces are preferably provided with a coating which prevents the material from sticking to the surface.

The invention furthermore relates to an edible product comprising a soft edible material at least partially

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provided with an envelope of a crunchy material, the envelope of crunchy material containing between 30% - 50% dry weight sugar and between 40% - 70% dry weight nut material and the soft edible material being filled into the crunchy envelope.

Furthermore the material may contain other substances, such as maximally 40% dry weight coconut milk powder and maximally 2% dry weight egg product. Preferably the amount of coconut milk powder ranges from 10% to 40% dry weight, and the amount of egg product ranges from 0.5 to 1.5% dry weight. The coconut milk is preferably used in combination with coconut as nut material.

The soft material preferably contains nut material. It is preferred to provide the edible product with a layer of chocolate on the outside, on which small pieces of nut material may be provided, which are preferably toasted/roasted or dried. Preferably the material present within said crunchy material, which may be softer, may be enveloped by a layer of chocolate, which preferably contains small pieces of nut material, which are preferably dried or toasted/roasted, at the location where it is not enveloped by the crunchy material. Research has shown that such an edible product is a very attractive and tasty product, which has a very pleasant texture.

The nut materials of the different parts of the edible product are preferably of the same kind of nut, i.e. coconut, almond, hazelnut, or an other nut.

Table A lists six recipes, whereby the batter made according to those recipes resulted in a quite edible, crunchy material containing coconut after being heated in a conventional baking device for waffles for 160 seconds, and that at atmospheric pressure. The baking temperature for recipes was 140 °C.

Tables B and C show recipes for a batter containing almond and a batter containing hazelnut respectively. The baking temperature for both these recipes was 140 °C and the baking time was 120 seconds.

Brief description of the raw materials used in the recipes:

- Egg Albumen is obtained from whites of chickens' eggs after removal of reducing sugar.

- Granulated Sugar is crystallized and refined milled sugar containing principally sucrose, obtained from either beet or cane. Particle size between 0.4 and 0.8 mm.

- Castor Sugar is crystallized and refined milled sugar containing principally sucrose, obtained from either beet or cane. Particle size between 600 and 100 micron.

- Icing Sugar is crystallized and refined milled sugar containing principally sucrose, obtained from either beet or cane. Particle size lower than 100 micron.

- Sugar 70% is a solution of castor/granulated sugar in water with a solids content of 70%.

- Glucose 46 DE is an aqueous solution of dextrose, maltose and higher saccharides obtained from maize or wheat starch. Dextrose Equivalent value is 46.

- Desiccated Coconut is obtained from the dried white meat from the coconut fruit. Size of fines is smaller then 1 mm.

- Coconut Milk Powder is obtained by drying of the water/fat emulsion that is pressed from the white meat

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of the coconut fruit.

- Hazelnut / Hazelnut pieces are roasted and chopped to the appropriated size i.e.
  - fines: particles smaller than 1.5 mm
  - chopped: particles between 1.5 and 3.5 mm.

- Almond / Almond pieces are roasted and chopped to the appropriated size i.e.
  - fines: particles smaller than 1.5 mm
  - sliced and chopped: particles between 1.5 and 3.5 mm. wide and thickness lower than 1 mm.

The invention will be explained in more detail hereafter with reference to the accompanying Figures, which are merely diagrammatic representations. The described example is a delicacy having a shell of crunchy material comprising coconut, the shell enveloping soft material.

Figure 1 is a plan view of a three-dimensionally curved piece of plate-shaped, edible, crunchy material;
Figure 2 is a sectional view along line II-II in Figure 1;
Figure 3 is a cross-sectional view of a delicacy; and
Figures 4 and 5 are more detailed views of parts of Figure 3.

Figure 1 is a plan view of the three-dimensionally curved plate of edible, crunchy material 1, which contains 30% sugar and 68% coconut, the rest being protein, and which has been heated in a conventional baking device for baking waffles under atmospheric pressure. Contrary to the situation where known waffles are baked, the build-up of a pressure is prevented thereby, because the steam being generated can freely escape. Figure 2 is a sectional view along line II-II in Figure 1.

The six shell-shaped parts 2 may be separated, for example

by means of a mechanical operation which is known per se, after which said parts 2 may be used as an envelope for a delicacy.

Figure 3 is a cross-sectional view of such a delicacy, which comprises an envelope 2 ("shell") of a crunchy material containing 30% sugar and 68% coconut, the rest being protein. Shell 2 is filled with whipped coconut cream 3, which is covered with a layer of milk chocolate 4 containing small pieces of coconut 5, which may or may not be toasted or dried. Also shell 2 is covered with a layer of milk chocolate 6, which likewise contains small pieces of coconut 7, which may or may not be toasted or dried. Layer of chocolate 4, 6 envelopes the delicacy entirely.

Figures 4 and 5 show parts of Figure 3 in more detail. The delicacy according to Figures 3 - 5 is merely an example of the great number of variations which are possible within the scope of the invention. These variations relate to the shape, the size as well as to the material of the product.

Table A

	Recipe 1		Recipe 2		Recipe 3		Recipe 4		Recipe 5		Recipe 6 (preferred)	
	[%wet]	[%dry]	[%wet]	[%dry]	[%wet]	[%dry]	[%wet]	[%dry]	[%wet]	[%dry]	[%wet]	[%dry]
Egg Albumen	0.9	1.1	0.5	0.6			1.4	2.0	1.1	1.3	1.2	1.4
Castor Sugar			10.2	12.0					5.0	6.0		
Des. Coconut	41.8	49.0	51.0	58.8	45.5	49.3	29.5	41.8	37.6	44.2	25.0	28.8
Glucose 46 DE			10.2	9.9								
Coconut milkpowder							9.5	13.5			34.2	39.4
Sugar 70%	30.3	25.6	15.3	12.7			21.4	21.9	30.9	26.2	18.7	15.5
Icing Sugar	20.2	24.3	5.1	6.0	45.5	50.7	14.3	20.8	18.2	22.1	12.5	14.8
Water	6.7	0.0	7.7	0.0	9.0	0.0	23.8	0.0	7.2	0.0	8.3	0.0
Moisture Content %	17.1		15.6		40.4		31.4		17.7		15.5	
Total Sugar %		50.0		40.7		50.7		42.7		54.3		30.3

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Table B

	[%wet]	[%dry]
Egg Albumen	1.6	1.7
Castor Sugar	31.9	36.2
Almond fines	16.0	17.7
Almond chopped	39.9	44.4
Water	10.6	0.0

Molsture Content %	11.9	
Total Sugar %		36.2

Table C

	[%wet]	[%dry]
Egg Albumen	1.6	1.7
Castor Sugar	31.9	36.2
Hazelnut fines	16.0	17.7
Hazelnut chopped	39.9	44.4
Water	10.6	0.0

Moisture Content %	11.6	
Total Sugar %		36.2

CLAIMS:

1. A method for preparing an edible product provided with an envelope formed by a three-dimensionally curved layer or plate of edible crunchy material, whereby a batter containing between 30% - 50% dry weight sugar and between 40% - 70% dry weight nut material is heated between two curved surfaces of a baking device at a temperature between 100°C and 180°C for a period of 30 - 420 seconds to form a crunchy envelope, and whereafter the crunchy envelope is filled with soft material.

2. A method according to claim 1, characterized in that the batter contains pieces of nut material having a dimension of more than 0.5 mm which pieces of nut material are dried and/or toasted and/or roasted.

3. A method according to claim 2 wherein the dimension of the pieces of nut material is smaller than 2 mm.

4. A method according to claim 2 wherein the dimension of the pieces of nut material is smaller than 1.5 mm.

5. A method according to any one of claims 1 to 4, characterized in that said batter contains 8 - 45% moisture and is heated at a temperature of 120 - 160°C for a period of 100 - 350 seconds.

6. A method according to claim 5 wherein said batter contains 8 - 25% moisture.

7. A method according to any one of claims 1 to 6, characterized in that maximally 40% dry weight coconut milk

powder and/or maximally 2% dry weight egg product is added to said batter.

8. A method according to any one of claims 1 to 7, characterized in that 10 - 40% dry weight coconut milk powder and/or about 0.5 - 1.5% dry weight egg product is added to said batter.

9. A method according to any one of claims 1 to 8, characterized in that said heating takes place at essentially atmospheric pressure.

10. A method according to any one of claims 1 to 8, characterized in that said heating takes place at less than 0.1 bar overpressure.

11. A method according to any one of claims 1 to 10, characterized in that said layer comprises several partially formed spaces, and in that parts of the layer which each comprise a space are separated from each other after said heating.

12. A method according to any one of claims 1 to 11, characterized in that the nut material is coconut.

13. A method according to any one of claims 1 to 11, characterized in that the nut material is almond.

14. A method according to any one of claims 1 to 11, characterized in that the nut material is hazelnut.

15. An edible product comprising a soft edible material at least partially provided with an envelope of a crunchy material, the envelope of crunchy material containing between 30% - 50% dry weight sugar and between 40% - 70% dry weight nut material and the soft edible material being filled into the crunchy envelope.

16. An edible product according to claim 15, characterized in that the crunchy material contains pieces of nut material having a dimension of more than 0.5 mm, which pieces of nut material are dried and/or toasted and/or roasted.

17. An edible product according to claim 16 wherein the dimension of the pieces of nut material is smaller than 2 mm.

18. An edible product according to claim 16 wherein the dimension of the pieces of nut material is smaller than 1.5 mm.

19. An edible product according to any one of claims 15 to 18, characterized in that the nut material is coconut.

20. An edible product according to any one of claims 15 to 18, characterized in that the nut material is almond.

21. An edible product according to any one of claims 15 to 18, characterized in that the nut material is hazelnut.

22. An edible product according to any one of the claims 15 to 21, characterized in that said crunchy material contains maximally 40% coconut milk powder and/or maximally 2% egg product.

23. An edible product according to claim 22 wherein said crunchy material contains 0.5 to 1.5% egg product.

24. An edible product according to any one of the claims 15 to 23, characterized in that said soft edible material contains nut material of the same kind of nut as nut material of the crunchy material.

25. An edible product according to any one of the claims 15 to 24, characterized in that said crunchy envelope material is provided with a layer of chocolate on the outside.

26. An edible product according to claim 25, characterized in that on or in the chocolate small pieces of nut material are provided.

27. An edible product according to claim 26 wherein the small pieces of nut material are dried or roasted.

28. An edible product according to any one of the claims 15 to 27, characterized in that said soft edible material is enveloped by a layer of chocolate at the location where it is not enveloped by the crunchy material.

29. An edible product according to claim 28 wherein the layer of chocolate contains small pieces of nut material.

30. An edible product according to claim 29 wherein the small pieces of nut material are dried or toasted.

31. An edible product prepared in accordance with the method of any one of the claims 1 to 14.

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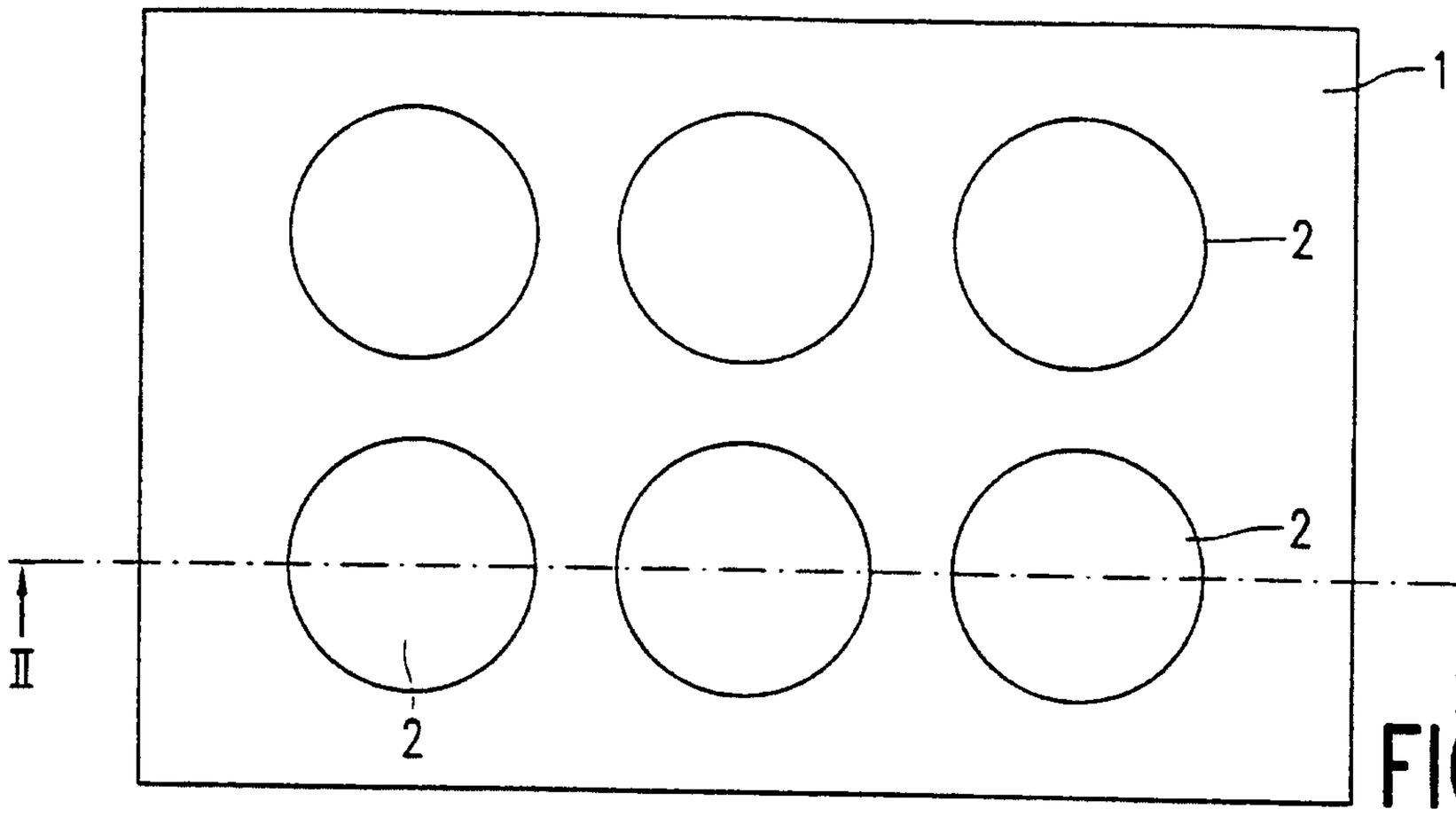

FIG. 1

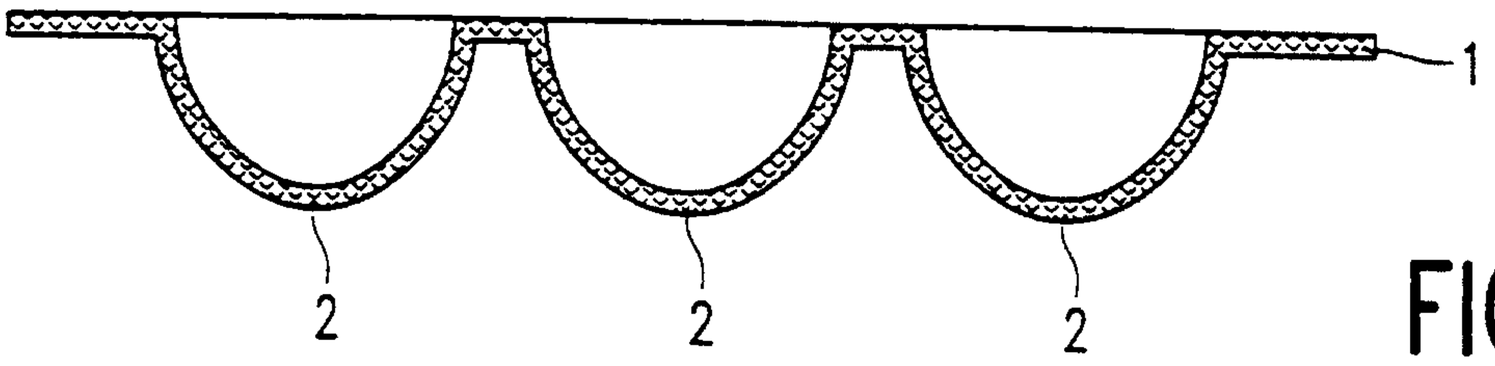

FIG. 2

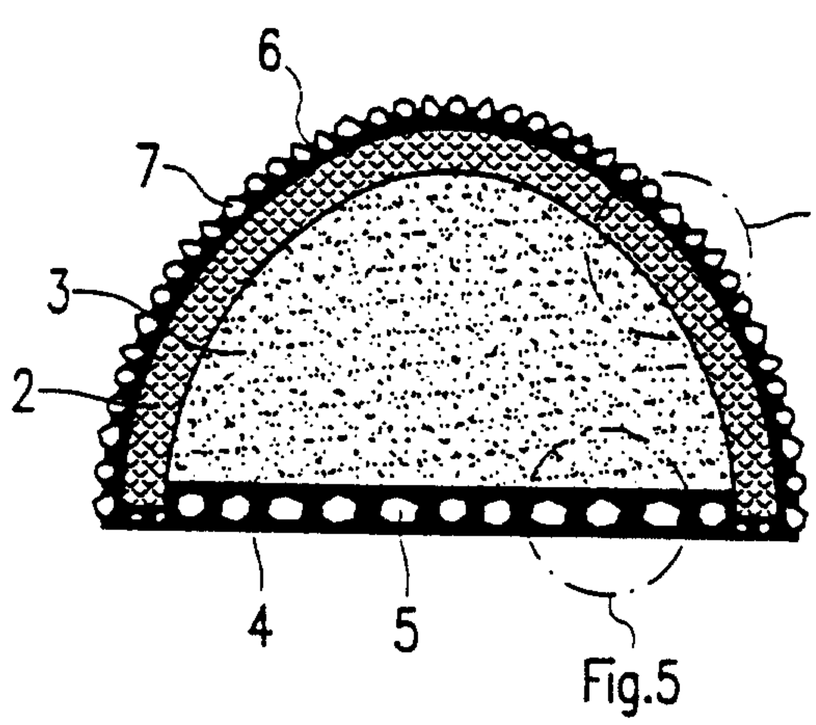

FIG. 3

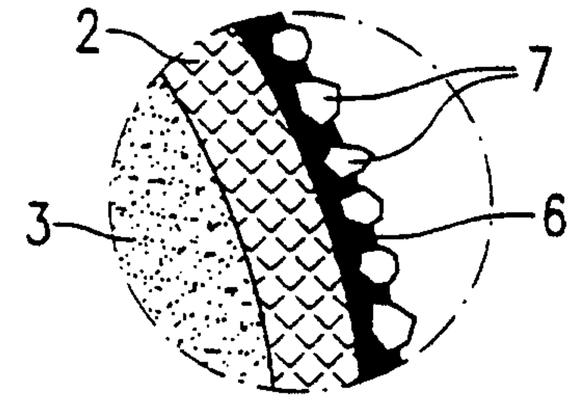

FIG. 4

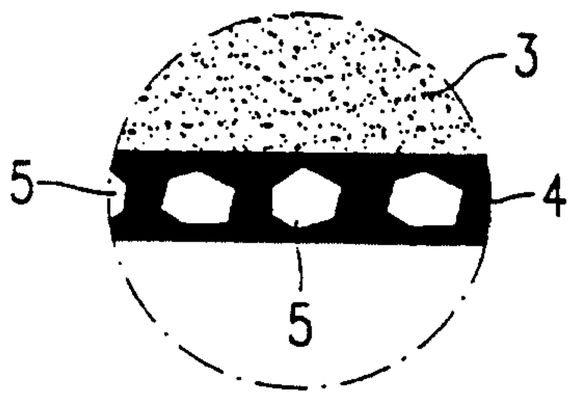

FIG. 5

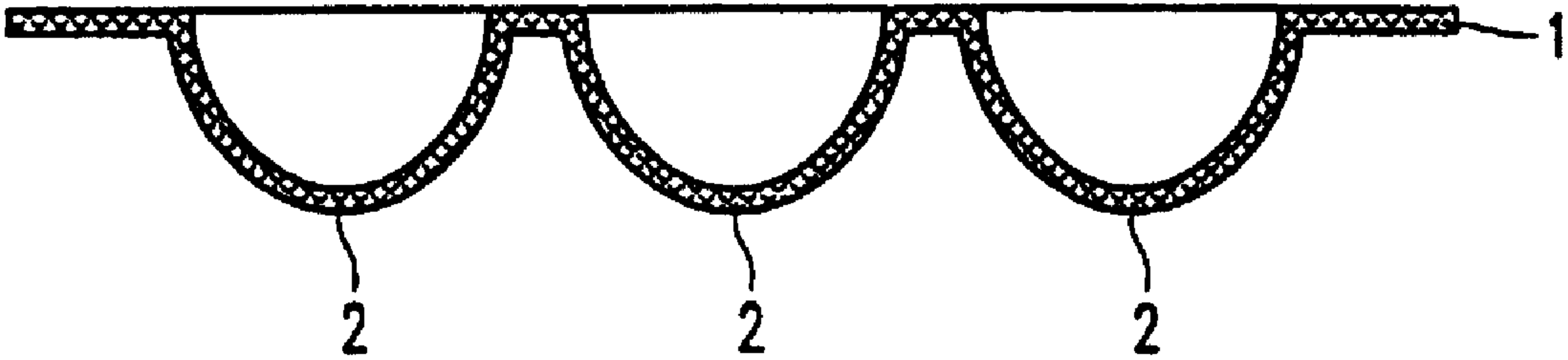

Fig.4

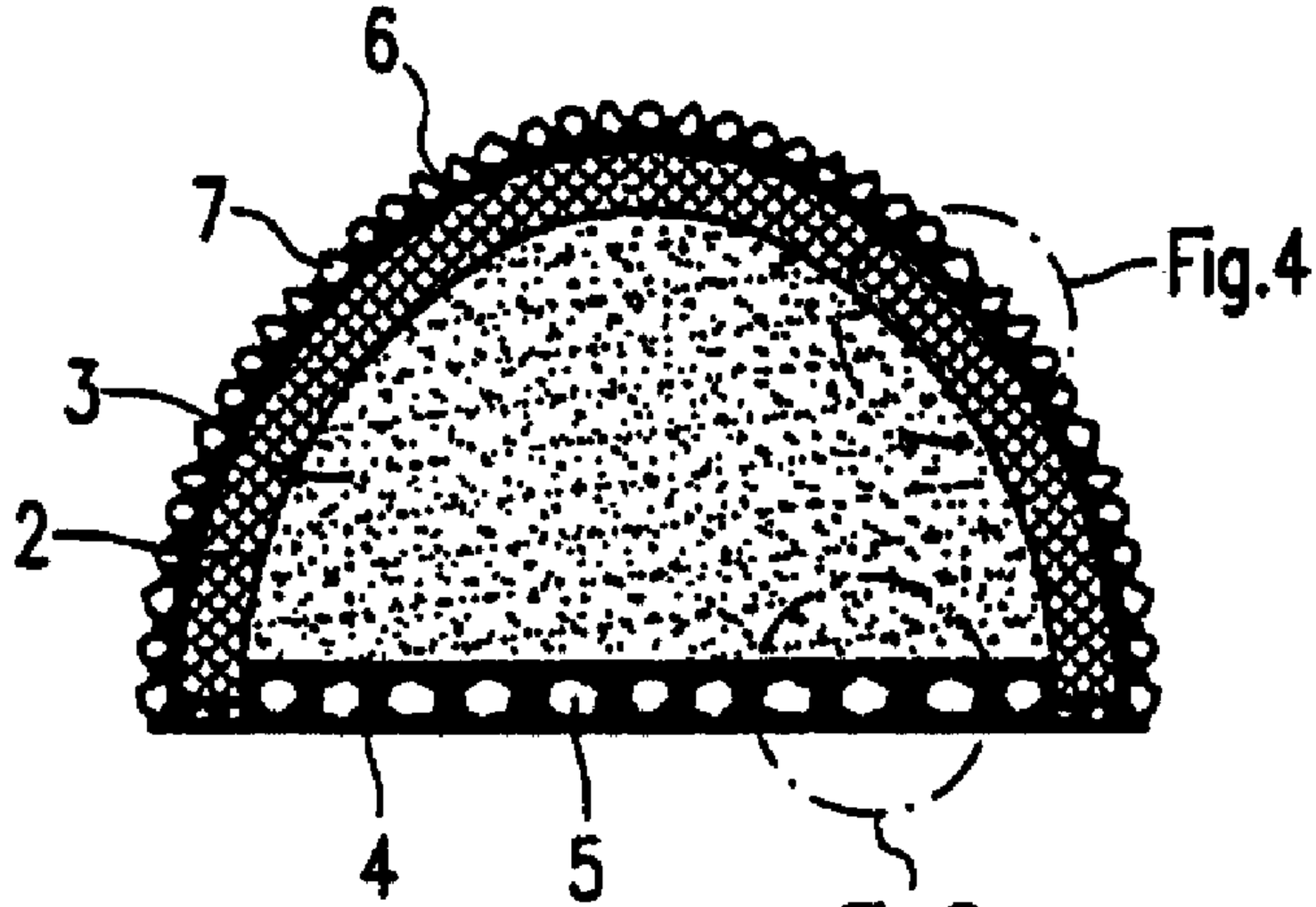

Fig.5