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(54) **Refrigerating cabinet with mould for forming ice cubes**

Kühlschrank mit Zellen zum Herstellen von Eiswürfeln

Réfrigérateur avec des moules pour la formation de glaçons

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Description

[0001] The present invention refers to a refrigerating cabinet, of the type comprising a compartment within which at least a mould for forming ice cubes can be housed, said mould having a plurality of sockets apt to be filled with water and an axis of minimum encumbrance, as well as to an improved mould, which can be used in connection with a refrigerating cabinet.

[0002] As generally known, refrigerating cabinets equipped with a compartment for the storage of fresh food and a freezer compartment or refrigerating cabinets equipped with either one freezer compartment or one compartment for the storage of fresh food, can be provided with moulds for forming ice cubes, which are usually obtained by a plastic or metal-sheet tray.

[0003] Said trays have dividing inserts inside, which define a number of sockets arranged on a horizontal plane, usually in a substantially chequered pattern.

[0004] For its use, the sockets of the tray are first filled up with water and then the tray is placed in its horizontal position either inside the freezer compartment or in a special compartment provided in the compartment for the storage of fresh food, so as that the water contained in the tray can solidify.

[0005] As a result, ice cubes are formed inside the sockets, which can be released from the dividing inserts through a mechanical action. To this purpose, dividing inserts are sometimes mutually articulated and fitted with a lever, whose actuation eases the ice cubes release.

[0006] Many improvements and changes have been made to the type of mould for forming ice cubes described above, as well as to its use; specifically the use of individual plastic cups loused in the tray to define the sockets have been provided instead of the dividing inserts, so as to make ice cubes release easier through deformation of the cup itself.

[0007] The trays for forming ice cubes previously described have However quite a number of drawbacks.

[0008] First of all, the risk of pouring part of the water contained in the not very deep trays, when transferring them from the water tap to the refrigerating cabinet, is extremely high. As a result, not only the kitchen floor and furniture can be splashed with water, but especially the bottom and sides of the tray itself will be wet and tend to adhere to the compartment walls of the refrigerating cabinet during the water hardening process.

[0009] Similarly, once the trays are placed inside the compartment in the refrigerating cabinet and a tray is accidentally hit while the water contained in it has not yet turned to ice, then water may be splashed all over in the compartment.

[0010] Above all, said trays take a lot of space inside the compartment where they are positioned; to this purpose it should be appreciated that quite often the freezer compartment where said trays are usually placed has small dimensions; as a matter of fact, the known solution always provide for said trays to be placed in a horizontal position, thus reducing the space available for the storage of food. Document DE-A-1451 058 in the name of Siemens-Electrogeräte GmbH discloses a possible solution of space encumbrance inside the compartment, presenting a tray that can be used both in horizontal and in vertical position, yet it do not solve the above disadvantages since it presents an open surface that can be port for possible contamination agents, and it is not efficient in use once it is used in vertical position.

[0011] It should also be appreciated that the food to be stored cannot be placed on top of said known trays if water has not yet solidified, or due to poor cleanliness, since the trays are usually not provided with a lid.

[0012] The extraction of the ice cubes from said trays also requires handling the latter to a considerable extent, with a possible ice cubes contamination.

[0013] Finally, the sublimation of solidified water from the trays expedites a phenomenon, i.e. the ice formation on the refrigerating cabinet walls, which should be always reduced in the refrigerating cabinets.

[0014] The present invention has the aim to solve the above drawbacks and provide a refrigerating cabinet equipped with a mould for forming ice cubes, as well as a mould, which has a more efficient and improved realization and performance compared to previous solutions.

[0015] In this frame, it is the main aim of the present invention to provide a refrigerating cabinet equipped with a mould for forming ice cubes, which detracts as little space as possible from the space for the storage of food.

[0016] A second aim of the present invention is to provide a refrigerating cabinet wherein water dripping caused by accidental shaking or tilting of a mould for forming ice cubes is either minimized or removed.

[0017] A third aim of the present invention is to provide a refrigerating cabinet equipped with a mould for forming ice cubes, which hinders the water contamination during its solidification and ice cubes release.

[0018] A fourth aim of the present invention is to provide a refrigerating cabinet equipped with a mould for forming ice cubes, which allows the distribution of ice cubes without the need of picking them up either with one's hands or with the aid of tongs.

[0019] A fifth aim of the present invention is to provide a mould for forming ice cubes, which can be employed more rationally inside a refrigerating cabinet.

[0020] In order to achieve such aims, it is the object of the present invention a refrigerating cabinet, a mould for forming ice cubes and a method for forming ice cubes incorporating the features of the annexed claims, which form an integral part of the present description.

[0021] Further aims, features and advantages of the present invention will become apparent from the following detailed description and the annexed drawings, which are supplied by way of non limiting example, wherein:

- Fig. 1 shows schematically a mould for forming ice cubes for a refrigerating cabinet, according to the present invention;
- Fig. 2 shows schematically a vertical section of a mould for forming ice cubes for a refrigerating cabinet, according to the present invention;
- Fig. 3 shows schematically the mould for forming ice cubes of Fig. 1 in a first working position;
- Fig. 4 shows schematically the mould for forming ice cubes of Fig. 1 in a second working position;
- Fig. 5 shows schematically the mould for forming ice cubes of Fig. 1 in a third working position;
- Fig. 6 shows schematically the mould for forming ice cubes of Fig. 1 in a possible application;
- Fig. 7 shows schematically a possible embodiment of a mould for forming ice cubes for a refrigerating cabinet, according to the present invention;
- Fig. 8 shows schematically a vertical section of the mould for forming ice cubes of Fig. 7.

[0022] Fig. 1 shows schematically a mould for forming ice cubes 1 according to the present invention, which consists of an internally hollow housing 2, having a generally parallelepipedon shape; said housing 2 is completely closed save for a side opening 3, which is provided for water inlet; said opening 3 may be fitted with a plug or similar closing means, not represented in the figures for simplicity's sake.

[0023] The housing 2 can be manufactured in two halves to be joined and sealed together, either fixedly or removably through the aid of a gasket for easier cleaning inside; this may be convenient when the use of thermosetting plastic materials or metal materials is desired.

[0024] Alternatively, the mould 1 can be manufactured as a one-piece element through a moulding or blow-moulding process in a simple and fast way.

[0025] In the annexed figures, the internal elements of the mould 1 are directly visible also from the outside of the housing 2 for simpler representation (to this purpose, it is assumed that the mould 1 is manufactured with a transparent material).

[0026] Three arrays of sockets 7 are defined within the housing 2, indicated with 4, 5 and 6 from top to bottom, respectively, which are arranged one on top of the other and extend between the two walls of the housing 2 having larger surface. Depending upon the chosen embodiment, the arrays of sockets 7 can be manufactured integrally with one of the two halves of the housing 2, or integrally with the one-piece element realizing it.

[0027] The sockets 7 consist of substantially hemispheric recesses or cavity, which are separated between them by partition walls 8. In the above example, arrays 4 and 5 carry an equal number of sockets 7 (six sockets), even if a different number of sockets may be contained; the array 6 forming the bottom of the housing 2 carries a higher number of sockets 7 compared to arrays 4 and 5 (eight sockets).

[0028] The three arrays 4, 5 and 6 substantially define three areas inside the housing 2, indicated with 9, 10 and 11 respectively, which are open on the side closer to the opening 3; said three areas 9, 10 and 11 are also in communication on the opposite side through a calibrated passageway 12.

[0029] Fig. 2 shows a section of a likely embodiment of the mould for forming ice cubes 1, where it can be seen how the three arrays 4, 5 and 6 actually define three areas 9, 10 and 11; in this figure it can be seen also how the partition walls 8 have a depression 15, whose function is to improve the throughflow and the levelling of water between the sockets 7.

[0030] From Fig. 2 it can be seen also how above the partition walls 8 there is enough space to let ice cubes go through, when they have to be released from the sockets, as better described in the following.

[0031] Above all, the section represented in Fig. 2 shows the presence of a axis A of minimum encumbrance, i.e. an axis according to which the housing 2 has a substantially smaller dimension than the one of the other two axis; such a dimension is substantially equal to the width of the sockets 7.

[0032] In Fig. 3 the mould for forming ice cubes 1 is represented in a first operating position, which is vertical, i.e. the position where water is filled in it through the opening 3.

[0033] As it can be appreciated, in this position, water is filled to the same level in all three areas 9, 10 and 11, since in this position they intercommunicate on their bottom through the calibrated passageway 12. During this step, water is filled in the housing 2 until it reaches a preset level 16, indicated by a proper notch 20, engraved and clearly visible from outside the housing 2, which is manufactured in a substantially transparent material.

[0034] Then, as represented in Figs. 4 and 5, the mould for forming ice cubes 1 is rotated (counterclockwise, with reference to said figures) so that the water contained in the areas 9, 10 and 11 can be distributed inside the sockets 7 of the three arrays 4, 5 and 6.

[0035] Since the number of sockets 7 in the arrays 4 and 5 is smaller than the number of sockets provided for in the array 6, and due to the fact that areas 9, 10 and 11 are initially filled with the same volume of water, it is clear that areas 9 and 10 will have water in excess compared to the water required to fill the sockets 7 of arrays 4 and 5.

[0036] During rotation of the mould 1, such an excess water is free to overflow towards the array 6 of the area 11 or simply flow down through the calibrated passageway 12; thus, an equal filling of sockets 7 in all three arrays 4, 5 and 6 will be reached.

[0037] To this purpose, as it can be noticed, the partition walls 8 ensure water levelling in the adjacent sockets 7 through their respective depressions 15; they have the function of avoiding a continuous ice crust formation over any of said arrays 4, 5 or 6.

[0038] Once the mould 1 is placed in the position of Fig. 5, and consequently the three arrays of sockets are filled with water, the mould itself can be introduced inside a freezer compartment of the refrigerating cabinet according to the invention, not shown here, i.e. with the arrays 4, 5 and 6 of sockets 7 being arranged one on top of the other, so that the space occupied in plan by the housing 2 is reduced to a strip having a width substantially equal to the diameter of a socket 7.

[0039] It should also be noted that the passageway 12, may be restricted to let the area 9 intercommunicate with the area 10 alone, if so required.

[0040] In this instance, in the mould 1 water inlet will be provided until a level 16B is reached (Fig. 3), being higher than the level 16 of areas 9 and 10 only; according to such an embodiment the area 11 and the relevant array 6 of sockets 7 will be filled only by overflow from the overstanding arrays 4 and 5. Said solution allows for eventually obtaining a passageway 12 having a larger section, requiring less moulding precision for the manufacture of the housing 2.

[0041] Fig. 6 shows the mould for forming ice cubes 1 in a possible way of arranging it in the refrigerating cabinet according to the present invention. In this figure, number 17 indicates a door of a refrigerator compartment, for example of the freezing compartment, whose internal face or inner door panel is fitted with proper racks or seats 18 to house two moulds 1 in their working position.

[0042] In this figure number 19 indicates some cavities obtained in the racks 18 allowing for the insertion of one's hand fingers, so making the withdrawal of moulds 1 easier.

[0043] When water in the sockets 7 has solidified and ice cubes are needed, it will be enough to withdraw the housing 1 from the compartment of the refrigerating cabinet wherein it is housed and apply a twisting force to the housing 2, similarly to the operation required for the moulds according to the prior art, in order to realize the release of the ice cubes from the sockets 7.

[0044] As previously mentioned, since arrays 4, 5 and 6 are sufficiently apart from each other, the expulsion of the ice cubes is possible from the sockets 7 in the areas 9, 10 and 11 and subsequently through the opening 3 of the housing 2, for example to be expelled directly in an ice-bucket, not shown here for simplicity's sake.

[0045] Figs. 7 and 8 represent a mould for forming ice cubes 101 whose geometric configuration is suitable for allowing a blow-moulding manufacturing process, and therefore manufactured in one single piece.

[0046] Said mould 101 consists of a housing 102 having a circular opening 103, which in this instance is placed on a side wall of the housing 102, and of three arrays 104, 105, 106 of sockets 107, with their respective partition walls 108 and levelling depressions 115. As it can be noticed, also in this instance a calibrated passageway 112 is provided, which puts in communication areas 109, 110 and 111 defined by the arrays 104, 105, 106 within the housing 102.

[0047] Moreover, the mould 101 has wings 122, which are used to insert the mould for forming ice cubes 101 in proper guides when it is placed in the racks 18 of the door 17 (Fig. 6).

[0048] In the instance of the mould shown in Fig. 7, an overflow hole 120 may be provided instead of a notch (20, Fig. 3) to mark the filling level 116, to allow for excess water to flow out of the housing 120 during the filling operation; this may prove useful should said notch not be directly visible, for example because the housing 102 is manufactured in a matt material.

[0049] Fig. 8 represents a section of the mould for forming ice cubes 101 of Fig. 7, where it can be appreciated how the configuration of areas 109, 110, 111 and of sockets 107 may concur to form a geometric configuration to make mechanical action on sockets 107 easier.

[0050] In particular, such a geometric configuration makes it possible to grip the sockets 107 directly with one's fingers; this also allows for licking the rear and bottom sides of the sockets with some hot water eventually used to favour ice cubes release.

[0051] Moreover, according to a further variant embodiment, the opening 103 may be conceived in order to favour the ice cubes distribution, i.e. avoiding the use of tongs or even anybody's hands to distribute the ice cubes in glasses, carafes or other containers.

[0052] Specifically to this purpose, the opening 103 can be provided in such a way to allow the passage of one ice cube at a time, for example as provided in dispenser systems for sweets handy packs; wherever required, said opening 103 can be fitted with a lid or movable partition.

[0053] The features and the advantages of the present invention are clear from the above description.

[0054] According to the invention, due to the fact that the mould for forming ice cubes has a highly reduced thickness and that it can be placed in an upright position, the space .required in plan in the compartment of a refrigerating cabinet is smaller.

[0055] To this purpose, the refrigerating cabinet according to the invention is advantageously. equipped with a door whose inner-door panel has at least a proper recess or seat to house the improved mould for forming ice cubes.

[0056] A further advantage is due to the fact that the mould described by way of example is manufactured, which is realized as a closed housing, can be handled in a simpler and safer manner with respect to the known state of the art, removing all the problems associated with water dripping caused by accidental shaking or tilting deriving from the use of flat trays.

[0057] Moreover, the use of a closed housing allows for reducing or totally removing any contacts with the ice cubes, either directly or with the aid of tools, with the result of a more comfortable and healthier use.

[0058] The closed housing is also advantageous

while the mould is staying inside the freezer compartment, as it protects the cubes from contamination and prevents that water, while sublimating, determines condensation on the freezer compartment walls, with the consequent frost forming; as a result, defrost cycle times will be shorter for the refrigerating cabinets.

[0059] By way of example, the guiding wings (122) for inserting the mould in its relevant guides or seats on the inner-door panel may be configured as hooking means to ensure coupling on proper supports or even inside the selected compartment.

[0060] According to a further variant embodiment, the mould for forming ice cubes may be equipped with a pedestal or a flat base for allowing its location directly on the bottom of the compartment, instead of using the inner door panel.

[0061] The materials which can be used for the manufacture of the mould are available from a wide selection, either plastic or metal; plastic materials can be either clear or matt, according to technical and aesthetic requirements, either hard or flexible according to their moulding and assembly process; as mentioned above, the shapes of the mould and its various elements may differ from the ones described by way of example in order to favour the manufacturing operations.

[0062] As previously mentioned, if the water level inside the mould is not visible when matt materials are used, then proper overflow holes may be provided in the mould housing at the height of the preset filling levels, so as to prevent water from exceeding a preset volume.

[0063] When hard materials are employed, the release of ice cubes can be simply obtained through the thermal action of tap water, whereas when flexible materials are used, the exertion of a mechanical actuation will favour the release of the ice cubes.

[0064] The number of arrays and sockets will obviously differ according to the needs and geometrical requirements of the various possible installations; also the shape of the sockets may differ from the one described above, based on manufacturing and aesthetic necessity.

[0065] Finally, the opening for water inlet can be provided on one of the sides walls having greater surface of the mould, as shown in the Fig. 7, to ensure the filling of the mould by keeping it in its horizontal position. Obviously, this can be reached by properly positioning the notch 20 or the overflow hole replacing it.

[0066] In this instance, the mould will be positioned so as to have its axis (A) of minimum encumbrance in a vertical position; then the mould will be lifted up until the axis (A) of minimum encumbrance reaches its horizontal position. Thereafter the mould will be rotated to let the water introduced in the housing to flow to all the sockets of the arrays as foreseen, and be ready to be housed inside the refrigerating cabinet.

Claims

1. Refrigerating cabinet, comprising a compartment within which at least a mould for forming ice cubes can be arranged, said mould:

   - having a plurality of sockets (7) apt to be filled with water;
   - presenting a minimum encumbrance size substantially of the same width of said sockets (7);
   - and being arranged inside said compartment of the refrigerating cabinet so as to have said minimum encumbrance size protruding inside the cabinet,

   characterized in that said mould (1, 101) consists of a closed housing (2, 102) being internally hollow and provided with common water inlet means (3, 103).

2. Refrigerating cabinet, according to claim 1, **characterized in that** said compartment has a door (17) wherein one or more seats (18) are defined to arrange one or more of said moulds (1, 101), and/or has guides and/or hooks for at least one of said moulds (1, 101) are defined.

3. Refrigerating cabinet, according to claim 1, **characterized in that** said sockets (7) are arranged in a way that in use said sockets (7) can be almost completely filled with water.

4. Refrigerating cabinet, according to claim 1, **characterized in that** within said housing (2, 102) at least two arrays (4, 5, 6; 104, 105, 106) of sockets (7, 107) are provided, said arrays (4, 5, 6; 104, 105, 106) being one on top of the other when said mould (1, 101) is arranged in said compartment.

5. Refrigerating cabinet, according to claim 4, **characterized in that** said arrays (4, 5, 6; 104, 105, 106) of sockets (7, 107) define separate areas (9, 10, 11; 109, 110, 111) within said housing (2, 102), at least some of said areas (9, 10, 11; 109, 110, 111) being in particular intercommunicating through at least a calibrated passageway (12, 112).

6. Refrigerating cabinet, according to claim 1, **characterized in that** said housing (2, 102) is equipped with means (20, 120) for indicating the maximum water volume to be let in.

7. Refrigerating cabinet, according to at least one of the previous claims, **characterized in that** said mould (1, 101) has at least an opening (3, 103), whose configuration is fit for the distribution of ice cubes from said sockets (7, 107) outside said housing (2).

8. Method for forming ice cubes, which uses a mould (1, 101) for forming ice cubes being filled with water and then housed inside a refrigerating cabinet to cause water solidification, **characterized in that** it provides for the following steps:

a) introduction of water in a mould (1, 101) consisting of an internally hollow closed housing (2, 102), which contains arrays (4, 5, 6; 104, 105, 106) of sockets (7, 107) defining separate areas (9, 10, 11; 109, 110, 111) within the housing (2, 102) itself, said water inlet occurring through a common opening (3, 103) of the housing (2, 102) being arranged above the inlet of said areas (9, 10, 11; 109, 110, 111), said mould (1, 101) being placed with its opening (3, 103) on the top and presenting its minimum encumbrance size in a horizontal position during its filling;
b) rotation of the mould (1, 101) in order to cause a flow of the water introduced in the housing (2, 102) to all sockets (7, 107) of the provided arrays (4, 5, 6; 104, 105, 106);
c) location of the arrays (1, 101) in the refrigerating cabinet.

9. Method for forming ice cubes, according to claim 8, **characterized in that** it provides that when said sockets (7) are filled with water, they can be almost completely filled.

10. Method for forming ice cubes, according to claim 8, **characterized in that** it provides:

i) filling of the mould (101) in such a position to have the minimum encumbrance size in vertical;
ii) lifting the mould (101) until the minimum encumbrance size reaches an horizontal position;
iii) steps b) and c).

11. Mould for forming ice cubes of the type:

- having a plurality of sockets apt to be filled with water,
- presenting a minimum encumbrance size substantially of the same width of said sockets (7),
- and being suitable to be arranged within a refrigerating cabinet so as to have said minimum encumbrance size protruding inside the cabinet, to obtain solidification of the water contained in the sockets (7), **characterized in that** said mould (1, 101) consists of a closed housing (2, 102) being internally hollow and provided with common water inlet means (3, 103).

12. Mould for forming ice cubes, according to claim 11, **characterized in that** said sockets (7) are arranged in a way that in use said sockets (7) can be almost completely filled with water.

13. Mould for forming ice cubes, according to claim 11, **characterized in that** at least two arrays (4, 5, 6; 104, 105, 106) of sockets (7, 107) are provided within said housing (2, 102), said arrays (4, 5, 6; 104, 105, 106) being arranged one on top of the other when said mould (1, 101) is arranged in said compartment, where in particular said arrays (4, 5, 6; 104, 105, 106) of sockets (7, 107) define distinct areas (9, 10, 11; 109, 110, 111) within said housing (2, 102), at least some of said areas (9, 10, 11; 109, 110, 111) being intercommunicating through at least a calibrated passageway (12, 112).

14. Mould for forming ice cubes, according to claim 13, **characterized in that** said housing (2, 102) is equipped with means (20, 120) for indicating the maximum water volume to be let in.

15. Mould for forming ice cubes, according to at least one of the previous claims, **characterized in that** said mould (1,101) is manufactured in moulded or blow-moulded plastic material, or in metal material, and in particular is obtained by joining two movable half-elements.

16. Mould for forming ice cubes according to at least one of the previous claims, **characterized in that** it has a pedestal for its arrangement within the refrigerating cabinet.

17. Mould for forming ice cubes, according to at least one of the previous claims, **characterized in that** said mould (1,101) has at least one hole (120) suitable for allowing the overflow of the water when this latter reaches the maximum level required inside said housing (2, 102).

18. Mould for forming ice cubes, according to at least one of the previous claims, **characterized in that** said sockets (7, 107) are separated between them by partition walls (8, 108), which are provided with levelling depressions (15, 115).

Patentansprüche

1. Kühlschrank, der ein Abteil umfasst, innerhalb dessen mindestens eine Form zum Bilden von Eiswürfeln angeordnet sein kann, wobei die Form:

- eine Mehrzahl von Aushöhlungen (7) aufweist, die geeignet sind, um mit Wasser befüllt zu werden,
- eine minimale. Hindernisgröße aufweist, die im Wesentlichen dieselbe Breite wie die Aushöh-

lungen (7) besitzt;
- und diese in dem Abteil des Kühlschranks angeordnet ist, um die minimale Hindernisgröße aufzuweisen, die in das Gehäuse hineinragt,

dadurch gekennzeichnet, dass die Form (1, 101) aus einem geschlossenen Gehäuse (2, 102) besteht, das in seinem Inneren einen hohlen Zustand aufweist und mit gemeinsamen Wasser-Einlassmitteln (3, 103) ausgestattet ist.

2. Kühlschrank nach Anspruch 1, **dadurch gekennzeichnet, dass** das Abteil eine Tür (17) aufweist, wobei eine oder mehrere Aufnahmevorrichtungen (18) ausgebildet sind, um eine oder mehrere der Formen (1, 101) zu definieren, und/oder für mindestens eine der Formen (1, 101) Führungen und/oder Haken aufweist.

3. Kühlschrank nach Anspruch 1, **dadurch gekennzeichnet, dass** die Aushöhlungen (7) in einer Weise angeordnet sind, dass bei der Verwendung die Aushöhlungen (7) nahezu vollständig mit Wasser befüllt werden können.

4. Kühlschrank nach Anspruch 1, **dadurch gekennzeichnet, dass** in dem Gehäuse (2, 102) mindestens zwei Anordnungen (4, 5, 6; 104, 105, 106) von Aushöhlungen (7, 107) vorgesehen sind, wobei die Anordnungen (4, 5, 6; 104, 105, 106) einen übereinander angeordneten Zustand aufweisen, wenn die Form (1, 101) in dem Abteil eingerichtet ist.

5. Kühlschrank nach Anspruch 4, **dadurch gekennzeichnet, dass** die Anordnungen (4, 5, 6; 104, 105, 106) von Aushöhlungen (7, 107) getrennte Bereiche (9, 10, 11; 109, 110, 111) innerhalb des Gehäuses (2, 102) ausbilden, wobei mindestens einige der Bereiche (9, 10, 11; 109, 110, 111) insbesondere durch mindestens einen kalibrierten Durchgang (12, 112) miteinander in Verbindung stehen.

6. Kühlschrank nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gehäuse (2, 102) mit Mitteln (20, 120) zum Anzeigen der Höchstmenge an Wasser, welches eingelassen werden kann, ausgestattet ist.

7. 'Kühlschrank nach mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Form (1, 101) mindestens eine Öffnung (3, 103) aufweist, deren Gestalt für die Austeilung von Eiswürfeln von den Aushöhlungen (7, 107) aus dem Gehäuse (2) heraus tauglich ist.

8. Verfahren zum Bilden von Eiswürfeln, das eine Form (1, 101) zum Bilden von Eiswürfeln verwendet, die mit Wasser gefüllt und dann in einem Kühlschrank untergebracht wird, um das Festwerden von Wasser zu veranlassen, **dadurch gekennzeichnet, dass** es die folgenden Schritte vorsieht:

a) Einleiten von Wasser in eine Form (1, 101), welche aus einem in seinem Inneren hohlen geschlossenen Gehäuse (2, 102) besteht, das Anordnungen (4, 5, 6; 104, 105, 106) von Aushöhlungen (7, 107) enthält, die getrennte Bereiche (9, 10, 11; 109, 110, 111) innerhalb des Gehäuses (2, 102) selbst ausbilden, wobei der Wassereinlass durch eine gemeinsame Öffnung (3, 103) des Gehäuses (2, 102) erfolgt, die über dem Einlass der Bereiche (9, 10, 11; 109, 110, 111) angeordnet ist, wobei die Form (1, 101) mit ihrer Öffnung (3, 103) obenauf untergebracht ist und während des Füllvorgangs ihre minimale Hindernisgröße in einer horizontalen Position aufweist;
b) Drehen der Form (1, 101), um ein Fließen des Wassers, welches in das Gehäuse (2, 102) eingeleitet wird, zu allen Aushöhlungen (7, 107) der ausgebildeten Anordnungen (4, 5, 6; 104, 105, 106) zu verursachen;
c) Unterbringen der Form (1, 101) in dem Kühlschrank.

9. Verfahren zum Bilden von Eiswürfeln nach Anspruch 8, **dadurch gekennzeichnet, dass** es vorsieht, dass wenn die Aushöhlungen (7) mit Wasser gefüllt sind, diese nahezu vollständig gefüllt sein können.

10. Verfahren zum Bilden von Eiswürfeln nach Anspruch 8, **dadurch gekennzeichnet, dass** es folgendes vorsieht:

i) Füllen der Form (101) in einer solchen Position, um die Ausdehnung mit minimaler Behinderung in der Vertikalen zu erhalten;
ii) Anheben der Form (101), bis die Ausdehnung mit minimaler Behinderung eine horizontale Position erreicht;
iii) Schritte b) und c).

11. Form zum Bilden von Eiswürfeln, wobei der Typ

- eine Mehrzahl von Aushöhlungen aufweist, die geeignet sind, um mit Wasser befüllt zu werden,
- eine minimale Hindernisgröße aufweist, die im Wesentlichen dieselbe Breite wie die Aushöhlungen (7) besitzt;
- und der passend ist, um in einem Kühlschrank angeordnet zu sein, um die minimale Hindernisgröße aufzuweisen, die in den Kühlschrank hineinragt, um ein Festwerden des Wassers zu erzielen, das in den Aushöhlungen (7) enthal-

ten ist, **dadurch gekennzeichnet, dass** die Form (1, 101) aus einem geschlossenen Gehäuse (2, 102) besteht, das in seinem Inneren einen hohlen Zustand aufweist und mit gemeinsamen Wassereinlass-Mitteln (3, 103) ausgestattet ist.

12. Form zum Bilden von Eiswürfeln nach Anspruch 11, **dadurch gekennzeichnet, dass** die Aushöhlungen (7) in einer Weise angeordnet sind, dass bei der Verwendung die Aushöhlungen (7) nahezu vollständig mit Wasser befüllt werden können.

13. Form zum Bilden von Eiswürfeln nach Anspruch 11, **dadurch gekennzeichnet, dass** mindestens zwei Anordnungen (4, 5, 6; 104, 105, 106) von Aushöhlungen (7, 107) in dem Gehäuse (2, 102) vorgesehen sind, wobei die Anordnungen (4, 5, 6; 104, 105, 106) einen übereinander angeordneten Zustand aufweisen, wenn die Form (1, 101) in dem Abteil eingerichtet ist, in dem insbesondere die Anordnungen (4, 5, 6; 104, 105, 106) von Aushöhlungen (7, 107) unterschiedliche Bereiche (9, 10, 11; 109, 110, 111) innerhalb des Gehäuses (2, 102) ausbilden, wobei mindestens einige der Bereiche (9, 10, 11; 109, 110; 111) durch mindestens einen kalibrierten Durchgang (12, 112) miteinander in Verbindung stehen.

14. Form zum Bilden von Eiswürfeln nach Anspruch 13, **dadurch gekennzeichnet, dass** das Gehäuse (2, 102) mit Mitteln (20, 120) zum Anzeigen der Höchstmenge an Wasser, welches eingelassen werden kann, ausgestattet ist.

15. Form zum Bilden von Eiswürfeln nach mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Form (1, 101) aus geformten oder geblasenem Plastik oder aus Metall gefertigt ist, und insbesondere durch das Zusammenfügen zweier beweglicher Halbelemente hergestellt wird.

16. Form zum Bilden von Eiswürfeln nach mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** sie für ihre Anordnung innerhalb des Kühlschranks einen Sockel aufweist.

17. Form zum Bilden von Eiswürfeln nach mindestens einem der Vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Form (1, 101) mindestens ein Loch (120) aufweist, das geeignet ist, das Überlaufen des Wassers zu gestatten, wenn dieses den erforderlichen Höchststand innerhalb des Gehäuses (2, 102) erreicht:

18. Form zum Bilden von Eiswürfeln nach mindestens einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** die Aushöhlungen (7, 107) durch Trennwände (8, 108) zwischen ihnen voneinander getrennt sind, wobei die Trennwände (8, 108) mit niveauregulierenden Vertiefungen (15, 115) ausgestattet sind.

Revendications

1. Armoire réfrigérante, comportant un compartiment à l'intérieur duquel au moins un moule pour la formation de glaçons peut être disposé, ledit moule :

- ayant une multiplicité de cuvettes (7) pouvant être remplies avec de l'eau;
- présentant une taille d'encombrement minimum sensiblement de la même largeur que lesdites cuvettes (7);
- et étant disposé à l'intérieur dudit compartiment de ladite armoire réfrigérante de façon à avoir ladite taille d'encombrement minimum qui dépasse à l'intérieur de ladite armoire,

caractérisée en ce que ledit moule (1, 101) se compose d'un boîtier fermé (2, 102) qui est creux à l'intérieur et pourvu de moyens d'entrée d'eau communs (3, 103).

2. Armoire réfrigérante selon la revendication 1, **caractérisée en ce que** ledit compartiment a une porte (17) dans laquelle un ou plusieurs sièges (18) sont définis afin de disposer un ou plusieurs desdits moules (1, 101), et/ou des guides et/ou des crochets pour au moins un desdits moules (1, 101) sont définis.

3. Armoire réfrigérante selon la revendication 1, **caractérisée en ce que** lesdites cuvettes (7) sont disposées d'une manière telle que, lors de l'utilisation, lesdites cuvettes (7) peuvent être pratiquement totalement remplies avec de l'eau.

4. Armoire réfrigérante selon la revendication 1, **caractérisée en ce que**, à l'intérieur dudit boîtier (2, 102), au moins deux rangées (4, 5, 6; 104, 105, 106) de cuvettes (7, 107) sont prévues, lesdites rangées (4, 5, 6; 104, 105, 106) étant l'une au-dessus de l'autre lorsque ledit moule (1, 101) est disposé dans ledit compartiment.

5. Armoire réfrigérante selon la revendication 4, **caractérisée en ce que** lesdites rangées (4, 5, 6; 104, 105, 106) de cuvettes (7, 107) définissent des zones séparées (9, 10, 11; 109, 110, 111) à l'intérieur dudit boîtier (2, 102), au moins certaines desdites zones (9, 10, 11; 109, 110, 111) étant en intercommunication particulière à travers au moins un passage calibré (12, 112).

6. Armoire réfrigérante selon la revendication 1, **caractérisée en ce que** ledit boîtier (2, 102) est équipé de moyens (20, 120) destinés à indiquer le volume d'eau maximum devant être admis.

7. Armoire réfrigérante selon au moins une des revendications précédentes, **caractérisée en ce que** ledit moule (1, 101) a au moins une ouverture (3, 103), dont la configuration est adaptée à la distribution de glaçons provenant desdites cuvettes (7) à l'extérieur dudit boîtier (2).

8. Procédé de formation de glaçons, qui utilise un moule (1, 101) pour la formation de glaçons qui est rempli avec de l'eau et ensuite logé à l'intérieur d'une armoire réfrigérante afin de provoquer la solidification de l'eau, **caractérisé en ce qu'**il prévoit les étapes suivantes :

   a) introduction d'eau dans un moule (1, 101) se composant d'un boîtier fermé intérieur creux (2, 102) qui contient des rangées (4, 5, 6; 104, 105, 106) de cuvettes (7, 107) définissant des zones séparées (9, 10, 11; 109, 110, 111) à l'intérieur du boîtier (2, 102) lui-même, ladite entrée d'eau se fait à travers une ouverture commune (3, 103) du boîtier (2, 102) qui est disposée au-dessus de l'entrée desdites zones (9, 10, 11; 109, 110, 111), ledit moule (1, 101) étant placé avec son ouverture (3, 103) sur le dessus et présentant sa taille d'encombrement minimum dans une position horizontale pendant son remplissage;
   b) rotation du moule (1, 101) afin de provoquer un écoulement de l'eau introduite dans le boîtier (2, 102) vers toutes les cuvettes (7, 107) des rangées prévues (4, 5, 6; 104, 105, 106);
   c) mise en place des rangées (1, 101) dans l'armoire réfrigérante.

9. Procédé de formation de glaçons selon la revendication 8, **caractérisé en ce qu'**il prévoit que, lorsque lesdites cuvettes (7) sont remplies d'eau, elles peuvent être pratiquement totalement remplies.

10. Procédé de formation de glaçons selon la revendication 8, **caractérisé en ce qu'**il prévoit :

    i) le remplissage du moule (101) dans une position qui permet d'avoir la taille d'encombrement minimum en vertical;
    ii) le soulèvement du moule (101) jusqu'à ce que la taille d'encombrement minimum atteigne une position horizontale;
    iii) étapes b) et c).

11. Moule pour la formation de glaçons du type :

- ayant une multiplicité de cuvettes pouvant être remplies avec de l'eau;
- présentant une taille d'encombrement minimum sensiblement de la même largeur que lesdites cuvettes (7);
- et qui peut être disposé à l'intérieur d'une armoire réfrigérante de façon à avoir ladite taille d'encombrement minimum qui dépasse à l'intérieur de ladite armoire, afin d'obtenir la solidification de l'eau contenue dans les cuvettes (7), **caractérisé en ce que** ledit moule (1, 101) se compose d'un boîtier fermé (2, 102) qui est creux à l'intérieur et pourvu de moyens d'entrée d'eau communs (3, 103).

12. Moule pour la formation de glaçons selon la revendication 11, **caractérisé en ce que** lesdites cuvettes (7) sont disposées d'une manière telle que, lors de l'utilisation, lesdites cuvettes (7) peuvent être pratiquement totalement remplies avec de l'eau.

13. Moule pour la formation de glaçons selon la revendication 11, **caractérisé en ce qu'**au moins deux rangées (4, 5, 6; 104, 105, 106) de cuvettes (7, 107) sont prévues à l'intérieur dudit boîtier (2, 102), lesdites rangées (4, 5, 6; 104, 105, 106) étant disposées l'une au-dessus de l'autre lorsque ledit moule (1, 101) est disposé dans ledit compartiment, dans lequel en particulier lesdites rangées (4, 5, 6; 104, 105, 106) de cuvettes (7, 107) définissent des zones distinctes (9, 10, 11; 109, 110, 111) à l'intérieur dudit boîtier (2, 102), au moins certaines desdites zones (9, 10, 11; 109, 110, 111) étant en intercommunication à travers au moins un passage calibré (12, 112).

14. Moule pour la formation de glaçons selon la revendication 13, **caractérisé en ce que** ledit boîtier (2, 102) est équipé de moyens (20, 120) destinés à indiquer le volume d'eau maximum devant être admis.

15. Moule pour la formation de glaçons selon au moins une des revendications précédentes, **caractérisé en ce que** ledit moule (1, 101) est fabriqué en matière plastique moulée ou moulée par soufflage, en en matière métallique, en particulier est obtenu en reliant deux moitiés d'éléments mobiles.

16. Moule pour la formation de glaçons selon au moins une des revendications précédentes, **caractérisé en ce qu'**il a un pied pour sa mise en place à l'intérieur de l'armoire réfrigérante.

17. Moule pour la formation de glaçons selon au moins une des revendications précédentes, **caractérisé en ce que** ledit moule (1, 101) a au moins un trou (120) prévu pour permettre le débordement de l'eau

quand cette dernière atteint le niveau maximum exigé à l'intérieur dudit boîtier (2, 102).

18. Moule pour la formation de glaçons selon au moins une des revendications précédentes, **caractérisé en ce que** lesdites cuvettes (7, 107) sont séparées l'une de l'autre par des parois de séparation (8, 108), qui sont pourvues de dépressions de mise à niveau.

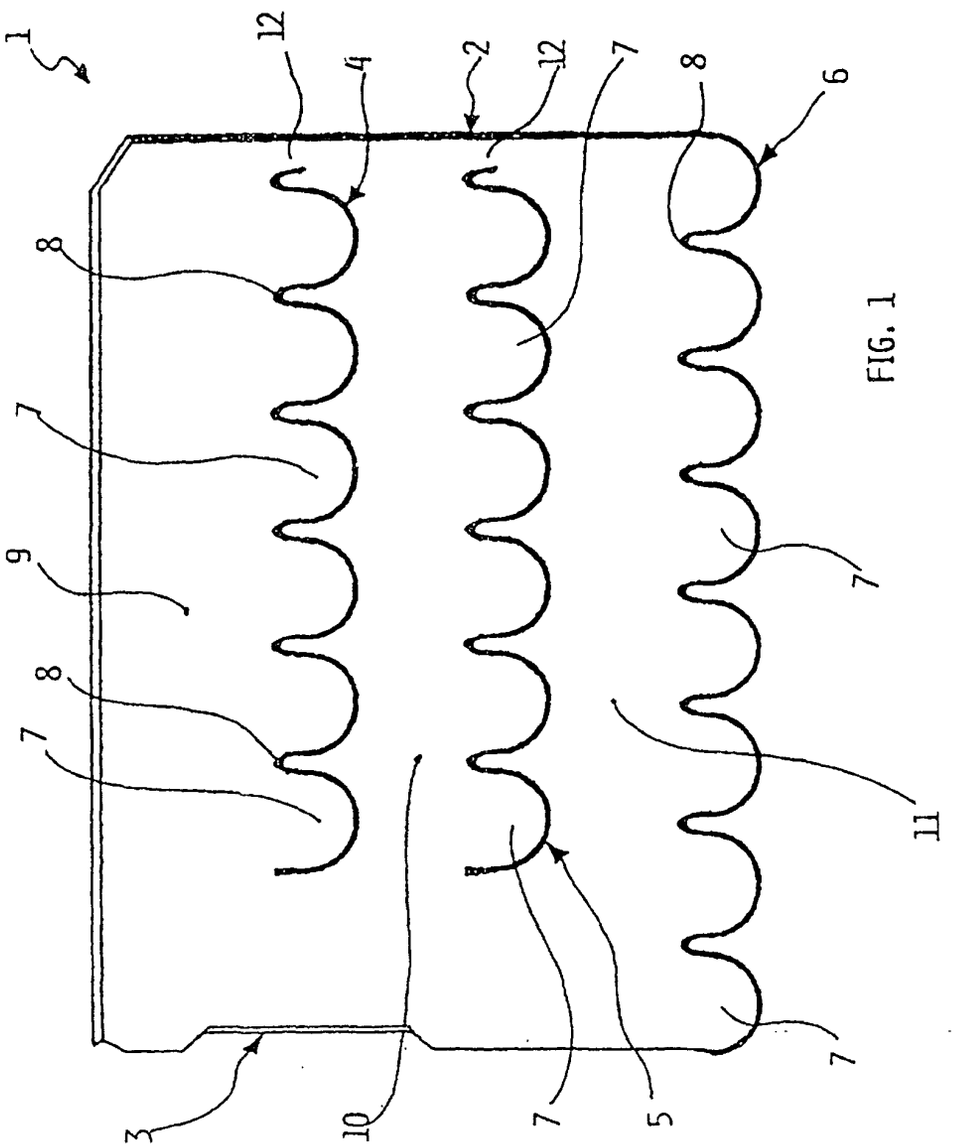

FIG. 1

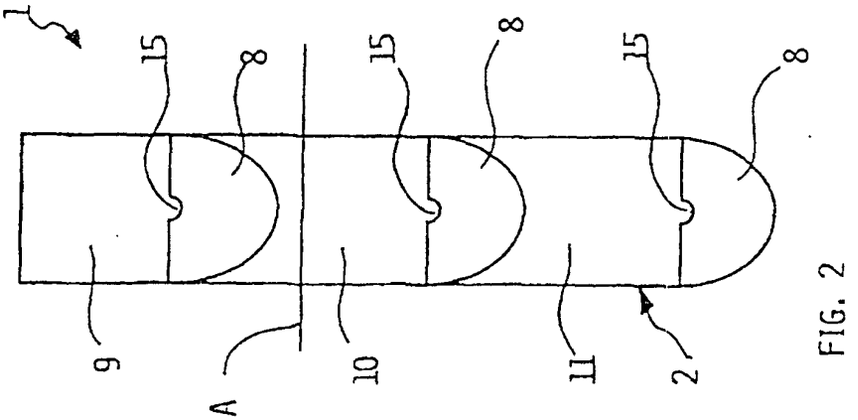

FIG. 2

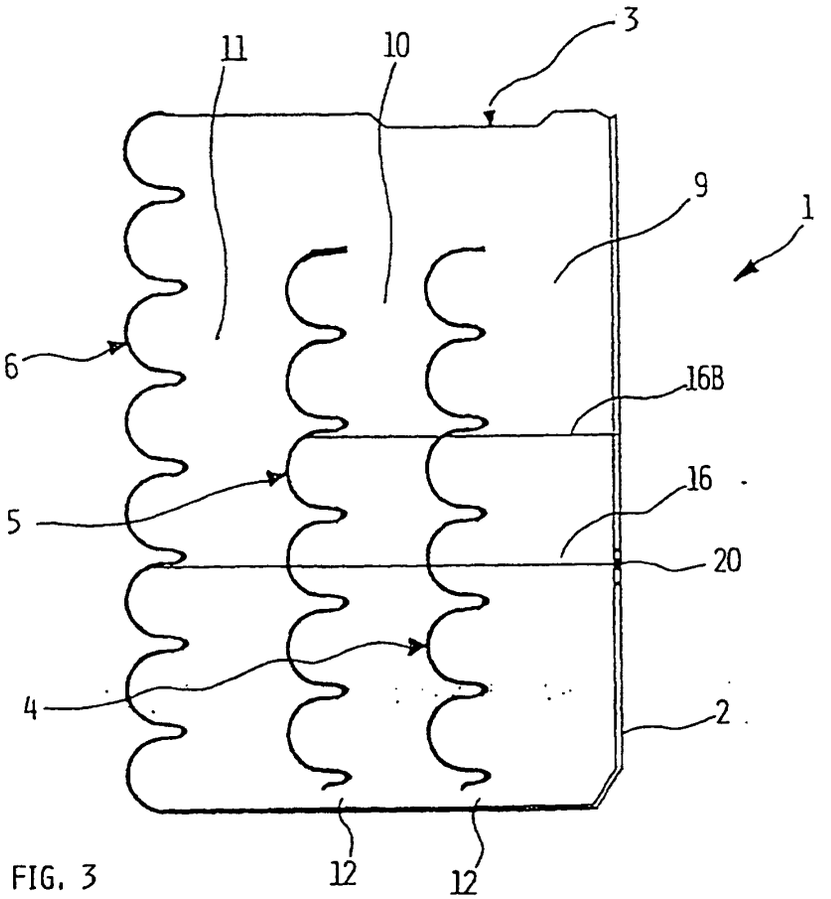

FIG. 3

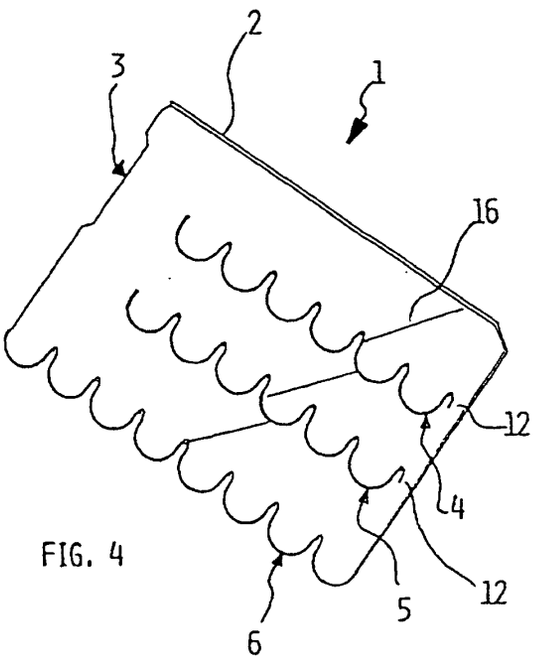

FIG. 4

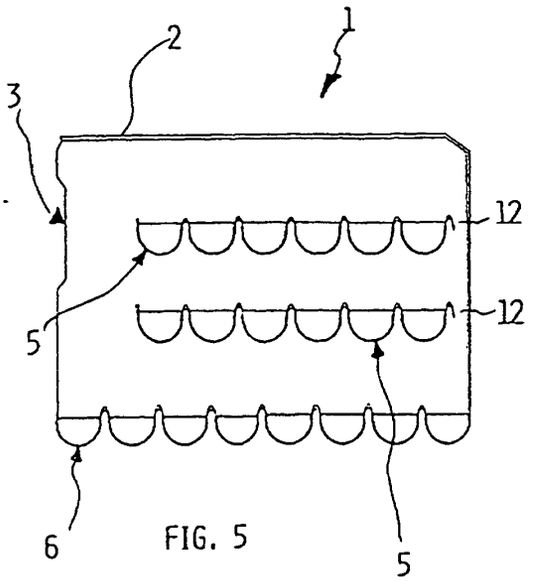

FIG. 5

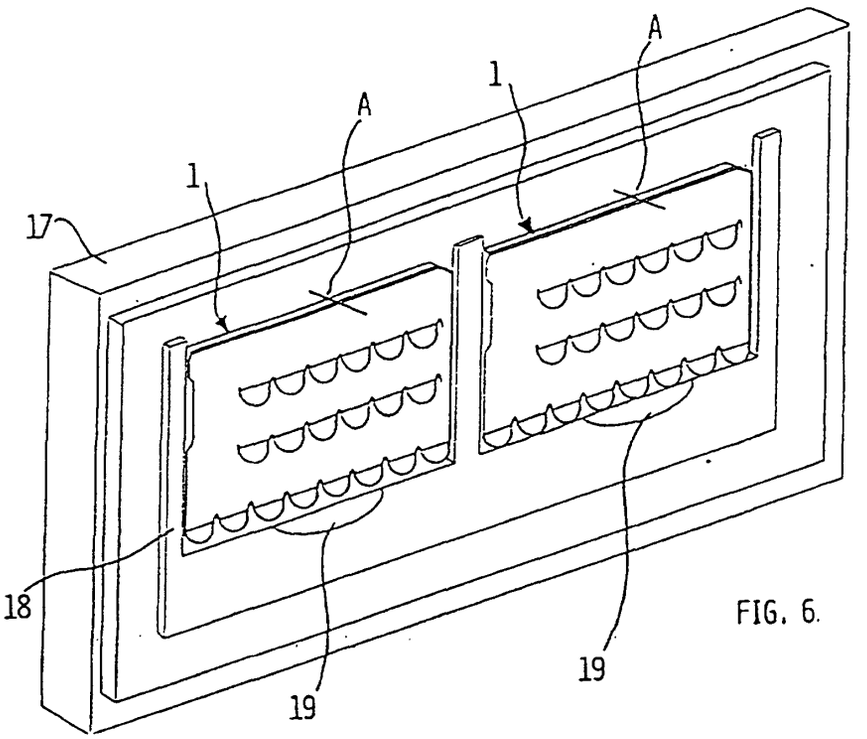

FIG. 6.

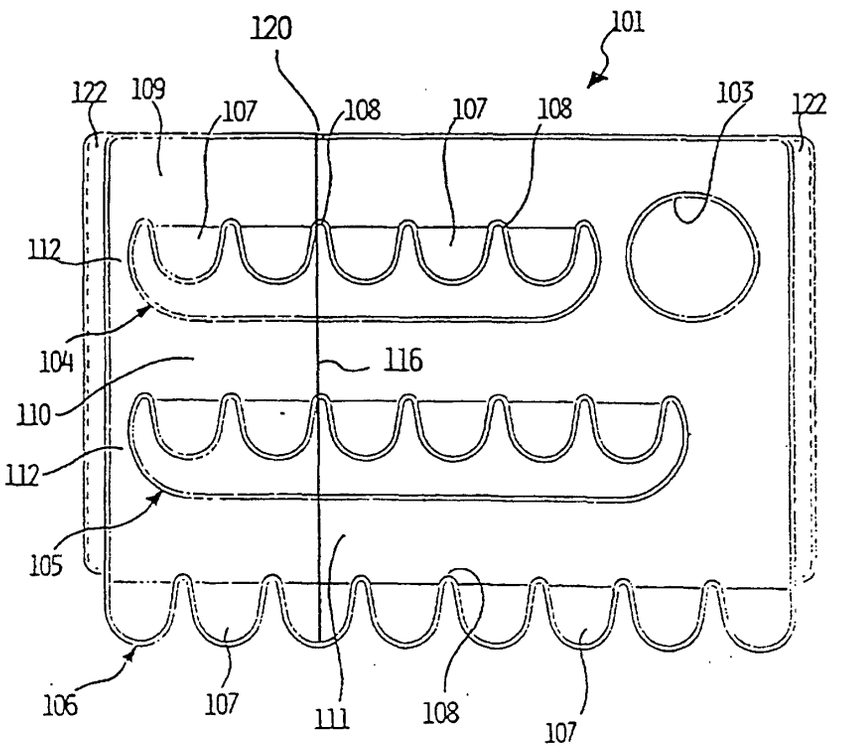

FIG. 7

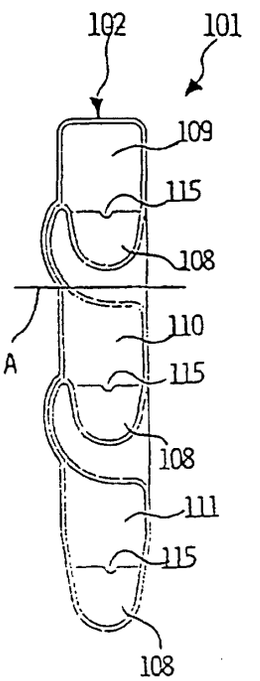

FIG. 8