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(54) **ICE MAKER**

EISHERSTELLUNGSMASCHINE
MACHINE A GLACONS

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Description

[0001] This invention is related to an ice maker which is used in refrigerators.

[0002] In refrigerators wherein automatic ice maker systems are not present, containers with ice cells are utilized to obtain ice cubes where the ice cells are filled with water and placed in a compartment in the freezer. The user fills the cells completely or nearly completely as he/she will desire maximum amount of ice in a single fill and will have to show special care in carrying the containers and placing them in the refrigerators to avoid spilling the water. No matter how carefully the container is carried or placed, spilling a small amount of water cannot be prevented. Furthermore, as the water in the container is exposed to the effects of dust, particles or odor when it is carried or stored, it becomes unfavorable in terms of hygiene. In refrigerators wherein automatic ice maker systems are present, additional installation elements such as a water tank inside the refrigerator, a pump which carries the water to the freezer compartment and tubes and valves which occupy space and which are costly are utilized.

[0003] In the British Patent Application No GB 2118700, an ice maker system is disclosed which is comprised of a water tank placed in the cooler compartment of a refrigerator to automatically make ice, a discharge opening which carries the water to the ice maker containers in the freezer compartments, a dosage chamber, a pump, a transmission tube and a water distributor.

[0004] American Patent No US5012655 discloses an embodiment which is used to fill water, by means of a water chamber, inside the ice containers which are arranged one over the other.

[0005] American Patent No US4815691 discloses a method and an apparatus which enables filling and adding water to the ice containers which are arranged one over the other in a portable container and which enables removing excessive water.

[0006] American Patent No US5904054 discloses an apparatus which discharges the water that is in the water chamber to the ice containers by means of a valve which operates by a drive system composed of a motor and gears in order to fill the ice containers with the desired amount of water.

[0007] In the International Patent Application No WO 02052207, the refrigerator comprises an ice cube tray used to form ice cubes, a water addition apparatus used to fill the ice cube tray with water and ice cube tray case on which said ice cube tray and the water addition apparatus are placed.

[0008] The object of the invention is to provide an ice maker which provides practical usage opportunities for the user when obtaining ice.

[0009] The refrigerator realized in order to attain the objective of the present invention has been illustrated in the attached drawings, wherein;

[0010] Figure 1 - is a perspective view of a cartridge

on which there is a valve.

[0011] Figure 2 - is a sectional view of a cartridge on which there is a valve.

[0012] Figure 3 - is a perspective view of a cartridge where the valve is removed.

[0013] Figure 4 - is a bottom perspective view of a cartridge which has valves on its bottom section.

[0014] Figure 5 - is a top perspective view of a cartridge which has valves on its bottom section.

[0015] Figure 6 - is a bottom perspective view of a cartridge comprising water discharge openings.

[0016] Figure 7 - is an exploded view of a cartridge which has valves connected to its bottom section.

[0017] Figure 8 - is a perspective view of an ice tray.

[0018] Figure 9 - is a perspective view of a container.

[0019] Figure 10 - is a perspective view of a carrier unit.

[0020] Figure 11 - is a perspective view of an ice maker comprising a cartridge having water discharge openings on its bottom section.

[0021] Figure 12 - is a perspective view of an ice maker, comprising a cartridge having water discharge openings on its bottom section, where its parts are taken off from their places.

[0022] Figure 13 - is a perspective view of an ice maker comprising a cartridge having valves on its bottom section.

[0023] Figure 14 - is a perspective view of an ice maker, comprising a cartridge on its bottom section, where its parts are removed.

[0024] The components in the figures have each been numbered corresponding the following:

1. Ice maker
2. Cell
3. Ice tray
4. Container
5. Cartridge
6. Carrier unit
7. Cartridge compartment
8. Canal
9. Handle
10. Slide
11. Water fill opening
12. Discharge opening
13. Base
14. Wring latch
15. Ice tray frame
16. Recess
17. Valve
18. Cap
19. 29. Valve trigger surface
20. Guiding panel
21. Container frame

[0025] The refrigerators, preferably with a freezer and cooling compartment, comprise an ice maker (1) utilized in deep freezers or in other cooling/freezer machines, one or more ice trays (3) which comprise one or more

cells (2) which makes ice cubes, a container (4) in which the ice cubes taken out from the freezer are placed and wherein the water from the melted ice accumulates, a cartridge (5) which enables filling the cells (2) with water in order to make ice and a carrier unit (6) wherein the cartridge (5), the ice tray (3) and the container (4) are placed.

[0026] The carrier unit (6) comprises a cartridge compartment (7) wherein a cartridge (5) is inserted and more than one canals (8), which are fixed in the inner section of the side surfaces, which enable the cartridge (5), the ice tray (3) and the container (4) can be pulled outwards and inserted again on their places which are independent of each other.

[0027] The cartridge (5) comprises a handle (9) by means of which it is inserted and removed, one or more slides (10) which enable it to be inserted in the canals (8), a water fill opening (11) which is located on the cartridge (5), one or more discharge openings (12) which have sizes that does not allow the water to run as long as the cartridge (5) doesn't let in air from any point while it is filled up with water and a base (13) which direct the water to the discharge openings (12).

[0028] The cartridge compartment (7) comprises one or more guiding panels (20) which enable the water flowing from the cartridges (5) to be directed regularly to the ice trays (3).

[0029] The ice tray (3) comprises one or more wringing latches (14) which enable a wringing momentum to be applied to the ice tray (3) in order to take out the ice from the ice maker cells (2) and an ice tray frame (15) which enables the tray to be inserted in the canals (8).

[0030] The container (4) comprises a recess (16) by means of which it is inserted and removed manually and a container frame (21) having a rail structure which enables it to be inserted in the canals (8).

[0031] In the preferred embodiment of the invention the cartridge (5) comprises a valve (17) which is located on its top section, which allows air flow by means of a cap (8) which is screwed or interlocked to the water fill opening (11) and which allows the water to run from the discharge openings (12) by letting the cartridge (5) take in air from the environment when the cap (18) is pressed.

[0032] In the preferred embodiment of the invention the carrier unit (6) comprises one or more valve trigger surfaces (19) which are located in the upper wall of the cartridge compartment (7), which allows air to enter into the cartridge (5) by pressing on the cap (18) and which enable water flow by reducing the vacuum effect.

[0033] In the embodiment which is the subject of the invention, the valve (17) is removed from the cartridge (5) and water is filled from the water fill opening (11). After the water is filled, the valve (17) is attached on the water fill opening (11) which is located on the cartridge (5). The water shall not run from the discharge openings (12) due to the vacuum effect inside the cartridge (5) then the cartridge (5) filled with water is inserted in the carrier unit (6). When the cartridge is inserted inside the cartridge

compartment (7) the valve trigger surface (19) applies pressure on the cap (18) and the valve enables the water to run through the discharge openings (12) and be filled in the ice trays (3) by allowing air flow inside the cartridge (5).

[0034] In another embodiment of the invention, the cartridge (5) comprises one or more valves (17) which are located in its bottom section, which are connected to the wide discharge openings (12) that are arranged in a way of screwed or interlocking connection is utilized and which allows air or water flow by means of a cap (18).

[0035] In the said embodiment of the invention, the carrier unit (6) comprises one or more valve trigger surfaces (29) which are located on the lower wall of the cartridge compartment (7) and which enable them to work under a simple tap principle by pressing on the cap (18) and by allowing the water to pass through the valves (17) which are present in the bottom section of the cartridge (5).

[0036] In the said embodiment of the invention, the cartridge (5) is filled with water from the water fill opening (11) and it is closed with the valve (17). As valves (17) are fixed both below and above the cartridge (5) water flow is not permitted as long as a pressure on the caps (18) is not applied. When the cartridge (5) is inserted on the cartridge compartment (7), the valve trigger surface (19) enables the air to go inside the cartridge (5) by applying pressure on the cap (18) in the valve (17) which is located on the cartridge (5). At the same time, the valve trigger surfaces (29) below the cartridge compartments (7) allow the water to flow out of the cartridge (5) by applying pressure on the cap (18) in the valves (17) located underneath the cartridge (5).

[0037] In another embodiment of the invention, the cartridge (5) can be fixed on the carrier unit (6) without the valve (17) being inserted on the water fill opening (11) after the water is filled. As the water fill opening (11) is open, the air to flow inside the cartridge (5) freely and the water to flow out of the cartridge (5) is ensured.

[0038] The ice maker (1), which is the subject of the invention, ensures the ice trays (3) to be filled with water without the need to move them from their places, provides hygienic conditions and enables the user to obtain ice, without the need of additional water filling installation elements, in a quick and a practical way by means of an easy to use cartridge (5).

Claims

1. An ice maker (1) which is utilized in refrigeration appliances comprising one or more ice trays (3) which have more than one cells (2) that are used for forming ice cubes, a cartridge (5) which has a water filling opening (11) and a carrier unit (6) on which an ice tray (3) and a cartridge (5) are inserted, the cartridge (5) comprising one or more discharge openings (12) which are located below and which do not allow water flow as long as it doesn't let in air from any point

when it is filled with water and a valve (17) which allows air flow **characterized in that** the valve (17) allows air flow by means of a cap (18), which is located above, which is screwed or interlocked to the water filling opening (11) and which allows the water to run from the discharge openings (12) by letting in air from the environment when the cap (18) is pressed.

2. An ice maker (1) as defined in Claim 1 **characterized by** a carrier unit (6) comprising a cartridge compartment (7) wherein a cartridge (5) is inserted and more than one canals (8), which are fixed in the inner section of the side surfaces, which enable the cartridge (5), the ice tray (3) and a container (4) to be pulled outwards and inserted again on their places which are independent of each other.
3. An ice maker (1) as defined in any of the claims above **characterized by** a carrier unit (6) comprising one or more valve trigger surfaces (19) which are located in the upper wall of the cartridge compartment (7), which enable the air to be entered into the cartridge (5) by pressing on the cap (18) and which enable the water to run by reducing the vacuum effect.
4. An ice maker (1) as defined in any of the claims above **characterized by** a cartridge (5) comprising a handle (9) by means of which it is inserted and removed, one or more slides (10) which enable it to be fixed in the canals (8) and a base (13) which direct the water to the discharge openings (12).
5. An ice maker (1) as defined in Claim 1 **characterized by** a cartridge (5) comprising one or more valves (17) which are located in its bottom section, which are connected to the wide discharge openings (12) that are arranged in a way of screwed or interlocking connection is utilized and which allows water flow by means of a cap (18).
6. An ice maker (1) as defined in Claim 1 and 5 **characterized by** a carrier unit (6) comprising one or more valve trigger surfaces (19) which are located in the lower wall of the cartridge compartment (7) and which allows water to go through the valves (17) by pressing on the cap (18).
7. An ice maker (1) as defined in any of the claims above **characterized by** a cartridge compartment (7) comprising one or more guiding panels (20) which enable the water flow from the discharge openings (12) or from the lower valves (17) to be directed regularly to the ice trays (3).

Patentansprüche

1. Eisherstellungsmaschine (1), die in Tiefkühlgeräten benutzt wird, und die eine oder mehrere Eiswannen (3) umfasst, die mehr als eine Zelle (2) aufweisen, und die zum Bilden von Eiswürfeln benutzt werden, eine Patrone (5), die eine Wassereinfüllöffnung (11) aufweist, und eine Trägereinheit (6), an der die Eiswanne (3) angeordnet und eine Patrone (5) eingeführt ist, wobei die Patrone (5) eine oder mehrere Ablauföffnungen (12) umfasst, die an der Unterseite angeordnet sind, und die keinen Wasserfluss zulassen, solange an keinem Punkt Luft eingelassen wird, wenn sie mit Wasser gefüllt ist, und ein Ventil (17), **dadurch gekennzeichnet, dass** das Ventil (17) mit Hilfe einer Kappe (18), die auf der Oberseite angeordnet ist, und die auf die Wassereinfüllöffnung (11) geschraubt oder mit ihr verriegelt ist, einen Luftstrom zulässt, und das Wasser aus den Ablauföffnungen (12) laufen lässt, indem Luft aus der Umgebung eingelassen wird, wenn die Kappe (18) gedrückt wird.
2. Eisherstellungsmaschine (1) nach Anspruch 1, **gekennzeichnet dadurch, dass** die Trägereinheit (6) ein Patronenfach (7) umfasst, in das eine Patrone (5) eingeführt ist, und einen oder mehrere Kanäle (8), die im Innenabschnitt der Seitenflächen ausgebildet sind, und die es ermöglichen, dass die Patrone (5), die Eiswanne (3), und ein Behälter (4) herausgezogen und wieder an ihre Positionen eingeführt werden können, die voneinander unabhängig sind.
3. Eisherstellungsmaschine (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet dadurch, dass** die Trägereinheit (6) eine oder mehrere Ventilauslöseflächen (19) umfasst, die in der oberen Wand des Patronenfachs (7) angeordnet sind, und die es ermöglichen, dass Luft in die Patrone (5) dringt, indem die Kappe (18) gedrückt wird, und die ein Fließen des Wassers ermöglichen, indem sie die Vakuumwirkung reduzieren.
4. Eisherstellungsmaschine (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet dadurch, dass** die Patrone (5) einen Griff (9) umfasst, mit dessen Hilfe sie eingeführt und entnommen wird, eine oder mehrere Gleitflächen (10), mit denen sie in den Kanälen (8) befestigt werden kann, und eine Basis (13), die das Wasser zu den Ablauföffnungen (12) lenkt.
5. Eisherstellungsmaschine (1) nach Anspruch 1, **dadurch gekennzeichnet, dass** die Patrone (5) ein oder mehrere Ventile (17) umfasst, die an ihrem Bodenabschnitt angeordnet sind, und die mit den breiteren Ablauföffnungen (12) verbunden sind, die in einer Schraub- oder Verriegelungsverbindung angeordnet sind, und die ein Fließen des Wassers mit

Hilfe einer Kappe (18) zulassen.

6. Eisherstellungsmaschine (1) nach Anspruch 1 und 5, **dadurch gekennzeichnet, dass** die Trägereinheit (6) eine oder mehrere Ventilauslöseflächen (29) umfasst, die in der unteren Wand des Patronenfachs (7) angeordnet sind, und die zulassen, dass durch Drücken auf die Kappe (18) Wasser durch die Ventile (17) fließt.
7. Eisherstellungsmaschine (1) nach einem der vorstehenden Ansprüche, **gekennzeichnet dadurch, dass** das Patronenfach (7) eine oder mehrere Führungsplatten (20) umfasst, die es ermöglichen, dass das Wasser aus den Ablauföffnungen (12) oder aus den unteren Ventilen (17) fließt, und gleichmäßig zu den Eiswannen (3) gelenkt wird.

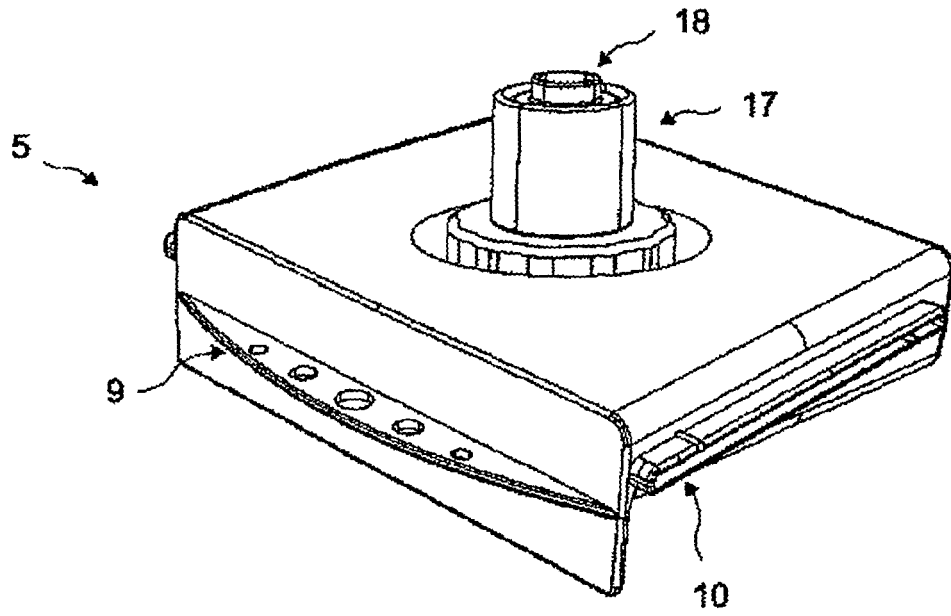
Revendications

1. Machine à glaçons (1) utilisée dans les appareils de réfrigération comprenant un ou plusieurs plateaux (3) munis d'une ou plusieurs cellules (2) utilisées pour former des cubes de glaçon, une cartouche (5) ayant un obturateur ouvrable (11) pour empêcher l'eau et une unité de porteur (6) sur laquelle un plateau de glaçon (3) et une cartouche (5) sont insérés, la cartouche (5) comprenant une ou plusieurs ouvertures (12) placées en dessous, qui ne permettraient pas aux flux d'eau d'entrer et qui ne laisseraient pas sortir l'air lorsqu'elles sont obturées par l'eau et par une soupape (17) qui permettrait aux flux d'air d'entrer **caractérisée en ce que** la soupape (17) permettrait aux flux d'air d'entrer par le biais d'un bouchon (18) placé au dessus, qui est fixé à l'obturateur ouvrable (11) par un vis ou qui est emboîté dedans et qui permettrait à l'eau de couler des ouvertures d'évacuation (12) en étant laissée dans l'air lorsque le bouchon (18) est pressé.
2. Machine à glaçons (1) selon la revendication 1, **caractérisée par** une unité de porteur (6) comprenant un compartiment de cartouche (7) dans lequel une cartouche (5) est insérée et plusieurs canaux (8) fixés dans la partie intérieure de la surface de côté, qui activent la cartouche (5), le plateau de glaçons (3) et un conteneur (4) à tirer à l'extérieur et à placer à leurs places qui sont indépendantes l'une de l'autre.
3. Machine à glaçons (1) selon les revendications précédentes, **caractérisée par** une unité de porteur (6) comprenant une ou plusieurs surfaces de mécanisme de soupape (19) placées dans le mur supérieur du compartiment de cartouche (7), qui activent l'air à entrer dans la cartouche (5) en exerçant une pression sur le bouchon (18) et qui activent l'eau à couler

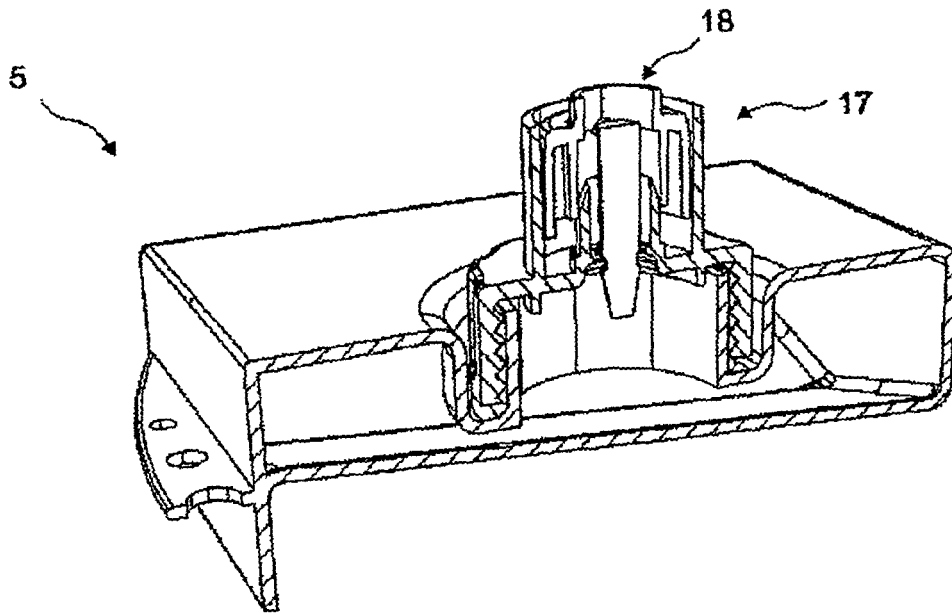
en réduisant l'effet de vacuum.

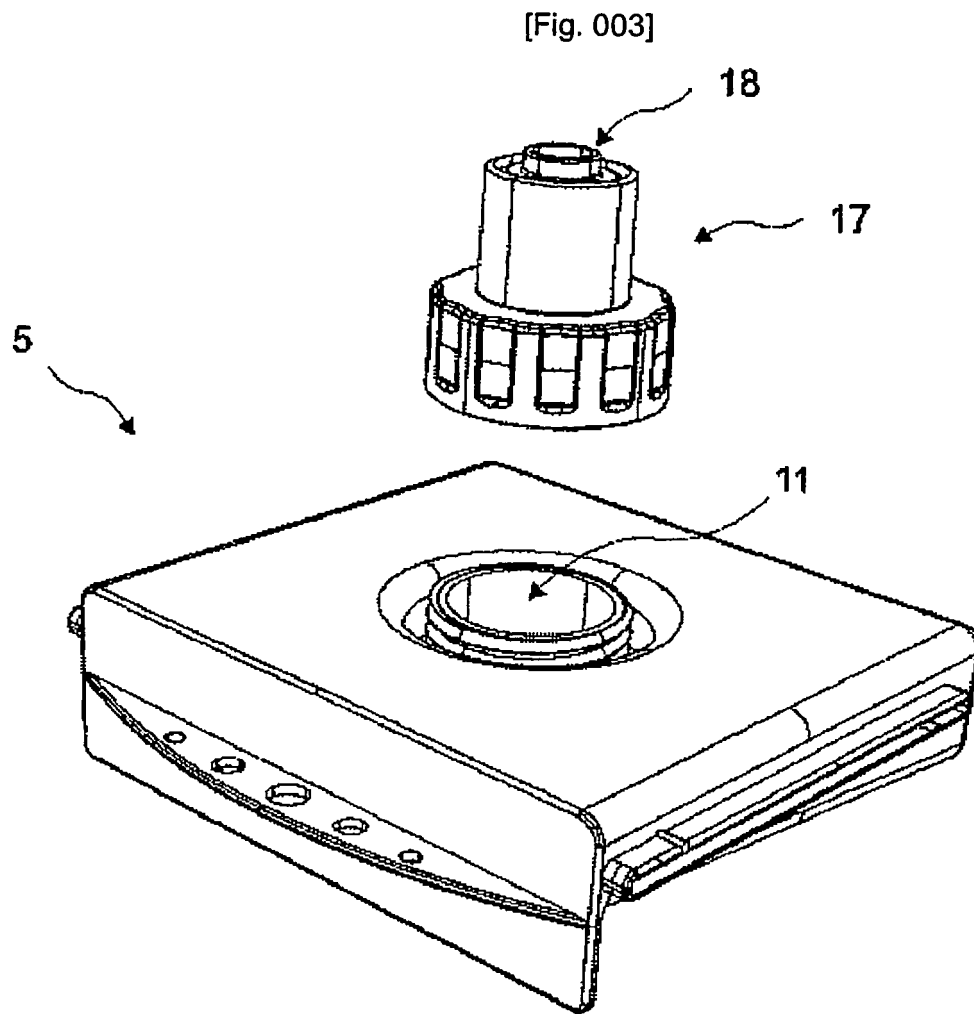
4. Machine à glaçons (1) selon les revendications précédentes, **caractérisée par** une cartouche (5) comprenant une poignée (9) par l'intermédiaire de laquelle sont insérées et enlevées une ou plusieurs lamelles (10) et qui fixe ces dernières dans les canaux (8), et une base (13) qui oriente l'eau vers l'ouverture d'évacuation (12).
5. Machine à glaçons (1) selon la revendication 1, **caractérisée par** une cartouche (5) comprenant une ou plusieurs soupapes (17) placées dans la partie inférieure, liées à l'ouverture d'évacuation élargie (12) arrangée par un mécanisme de vis ou par l'emboîtement de la connexion dedans, utilisée pour permettre aux flux d'eau d'entrer par l'intermédiaire d'un bouchon (18).
6. Machine à glaçons (1) selon les revendications 1 et 5, **caractérisée par** une unité de porteur (6) comprenant une ou plusieurs surfaces de mécanisme de soupape (29) placées dans le mur inférieur du compartiment de cartouche (7) et qui permettent à l'eau d'aller à travers les soupapes (17) en exerçant une pression sur le bouchon (18).
7. Machine à glaçons (1) selon l'une des revendications précédentes, **caractérisée par** un compartiment de cartouche (7) comprenant un ou plusieurs panels de guidage (20) qui permettent aux flux d'eau de s'orienter régulièrement vers les plateaux de glaçons (3) par l'ouverture d'évacuation (12) ou par les soupapes inférieures (17).

[Fig. 001]

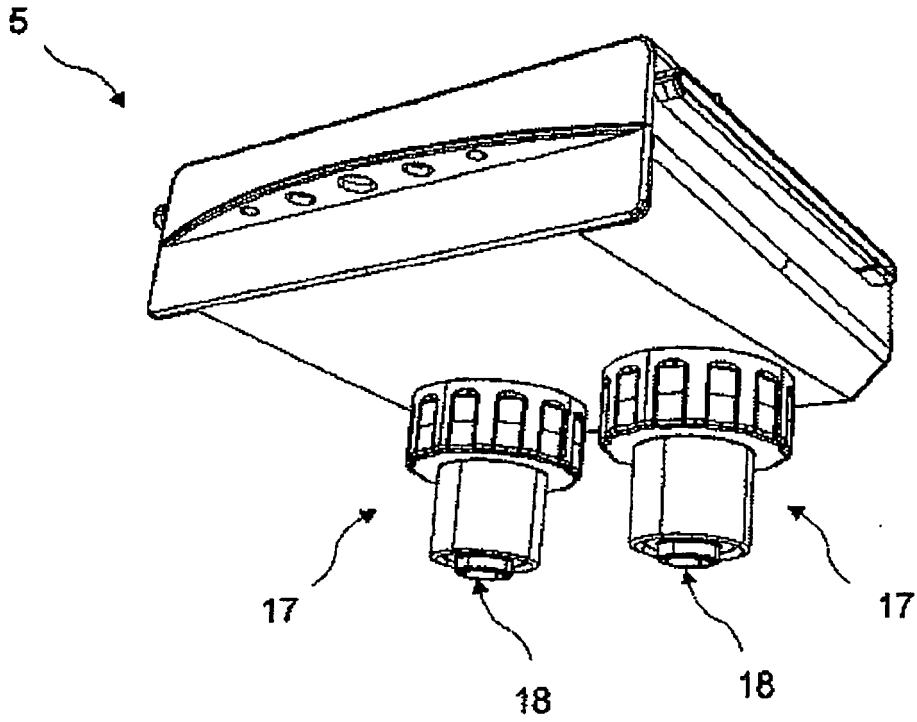


[Fig. 002]

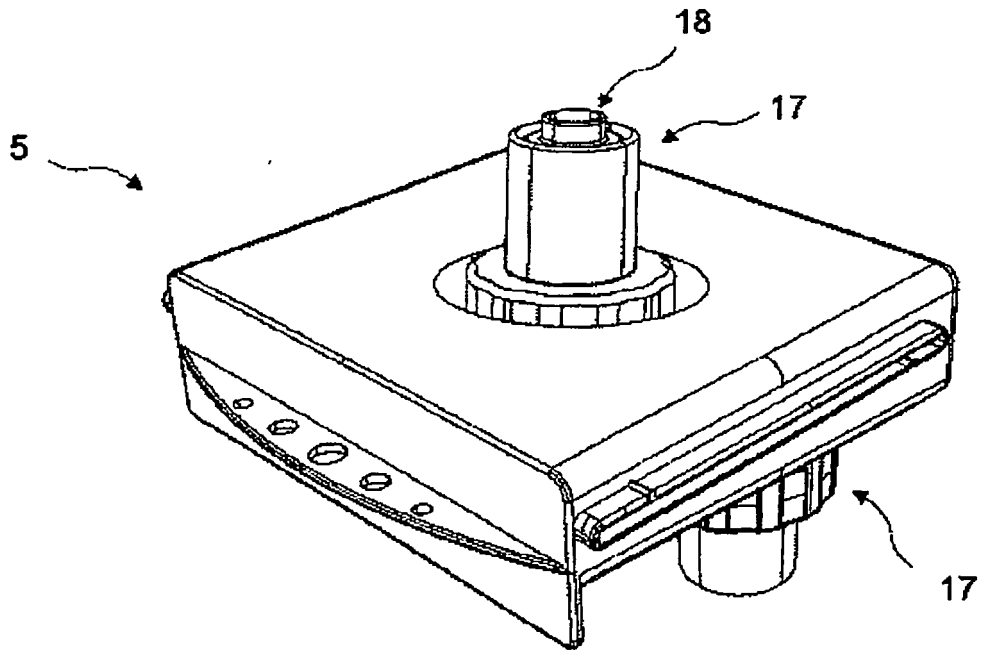




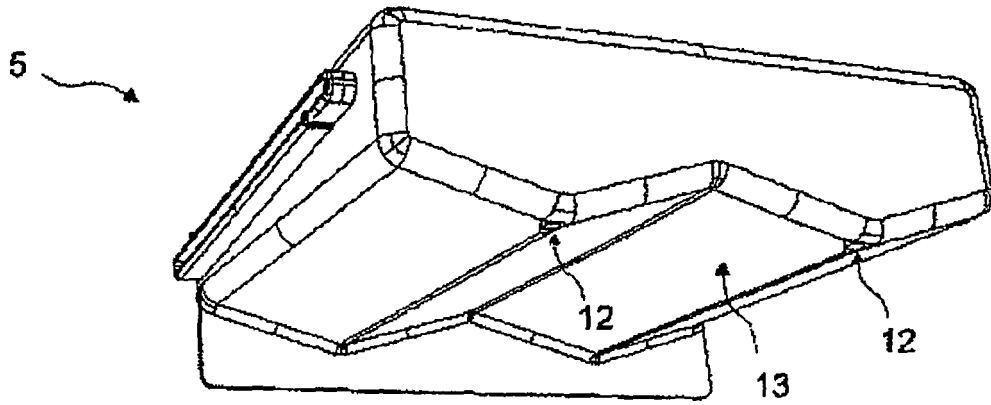
[Fig. 004]



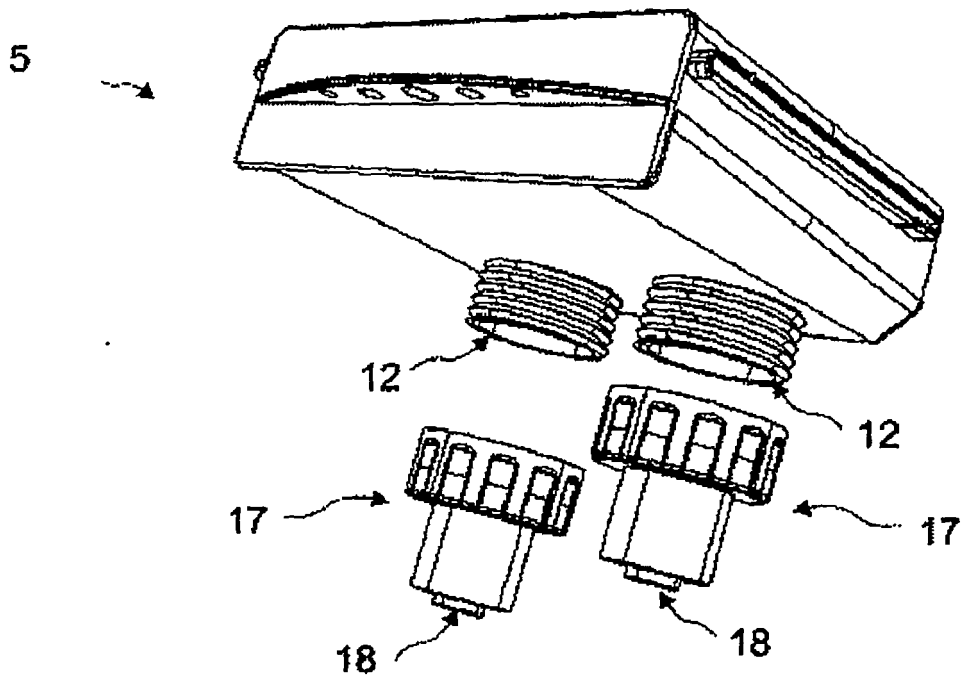
[Fig. 005]



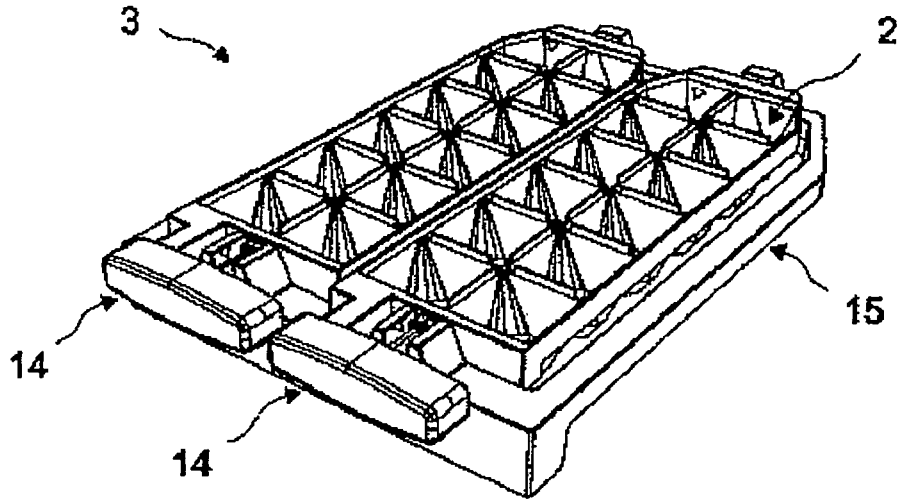
[Fig. 006]



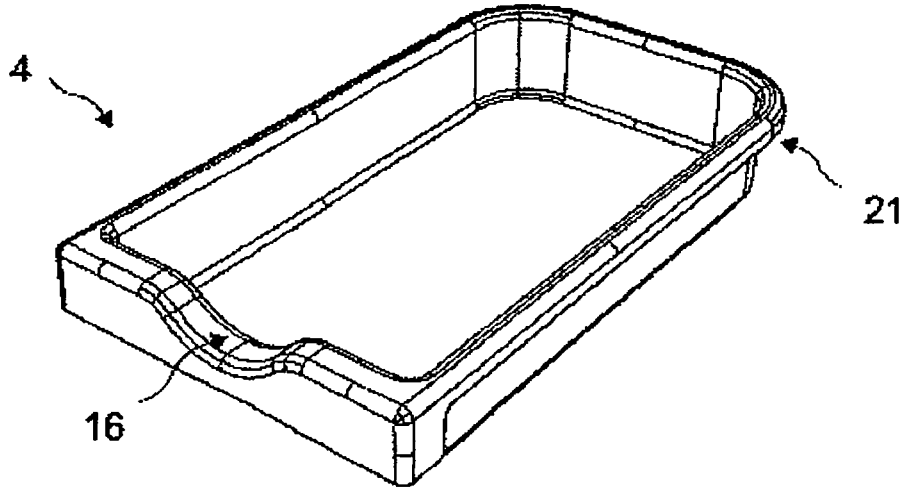
[Fig. 007]



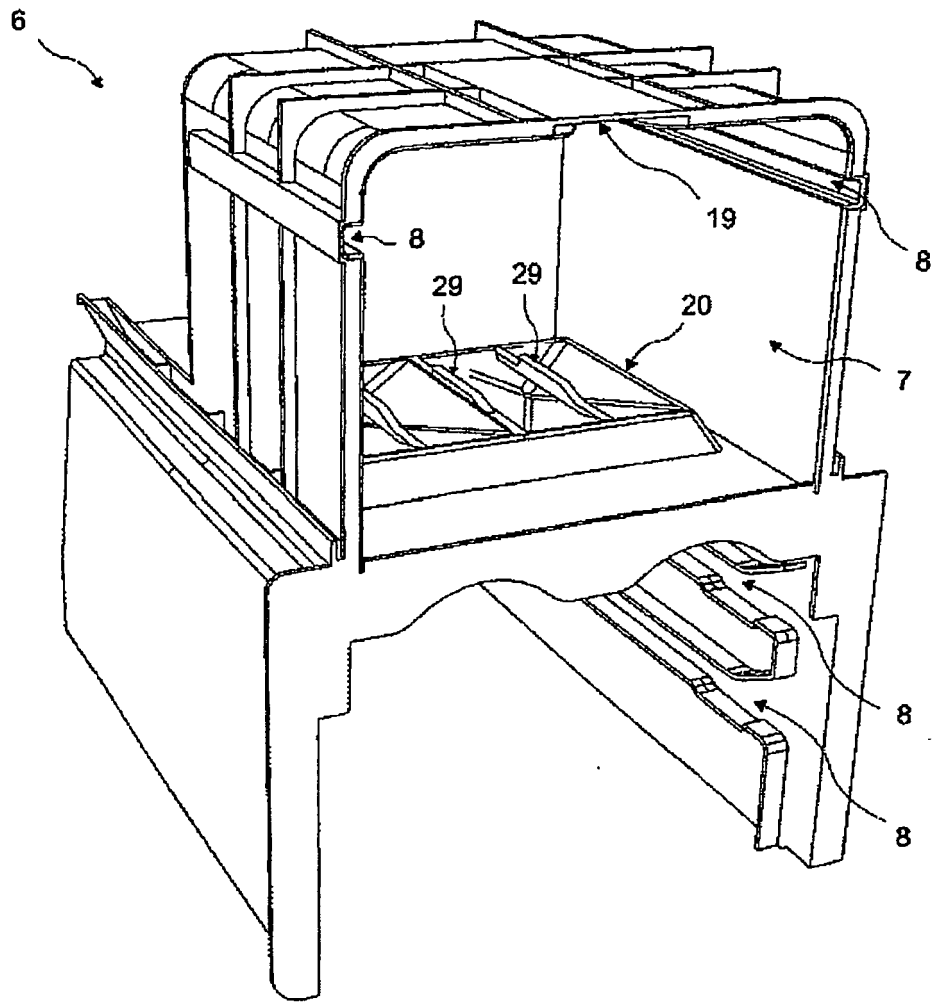
[Fig. 008]



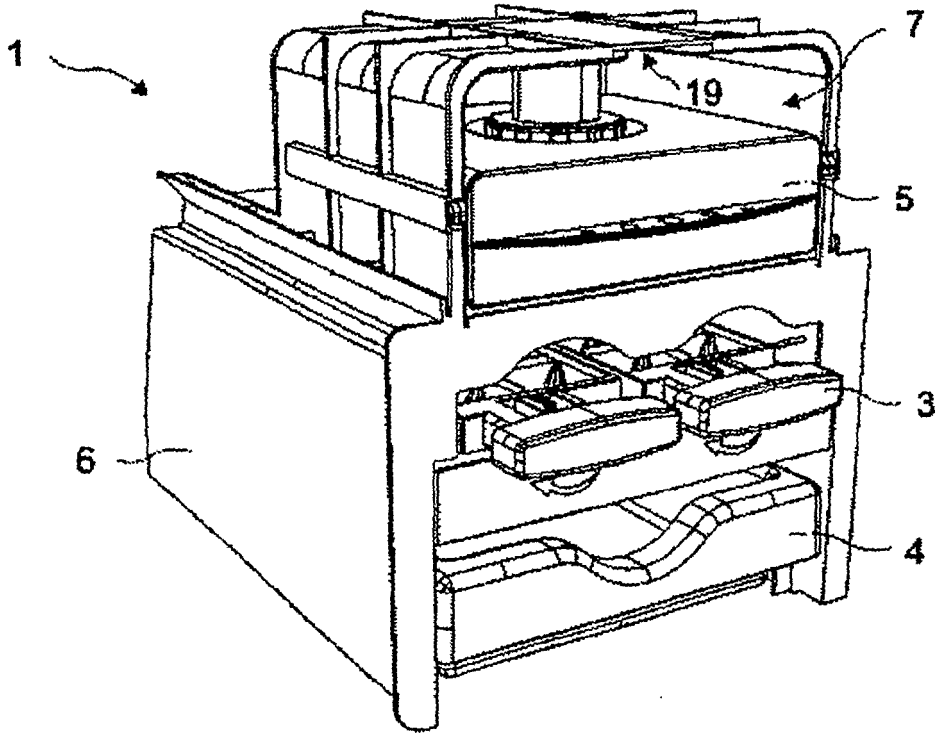
[Fig. 009]



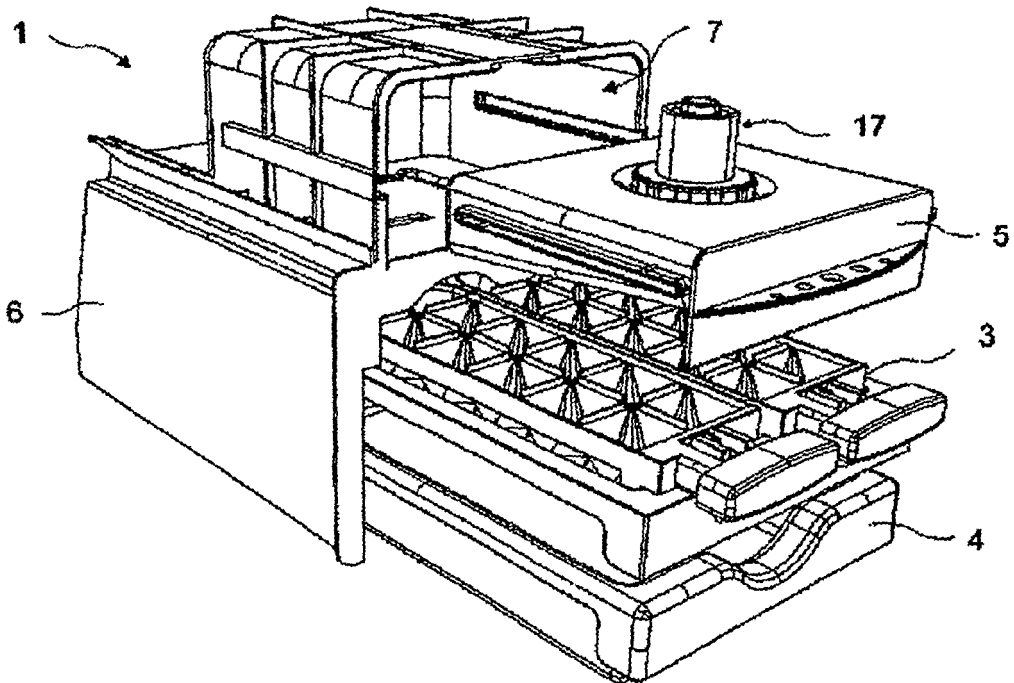
[Fig. 010]



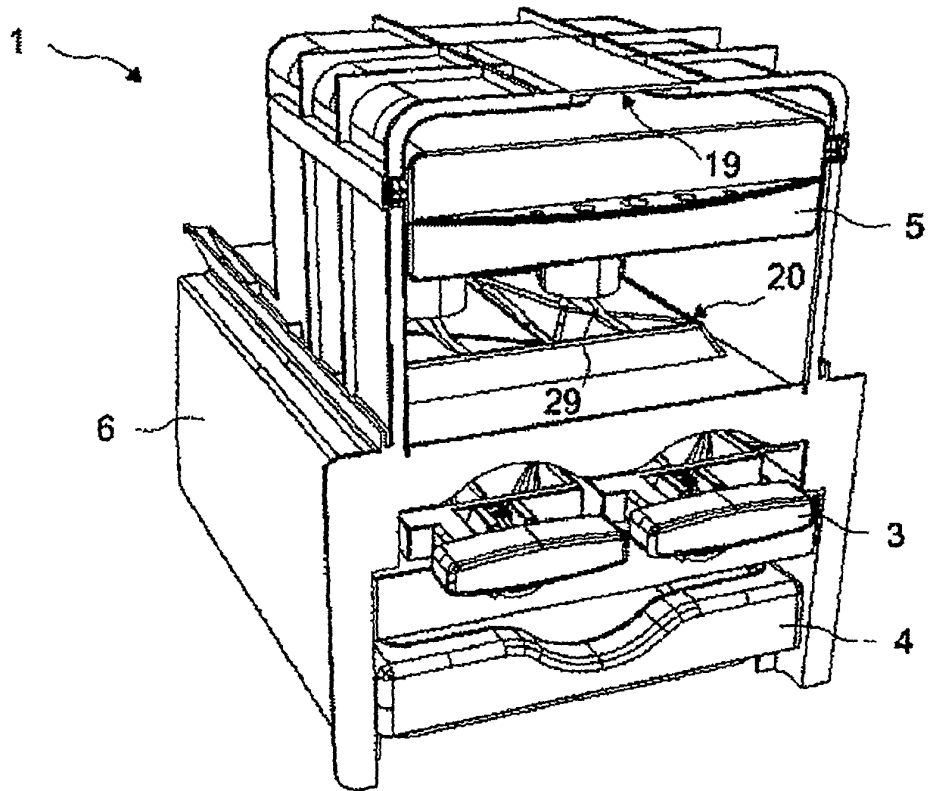
[Fig. 011]



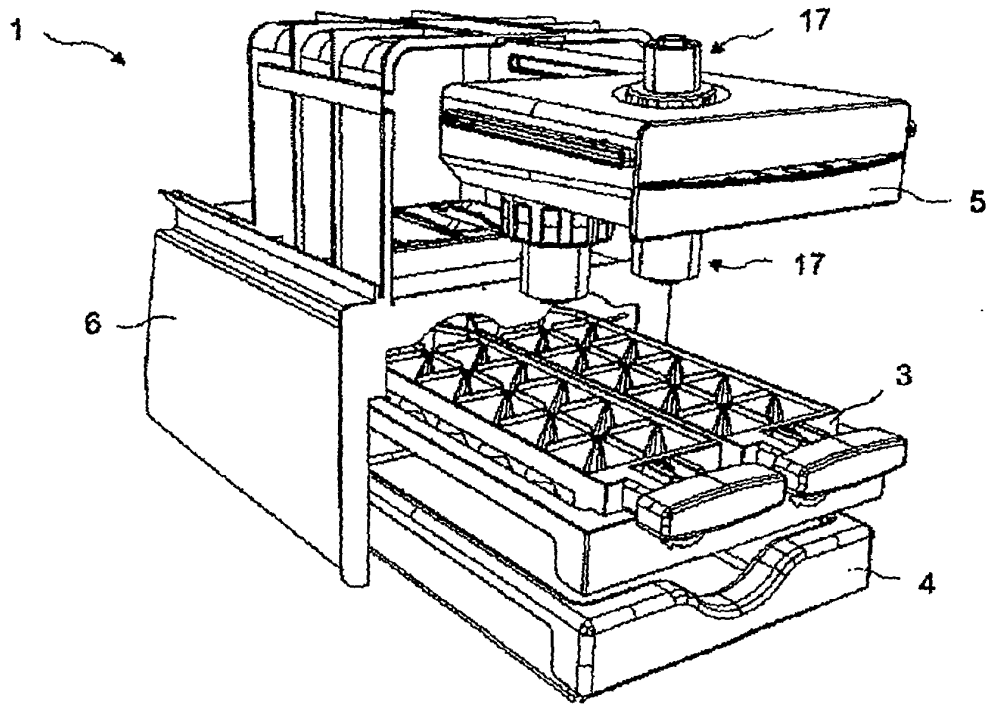
[Fig. 012]



[Fig. 013]



[Fig. 014]



REFERENCES CITED IN THE DESCRIPTION

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