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(54) **A REFRIGERATED FOOD BAR ARRANGEMENT**

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(56) References cited:

WO-A1-02/28235 DE-U1-202009 012 288

US-A- 2 201 696 US-A- 5 117 649

US-A- 5 282 367

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EP 2 975 974 B1

Description

TECHNICAL FIELD

[0001] The present invention relates to a food bar arrangement according to the first part of claim 1.

BACKGROUND

[0002] In recent times it has become more and more popular to offer fresh food, salads, fruit vegetables, chicken, but also cooked and prepared food, or so called healthy food, from what often is called a salad bar, where the customer can pick and compose a meal from a number of different products kept in canteens or pans. However, since the food products may remain for some time in the canteens, which may be accessed by quite a large number of persons, the requirements as to an appropriate and hygienic storage capability are high. The products have to be kept under conditions, and at a temperature, preventing bacterial growth, keeping the products fresh, appetizing and not ruined in any way due to the storing.

[0003] To be able to uphold an accurate temperature, e.g. above 0° (to avoid that the products be frozen), but below 8°C, several different arrangements have been proposed.

[0004] Most known arrangements use cooling elements below the canteens but it is difficult to obtain an even temperature distribution in the food stored in the canteens.

[0005] US 2 201 696 discloses a refrigerated display showcase with an insulating housing and cooling means on the front and rear sides of the housing. The opening to the housing is so located that the housing provides a cold air trap with walls and a bottom. The walls have such a height that by gravity a sufficient depth of cold air can be retained within the housing irrespective of any opening closure. Also here it is difficult to obtain an even temperature distribution in packages held in the housing.

[0006] Therefore some arrangements use fan blowers for blowing cold air onto the products e.g. from above, or from below or sideways onto the canteens.

[0007] This is however disadvantageous for several reasons. First, it is not good from a hygienic point of view, bearing in mind that several individuals serve themselves from the canteen which means that air contaminated with bacteria etc. may be blown onto the food. Also other particles, dust may be blown onto the food. Second, due to the air flow, the food products may be dried out, and ruined, at least from an aesthetical point of view and it will not look fresh, which may reduce the willingness from buying and consuming the products. Some articles may even lose taste and undergo unwanted changes.

[0008] These factors contribute in shortening the time period the products can be kept in the canteens, and may have to be disposed of, even if they actually could have been stored for a longer time if stored under appropriate

conditions.

[0009] Third, it is a waste of energy to have fan blowers active all the time. Moreover, the difficulties in maintaining an appropriate temperature throughout the entire contents in a canteen, may lead to production of micro-organisms, which even may give rise to health hazards.

SUMMARY

[0010] It is therefore an object of the present invention to provide a refrigerated food bar arrangement as initially referred to through which one or more of the above mentioned problems can be solved.

[0011] It is also a particular object of the invention to provide an arrangement through which high requirements as to hygiene can be met, and which is capable of conferring a stable temperature distribution throughout the food product kept in a canteen or a pan (all canteens in the bar arrangement).

[0012] Still further it is a particular object to provide an arrangement which is easy to fabricate, which offers a stable, equal temperature throughout the bar, which is easy to regulate and which is easy to operate and also is easy to handle from maintenance and cleaning points of view.

[0013] Another particular object is to provide an arrangement which is flexible and provides an excellent access to the products for the customers. An object is to provide a high standard refrigerated food bar arrangement, particularly of the type intended for self-service, but also for other purposes, e.g. in canteens in schools or restaurants or imbiß stands when staff are serving the customers.

[0014] It is also a particularly an object to provide an arrangement which can be operated without, and does not necessitate the use of any fan blowers.

[0015] Therefore an arrangement is provided which has the characterizing features of claim 1.

[0016] Advantageous embodiments are given by the appended sub claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The invention will in the following be further described in a non-limiting manner, and with reference to the accompanying drawings, in which:

Fig. 1 shows a food bar arrangement according to the invention in a perspective view,

Fig. 2 is a schematic, longitudinal cross-sectional view through the upper part of the arrangement in Fig. 1,

Fig. 3 is a schematic longitudinal view of an arrangement according to the invention,

Fig. 4 is cross-sectional view as seen in the direction

of the arrows A-A in Fig. 3.

DETAILED DESCRIPTION

[0018] Fig.1 shows a food bar arrangement 100, e.g. a salad bar, according to a first embodiment of the invention. It comprises a canteen or pan holding arrangement 10 adapted to receive and hold a plurality of canteens or pans $1A_1, \dots, 1A_9$ in which fresh food products will be placed. It further comprises a refrigerating arrangement 20 adapted to cool the canteens, and the food products provided therein for keeping the food products at a desired temperature, e.g. above 0° but below 8° C, or within a more specified temperature interval.

[0019] The holding arrangement 10 comprises a cupboard or a bench arrangement 15 comprising a cold well adapted to receive the canteens or pans in such a manner that openings of the canteens or pans make the food accessible for a user from a first and a second outer side section 15A, 15B of the holding arrangement 10 allowing the user to choose and pick from the canteens or pans. The arrangement 100 also comprises a cover arrangement 30 adapted to cover the upper, open sections of the canteens or pans so that they will be covered and protected in time periods when not access is required for serving a user, or for refilling the canteens or similar. The covering arrangement in some embodiments also serve the purpose of assisting in the desired even temperature distribution. In some embodiments, though, the covering arrangement may be dispensed with.

[0020] The refrigerating arrangement 20 comprises one or more cooling elements.

[0021] The cooling arrangement 20 comprising cooling elements is arranged with respect to, or in, the holding arrangement 10 such that, when the canteens are taken up therein, each canteen back wall distant from an opposite canteen front wall located adjacent an inner side of the holding arrangement 10 at the outer end sections of the holding arrangement 10 where customer access is provided, will be located close to, facing it, preferably throughout the entire area forming the back wall.

[0022] The holding arrangement 10 comprises holding means adapted to hold the canteens or pans in an inclined position such that the outer, upper ends or side edges, of the canteens are arranged at a lower level than opposing inner, upper ends or side edges. Bottom sections of the holding arrangement are disposed such that a distance is left between the bottom surface of the holding arrangement forming a cold well and the bottom portions of the canteens, the distance d (see Fig. 4) being larger below the cooling arrangement 20 than at the outer end portions.

[0023] The cooling element or cooling elements are thus arranged to be located adjacent the outer sides of the back walls of the canteens in a mounted position in the holding arrangement 10.

[0024] A first portion 20A of the cooling arrangement 20 protrudes so as to be arranged above the upper edges

of the back walls of the canteens when they are placed in the holding arrangement 10.

[0025] A second section 20B of the cooling arrangement 20 extends downwards towards, but ending at a certain distance from, the bottom of the well or trough of the holding arrangement 10 such that it will be located adjacent substantially the entire back wall of each canteen.

[0026] Through the positioning of the canteens in an inclined manner, outwardly downwards away from the cooling arrangement 20, and the first portion 20A of the cooling arrangement extending upwardly above the inner upper side edges of the back walls, and the cooling arrangement 20 being divided into a (communicating) upper and lower portion, separated by means of a dividing plate 24 (see Fig. 4), the cooled air surrounding the upper inner part will flow downwards, outwards above the canteens containing the food, due to the dividing plate hence not being allowed to pass, flow, vertically to the cold well, but is prevented to do so by the dividing plate 24.

[0027] Through the second lower portion of the cooling arrangement 10 covering the entire back walls of the canteens and a larger space being formed adjacent, below, the cooling arrangement 10, air with a lower temperature will be distributed and flow towards the outer end sections, under the canteens, so that the canteens or pans, and food provided therein, will be efficiently and evenly cooled from below as well as from above.

[0028] In Fig 1 the arrangement 100 comprises a holding arrangement 10 which is adapted to receive two parallel rows of canteens $1A_1-1A_9, 1A_1'-1A_9'$, the cooling arrangement 20 protruding in a central portion of the bar arrangement above the inner, upper back edges of mounted canteens, and the canteens in each row being held so as to form an inclination angle α of between 5° and 10° , preferably between 6° and 9° , most preferably around 7.5° with a horizontal plane, see Fig. 4.

[0029] The bottom sections of the holding arrangement 10 are preferably also inclined such that an angle β of about $165^\circ-175^\circ$ is formed at the intersection of the two bottom planes, the vertex being located below the lower end of the cooling arrangement 20.

[0030] In an advantageous embodiment about 30% of the cooling arrangement (the cooling elements), or an upper portion thereof providing about 30% of the cooling effect, is located above the upper edges of the back walls of the canteens when arranged in the holding arrangement, whereas about 70% is located below the upper edges, forming a lower portion, in the shown embodiment between opposite back walls of canteens in the two rows.

[0031] Fig 2 is a section through an arrangement as shown in Fig 1 which illustrates a refrigerating arrangement 20' comprising an inlet 22 at an upper end of the cooling arrangement which is the coolest part, and which is adapted to be connected to a throttle valve (not shown), the cooling arrangement comprising conduits through which a cooling fluid is circulating back and forth throughout the length of the holding arrangement in a number of

turns until, at the lower part of the cooling arrangement 20 where it is connected to an outlet 23, which is adapted to be connected to a compressor (not shown).

[0032] In Fig. 2 also an upper and a lower portion 26, 26' of an evaporator are shown, i.e. an evaporator is divided into a lower and an upper evaporation portion. A dividing plate 24 forms an interface between the portions of the cooling arrangement being located above the upper edges of canteens mounted in the holding arrangement and the lower portion respectively as discussed more thoroughly with reference to Figs. 1, 4. Preferably outer edges of the dividing plate 24 form inner holding means 14 for holding inner, upper edges of the canteens, which preferably rest on the dividing plate 24.

[0033] Fig 3 also is a longitudinal section through an arrangement as in Fig. 1, wherein the section shown to the left in the Figure illustrates the arrangement when the covering arrangement 30 (30A) is closed, and the section to the right in the Figure schematically illustrates the arrangement when the covering arrangement 30, or an element thereof 30B, is closed. It should be clear that the covering arrangement may take different forms and may be split up into different sections; one for each a canteen, or one section for two or more canteens in a row etc.

[0034] Fig. 4 is a cross-sectional view along the line indicated by A-A in Fig.3. It shows a holding arrangement 10 with holding means comprising outer holding means 13, here simply formed by abutting edges or flanges on which outer edges or rims surrounding the upper edge of a canteen are intended to rest.

[0035] Inner holding means 14, also forming edges, are formed by outer edges of the dividing plate 24, thus here separate from the actual holding arrangement, and e.g. supported by a separate holding arrangement provided such as to hold the cooling arrangement and optionally a covering arrangement as can be seen e.g. in Fig. 4. The inner holding means 14 are arranged above the outer holding means, e.g. edges 13, and when mounted the upper back edge of a canteen will form an angle α of about, here between 7 and 8° with a horizontal plane/line.

[0036] In other words, the inner 13 and outer 14 holding means are so arranged with respect to another that a canteen held by them will be arranged such that its inclination angle is α . The holding means may take a number of different forms and operate in different manners as long as this condition is met; the angle α may also take other values, e.g. between 5.5° and 9.5°, or preferably between 6.5° and 8.5°, or somewhat smaller and larger values as well.

[0037] The planes 17A, 17A' forming the bottom planes of the holding arrangement preferably also are inclined in opposite directions towards one another, forming an angle $\pm\beta$ respectively with a fictive horizontal plane connecting their outer edges.

[0038] The cooling arrangement 20 is arranged in a centralized manner with respect to the vertex V formed

at the intersection of these planes with about 70% or two thirds of the cooling arrangement forming a lower portion 20B is disposed between the inner, one another facing back walls of the canteens 1A, 1A', whereas an upper portion 20A, e.g. about 30% or one third of the cooling arrangement (above the dividing plate 24) protrudes above the upper edges of the canteen back walls.

[0039] Through cooling medium conduits extending longitudinally as explained with reference to Fig. 3, the cooling medium flows from the upper inlet towards the bottom outlet (not shown in this figure).

[0040] The dividing plate 24 passes longitudinally throughout the cooling arrangement 20, preventing on the upper side cooled air from passing or flowing vertically down to the cold well below the canteens, but urging it to flow across, above, the upper of the canteens.

The covering arrangement 30 (30A, 30B) is here only schematically illustrated, and is operated by, here, two gas springs for each covering element such as to keep the cover closed and open respectively. The functioning will not be further described since the covering arrangement may take many different forms, the main thing being that a covering arrangement is arranged leaving a space above the canteens allowing a circulation of the air in the arrangement due to the cooled air flowing outwards, downwards due to the inclination of the canteens over the food since cool air has a lower density.

[0041] It should be clear that the invention is not limited to the specifically illustrated embodiments, but that it can be varied in a number of ways within the scope of the appended claims. Particularly it is of course not limited to any particular number of canteens, sizes and shapes of canteens or holding means or cover arrangements.

[0042] Also the holding arrangement may be adapted for taking up one row of canteens, it may be square shaped to take up four rows of canteens arranged with a cooling arrangement in the center of pair wise oppositely arranged canteen back walls, or it may even comprise a circular or oval holding arrangement with surrounding canteens with correspondingly adapted shapes of the canteens or the canteen back walls.

Claims

1. A food bar arrangement (100), e.g. a salad bar, comprising a canteen or pan holding arrangement (10) adapted to hold a plurality of canteens or pans for holding fresh food products, a refrigerating arrangement (20') for cooling the arrangement, i.e. food products held in the canteens or pans, and keeping the food products at a desired temperature, wherein the holding arrangement (10) comprises a cupboard or a bench arrangement (15) comprising a cold well, and is adapted to receive the canteens or pans in such a manner that openings of the canteens or pans make the food accessible for a user at least from a first outer side section (15A, 15B) of the food bar ar-

rangement allowing the user to choose and pick from the canteens or pans, wherein the refrigerating arrangement (20') comprises a cooling arrangement (20) with one or more cooling elements, that the holding arrangement (10) comprises a bottom with a bottom section or bottom sections, the holding arrangement (10) and the cooling arrangement (20) being so arranged with respect to one another that a distance (d) is provided between the bottom of the holding arrangement forming a cold well and the cooling arrangement (10),

that holding or supporting means (13,14) are provided which are adapted to hold the canteens or pans in an inclined position such that upper edges of the canteens, which when placed in the food bar arrangement will be located adjacent the first outer side section (15A,15B), will be located at a lower level than opposing inner, upper edges,

characterized in

that the cooling arrangement (20) is centrally arranged and in that the holding means are arranged on either sides thereof to allow holding canteens on at least two opposite sides of the cooling arrangement (20), in respective outwardly inclined positions, so that the cooling arrangement (20) peripherally or at least on two sides such may be surrounded by canteens,

that the cooling arrangement is so arranged with respect to the holding arrangement (10) that it will be located close to a location where canteen back walls will be located when held by the holding arrangement (10), said location being distant from the first outer side sections (15A,15B),

that a first portion (20A) of the cooling arrangement extends upwardly from a second lower section (20B) of the cooling arrangement (20) and is arranged above the location where the upper, inner edges of the canteens will be located when placed in the holding arrangement (10), and in that the second lower section (20B) of the cooling arrangement extends downwards towards, but ending at said distance (d) from the bottom of the well or trough of the holding arrangement (10), such that when canteens or pans are mounted in the food bar arrangement, substantially their entire back walls will be located adjacent said lower section (20B) of the cooling arrangement.

2. A food bar arrangement according to claim 1, **characterized in** the cooling arrangement (20) is separated into the upper and the lower portion (20A,20B) by means of a longitudinal dividing plate (24) .
3. A food bar arrangement according to claim 2, **characterized in** that the dividing plate (24) is adapted to provide or comprise said inner holding means (14).

4. A food bar arrangement according to claim 3, **characterized in** that the holding or supporting means comprises inner holding means (14,14) formed by the longitudinal outer edges of the dividing plate (24) hence forming supporting edges on which outwardly directed flanges or similar cooperating means of the canteens may rest.
5. A food bar arrangement according to any one of claims 1-4, **characterized in** that the holding arrangement (10) is so disposed and that the holding or supporting means comprises outer holding means (13,13) so disposed that two parallel rows of canteens may be taken up, longitudinally along either side of the cooling arrangement (20), the outer holding or supporting means (13,13) being located at a lower level vertically seen than the inner holding or supporting means (14,14).
6. A food bar arrangement according to any one of claims 1-5, **characterized in** that the bottom sections are oppositely inclined such that an angle between the bottom sections in a plane perpendicular thereto is less than 180°, the vertex (V) or intersection of the plane sections being located below the bottom of the longitudinal lower portion (20B) of the cooling arrangement, a cold well being formed which is arranged to surround front, lateral and bottom walls of canteens or pans placed in the holding arrangement.
7. A food bar arrangement according to any one of the preceding claims, **characterized in** that the cooling arrangement (20) comprising one or more cooling elements is so disposed that about one third, or about 30%, of the cooling arrangement, corresponding to the upper portion (20A) is located above the dividing plate (24) preferably also defining a vertical position where uppermost, back edges are allowed to be located when located in the bar arrangement, whereas approximately two thirds, or about 70%, corresponding to the lower portion (20B) of the cooling arrangement is disposed below said dividing plate (24).
8. A food bar arrangement according to any one of the preceding claims, **characterized in** that it further comprises a covering arrangement (30), comprising one or more cover elements (30A,30B), arranged to automatically return to a closed position, e.g. by means of sensor controlled action, or by means of a manual interaction, e.g. assisted by means of a gas spring or similar, optionally

also oppositely operating second gas springs or similar being provided to keep the cover temporarily in an open position when opened, so that unless the canteens are serviced, filled with food or servicing a user, a closed system is formed allowing cooled air to flow around the food in the canteens, without requiring any assisted air flow by means of any fan blower.

9. A food bar arrangement at least according to claim 3, **characterized in** the cooling arrangement (20) is supported by means of upper holding means and extends freely downwards towards the cold well.
10. A food bar arrangement according to claim 8 and 9, **characterized in** that the cooling arrangement (20) and the covering arrangement (30) are commonly supported and comprise or form the upper holding arrangement.
11. A food bar arrangement according to any one of the preceding claims, **characterized in** the refrigerating arrangement (20') comprises a cooling arrangement (20) comprising a number of cooling elements allowing a cooling medium to flow in longitudinal conduits adjacent and above the back walls of canteens located in the holding arrangement, wherein the refrigerating arrangement (20') at an upper portion comprises an inlet (22) e.g. for connection to a throttle valve, and at a lower end comprises an outlet (23) e.g. adapted to be connected to a compressor, such that an upper region will be the coolest region.
12. A food bar arrangement according to any one of the preceding claims, **characterized in** that the canteens in each row are held so as to form an inclination angle α of between 5° and 10°, preferably between 6° and 9°, most preferably around 7.5° with a horizontal plane.
13. A food bar arrangement according to any one of the preceding claims, **characterized in** that the holding or supporting means comprise inner and/or outer holding or supporting means (13,14) comprising abutting edges provided on the holding arrangement (10).
14. A food bar arrangement according to claim 1, or any one of claims 4-8, **characterized in** that the holding or supporting means (13,14) and the holding arrangement (10) are adapted to receive canteens on three or more sides, or that the holding

arrangement (10) and inner holding or supporting means (14) are disposed allowing canteens to be arranged surrounding the cooling arrangement (20) on two or more sides, or in a continuous manner, e.g. in a circular, oval or rectangular or similar manner.

Patentansprüche

1. Nahrungsmittelthekenanordnung (100), z. b. eine Salattheke, umfassend eine Kochgeschirr- oder Wannenhalteanordnung (10), die ausgebildet ist eine Vielzahl von Kochgeschirren oder Wannen für das Aufnehmen von frischen Nahrungsmittelprodukten zu halten, eine Kühleranordnung (20'), zum Kühlen der Anordnung, d. h. Nahrungsmittelprodukte, die in den Kochgeschirren oder Wannen aufgenommen sind, und Halten der Nahrungsmittelprodukte auf einer gewünschten Temperatur, wobei die Halteanordnung (10) einen Schrank oder eine Bankanordnung (15), umfassend eine Kältequelle, umfasst und ausgebildet ist die Kochgeschirre oder Wannen in einer solchen Weise aufzunehmen, dass Öffnungen der Kochgeschirre oder Wannen die Nahrungsmittel für einen Benutzer zumindest von einem ersten Außenseitenabschnitt (15A, 15B) der Nahrungsmittelthekenanordnung zugänglich sind, sodass es dem Benutzer möglich ist, von den Kochgeschirren oder Wannen auszuwählen und aufzunehmen, wobei die Kühleranordnung (20') eine Kühlanordnung (20) mit einem oder mehreren Kühlelementen umfasst, wobei die Halteanordnung (10) einen Boden mit einem Bodenabschnitt oder Bodenabschnitten umfasst und wobei die Halteanordnung (10) und die Kühlanordnung (20) so zueinander angeordnet sind, dass eine Distanz (d) zwischen dem Boden der Halteanordnung, der eine Kältequelle bildet, und der Kühlanordnung (10) vorgesehen ist, wobei Halte- oder Stützmittel (13, 14) vorgesehen sind, die ausgebildet sind die Kochgeschirre oder Wannen in einer geeigneten Position zu halten, sodass obere Kanten der Kochgeschirre, die, wenn sie in der Nahrungsmittelthekenanordnung angeordnet sind, benachbart zu den ersten Außenseitenabschnitten (15A, 15B) angeordnet sind, auf einer niedrigeren Ebene als gegenüberliegende, innere, obere Kanten angeordnet sind, **dadurch gekennzeichnet, dass** die Kühlanordnung (20) zentral angeordnet ist und dass die Haltemittel auf beiden Seiten davon angeordnet sind, um Halten von Kochgeschirren auf zumindest zwei gegenüberliegenden Seiten der Kühlanordnung (20), in jeweils nach außen geneigten Anordnungen, zu ermöglichen, sodass die Kühlanordnung (20) umlaufend oder zumindest auf zwei Seiten von Kochgeschirren umgeben ist, dass die Kühlanordnung so bezüglich der Halteanord-

- nung (10) angeordnet ist, dass sie nahe zu einem Ort angeordnet ist, an dem Kochgeschirrrückwände, wenn von der Halteanordnung (10) gehalten, angeordnet sind, wobei der Ort von den ersten Außenseitenabschnitten (15A, 15B) entfernt ist, **dass** sich ein erster Abschnitt (20A) der Kühlanordnung von einem zweiten niedrigeren Abschnitt (20B) der Kühlanordnung (20) aufwärts erstreckt und oberhalb des Ortes angeordnet ist, an dem die oberen, inneren Kanten der Kochgeschirre angeordnet sind, wenn in der Halteanordnung (10) angeordnet, und dadurch, dass der zweite niedrigere Abschnitt (20B) der Kühlanordnung sich abwärts dazu hin erstreckt aber in der Distanz (d) von dem Boden der Quelle oder durch die Halteanordnung (10) hindurch endet, sodass, wenn Kochgeschirre oder Wannen in der Nahrungsmitteltheke montiert sind, im Wesentlichen ihre gesamten Rückwände benachbart zu dem unteren Abschnitt (20B) der Kühlanordnung angeordnet sind.
2. Nahrungsmittelthekenanordnung nach Anspruch 1, **dadurch gekennzeichnet**, **dass** die Kühlanordnung (20) in den oberen und unteren Abschnitt (20A, 20B) mittels einer Längs-Teilungsplatte (24) geteilt ist.
3. Nahrungsmittelthekenanordnung nach Anspruch 2, **dadurch gekennzeichnet**, **dass** die Teilungsplatte (24) ausgebildet ist die inneren Haltemittel (14) vorzusehen oder diese umfasst.
4. Nahrungsmittelthekenanordnung nach Anspruch 3, **dadurch gekennzeichnet**, **dass** die Halte- oder Stützmittel innere Haltemittel (14, 14) umfassen, die durch die längsgerichteten Außenkanten der Teilungsplatte (24) gebildet sind und somit Stützkanten bilden, auf denen nach außen gerichtete Flansche oder ähnlich zusammenarbeitende Mittel der Kochgeschirre ruhen können.
5. Nahrungsmittelthekenanordnung nach einem der Ansprüche 1-4, **dadurch gekennzeichnet**, **dass** die Halteanordnung (10) so angeordnet ist und dass die Halte- oder Stützmittel äußere Haltemittel (13, 13) so angeordnet umfassen, dass zwei parallele Reihen von Kochgeschirren längs, entlang beider Seiten der Kühlanordnung (20) aufgenommen werden können, wobei die äußeren Halte- oder Stützmittel (13, 13) vertikal gesehen an einer niedrigeren Ebene angeordnet sind, als die inneren Halte- oder Stützmittel (14, 14).
6. Nahrungsmittelthekenanordnung nach einem der Ansprüche 1-5, **dadurch gekennzeichnet**, **dass** die Bodenabschnitte entgegengesetzt geneigt sind, sodass ein Winkel zwischen den Bodenabschnitten in einer Ebene lotrecht dazu geringer ist als 180°, wobei der Scheitel (V) oder Schnittpunkt der Ebenenabschnitte unter dem Boden des längsgerichteten unteren Abschnitts (20B) der Kühlanordnung angeordnet ist und eine Kältequelle gebildet ist, die angeordnet ist Vorder-, Seiten- und Bodenwände der Kochgeschirre oder Wannen, die in der Halteanordnung angeordnet sind, zu umgeben.
7. Nahrungsmittelthekenanordnung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, **dass** die Kühlanordnung (20), die ein oder mehrere Kühlelemente umfasst, so angeordnet ist, dass ungefähr ein Drittel, oder ungefähr 30%, der Kühlanordnung, korrespondierend zu dem oberen Abschnitt (20A), über der Teilungsplatte (24) angeordnet ist und vorzugsweise auch eine vertikalen Position bestimmt, in der oberste hintere Kanten angeordnet werden können, wenn in der Thekenanordnung angeordnet, wobei näherungsweise zwei Drittel oder ungefähr 70% korrespondierend zu dem unteren Abschnitt (20B) der Kühlanordnung unterhalb der Teilungsplatte (24) angeordnet sind.
8. Nahrungsmittelthekenanordnung nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet**, **dass** sie ferner eine Abdeckenanordnung (30) umfasst, die ein oder mehrere Abdeckelemente (30A, 30B) umfasst, die angeordnet sind automatisch in eine geschlossene Position zurückzukehren, z. b. mittels einer sensorgesteuerten Aktion oder mittels einer manuellen Interaktion, z. b. mittels einer Gasfeder oder Ähnlichem unterstützt, optional sind auch betätigte zweite Gasfedern oder Ähnliches gegenüberliegend vorgesehen, um die Abdeckung, wenn sie geöffnet ist, temporär in einer geöffneten Position zu halten, sodass, außer wenn die Kochgeschirre gewartet, mit Nahrungsmitteln gefüllt werden oder einem Benutzer dienen, ein geschlossenes System gebildet wird, das es gekühlter Luft erlaubt um die Nahrungsmittel in den Kochgeschirren zu fließen, ohne einen mittels jeglichen Ventilators unterstützten Luftfluß zu benötigen.
9. Nahrungsmittelthekenanordnung nach zumindest Anspruch 3, **dadurch gekennzeichnet**, **dass** die Kühlanordnung (20) mittels oberer Haltemittel gestützt wird und sich frei abwärts in Richtung der Kältequelle erstreckt.
10. Nahrungsmittelthekenanordnung nach den Ansprüche 8 und 9, **dadurch gekennzeichnet**,

dass die Kühlanordnung (20) und die Abdeckenordnung (30) gemeinsam gestützt sind und die obere Halteanordnung umfassen oder bilden.

11. Nahrungsmittelthekenanordnung nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Kühleranordnung (20') eine Kühlanordnung (20) umfasst, die eine Anzahl von Kühlelementen umfasst, die es einem Kühlmedium erlauben in längsgerichteten Leitungen benachbart zu und über den Rückwänden von Kochgeschirren zu fließen, die in der Halteanordnung angeordnet sind, wobei die Kühleranordnung (20') an einem oberen Abschnitt einen Einlass (22), z. b. für die Verbindung mit einem Drosselventil, umfasst und an einem unteren Ende einen Auslass (23), z. b. ausgebildet mit einem Kompressor verbunden zu sein, umfasst, sodass ein oberer Bereich der kühlste Bereich sein wird.
12. Nahrungsmittelthekenanordnung nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Kochgeschirre in jeder Reihe so gehalten werden, dass sie einen geeigneten Winkel α von zwischen 5° und 10° , vorzugsweise zwischen 6° und 9° , am meisten vorzugsweise ungefähr $7,5^\circ$, zu einer horizontalen Ebene bilden.
13. Nahrungsmittelthekenanordnung nach einem der vorhergehenden Ansprüche,
dadurch gekennzeichnet,
dass die Halte- oder Stützmittel innere und/oder äußere Halte- oder Stützmittel (13, 14) umfassen, die aneinandergrenzende Kanten umfassen, die auf der Halteanordnung (10) vorgesehen sind.
14. Nahrungsmittelthekenanordnung nach Anspruch 1 oder einem der Ansprüche 4-8
dadurch gekennzeichnet,
dass die Halte- oder Stützmittel (13, 14) und die Halteanordnung (10) ausgebildet sind Kochgeschirre auf drei oder mehr Seiten aufzunehmen oder dass die Halteanordnung (10) und innere Halte- oder Stützmittel (14) angeordnet sind, sodass Kochgeschirre die Kühlanordnung (20) auf zwei oder mehr Seiten oder in einer kontinuierlichen Weise umgeben können, z. b. in einer runden, ovalen oder rechteckigen oder ähnlichen Weise.

Revendications

1. Agencement de buffet alimentaire (100), par exemple un buffet à salades, comprenant un dispositif support de gamelle ou cuve (10) conçu pour supporter une pluralité de gamelles ou de cuves destinées à contenir des produits alimentaires frais, un dispo-

sitif de réfrigération (20') pour refroidir le dispositif, c'est-à-dire des produits alimentaires contenus dans les gamelles ou cuves, et garder les produits alimentaires à une température voulue, où le dispositif support (10) comprend un placard ou un agencement de banc (15) comprenant un puits froid, et est conçu pour recevoir les gamelles ou cuves de telle sorte que les ouvertures des gamelles ou cuves rendent les aliments accessibles à un utilisateur au moins à partir d'une première section latérale externe (15A, 15B) de l'agencement de buffet alimentaire permettant à l'utilisateur de choisir et de prélever dans les gamelles ou cuves, où le dispositif de réfrigération (20') comprend un dispositif de refroidissement (20) avec un ou plusieurs éléments de refroidissement, le dispositif support (10) comprenant un fond avec une section inférieure ou des sections inférieures, le dispositif support (10) et le dispositif de refroidissement (20) étant disposés l'un par rapport à l'autre de façon qu'une distance (d) est prévue entre le fond du dispositif support formant un puits froid et le dispositif de refroidissement (10), des moyens de maintien ou de support (13, 14) étant prévus pour maintenir les gamelles ou les cuves dans une position inclinée de manière que les bords supérieurs des gamelles, lesquelles quand elles sont placées dans l'agencement de buffet alimentaire sont positionnées adjacentes à la première section latérale externe (15A 15B), sont positionnés à un niveau inférieur à celui de bords supérieurs internes opposés,
caractérisé en ce
que le dispositif de refroidissement (20) est agencé de manière centrale et que les moyens de maintien sont disposés de chaque côté de celui-ci pour permettre le maintien des gamelles sur au moins deux côtés opposés du dispositif de refroidissement (20), dans des positions respectives inclinées vers l'extérieur, de manière que le dispositif de refroidissement (20) peut être entouré de façon périphérique ou au moins sur deux côtés par les gamelles,
que le dispositif de refroidissement est agencé par rapport au dispositif support (10) de manière à être positionné à proximité d'un emplacement où seront positionnés les parois arrière de la gamelle lorsque supportées par le dispositif support (10), ledit emplacement étant éloigné des premières sections latérales externes (15A, 15B),
qu'une première partie (20A) du dispositif de refroidissement s'étend vers le haut à partir d'une seconde section inférieure (20B) du dispositif de refroidissement (20) et est disposée au-dessus de l'emplacement où les bords internes supérieurs des gamelles seront positionnés quand placés dans le dispositif support (10), et en ce que la seconde section inférieure (20B) du dispositif de refroidissement s'étend vers le bas, mais se termine à ladite distance (d) du fond du puits ou creux du dispositif support

- (10), de façon que lorsque les gamelles ou les cuves sont montées dans l'agencement de buffet alimentaire, sensiblement toute leur paroi arrière est positionnée adjacente à ladite section inférieure (20B) du dispositif de refroidissement. 5
2. Agencement de buffet alimentaire selon la revendication 1, **caractérisé en ce que** le dispositif de refroidissement (20) est séparé dans les parties supérieure et inférieure (20A, 20B) au moyen d'une plaque de séparation longitudinale (24). 10
 3. Agencement de buffet alimentaire selon la revendication 2, **caractérisé en ce que** la plaque de séparation (24) est conçue pour fournir ou comprendre lesdits moyens de maintien internes (14). 15
 4. Agencement de buffet alimentaire selon la revendication 3, **caractérisé en ce que** les moyens de maintien ou de support (14, 14) comprennent des moyens de maintien internes (14, 14) formés par les bords externes longitudinaux de la plaque de séparation (24) formant ainsi des bords de support sur lesquels peuvent s'appuyer des bords orientés vers l'extérieur ou des moyens de coopération similaires des gamelles. 20 25
 5. Agencement de buffet alimentaire selon l'une quelconque des revendications 1-4, **caractérisé en ce que** le dispositif de support (10) est ainsi positionné et que les moyens de maintien ou de support comprennent des moyens de maintien externes (13, 13) positionnés de manière à ce que deux rangées parallèles de gamelles puissent être installées, longitudinalement le long de chaque côté du dispositif de refroidissement (20), les moyens de maintien ou de support externes (13, 13) étant positionnés à un niveau verticalement inférieur à celui des moyens de maintien ou de support internes (14, 14). 30 35
 6. Agencement de buffet alimentaire selon l'une quelconque des revendications 1-5, **caractérisé en ce que** les sections inférieures sont inclinées de façon à ce qu'un angle entre les sections inférieures dans un plan perpendiculaire à celles-ci soit inférieur à 180°, le sommet (V) ou l'intersection des sections de plan étant situé(e) au-dessous du fond de la partie longitudinale inférieure (20B) du dispositif de refroidissement, un puits froid étant formé qui est disposé pour entourer les parois avant, latérales et arrière de gamelles ou de cuves placées dans le dispositif support. 40 45 50
 7. Agencement de buffet alimentaire selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le dispositif de refroidissement (20) comprenant un ou plusieurs éléments de refroidissement est positionné de telle sorte qu'environ un tiers, ou environ 30%, du dispositif de refroidissement, correspondant à la partie supérieure (20A) est positionné au-dessus de la plaque de séparation (24) définissant préférentiellement également une position verticale où les bords arrière supérieurs peuvent être positionnés quand positionnés dans l'arrangement de buffet, tandis qu'environ deux tiers, ou environ 70%, correspondant à la partie inférieure (20B) du dispositif de refroidissement sont disposés au-dessous de ladite plaque de séparation (24). 5
 8. Agencement de buffet alimentaire selon l'une quelconque des revendications précédentes, **caractérisé en ce qu'il** comprend en outre un dispositif de couverture (30), comprenant un ou plusieurs éléments de couverture (30A, 30B), agencés pour revenir automatiquement à une position fermée, par exemple au moyen d'une action commandée par capteur, ou au moyen d'une interaction manuelle, par exemple assistée au moyen d'un ressort à gaz ou similaire, optionnellement également en actionnant des seconds ressorts à gaz ou similaire prévus pour maintenir le couvercle temporairement dans une position ouverte lorsqu'il est ouvert, de sorte que, à moins que les gamelles soient desservies, remplies d'aliments ou desservent un utilisateur, un système fermé est formé permettant à l'air refroidi de circuler autour des aliments dans les gamelles, sans nécessiter de flux d'air alimenté au moyen d'un ventilateur. 30
 9. Agencement de buffet alimentaire au moins selon la revendication 3, **caractérisé en ce que** le dispositif de refroidissement (20) est supporté au moyen de moyens de maintien supérieurs et s'étend librement vers le bas en direction du puits froid. 35
 10. Agencement de buffet alimentaire selon les revendications 8 et 9, **caractérisé en ce que** le dispositif de refroidissement (20) et le dispositif de couverture (30) sont communément supportés et comprennent ou forment la partie supérieure du dispositif support. 40
 11. Agencement de buffet alimentaire selon l'une quelconque des revendications précédentes, **caractérisé en ce que** le dispositif de réfrigération (20') comprend un dispositif de refroidissement (20) comprenant un certain nombre d'éléments de refroidissement permettant à un agent de refroidissement de circuler dans des conduits longitudinaux adjacents et au-dessus des parois arrière de gamelles positionnées dans le dispositif support, où le dispositif de réfrigération au niveau d'une partie supérieure comprend une entrée (22) par exemple pour la connexion à une vanne d'étranglement, et au niveau d'une extrémité inférieure comprend une sortie (23) par exemple conçue pour être connectée à un compresseur, de sorte qu'une région supérieure sera la 45 50 55

région la plus froide.

12. Agencement de buffet alimentaire selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les gamelles de chaque rangée sont maintenues de manière à former un angle d'inclinaison α compris entre 5° et 10° , préférentiellement entre 6° et 9° , plus préférentiellement autour de $7,5^\circ$ avec un plan horizontal.
13. Agencement de buffet alimentaire selon l'une quelconque des revendications précédentes, **caractérisé en ce que** les moyens de maintien ou de support comprennent des moyens de maintien ou de support internes et/ou externes (13, 14) comprenant des bords de butée prévus sur le dispositif support (10).
14. Agencement de buffet alimentaire selon la revendication 1, ou l'une quelconque des revendications 4-8, **caractérisé en ce que** les moyens de maintien ou de support (13, 14) et le dispositif support (10) sont conçus pour recevoir des gamelles sur trois côtés ou plus, ou que les moyens de maintien ou de support internes (14) sont positionnés permettant aux gamelles d'être positionnées autour du dispositif de refroidissement (20) sur deux côtés ou plus, ou de manière continue, par exemple de manière circulaire, ovale ou rectangulaire ou similaire.

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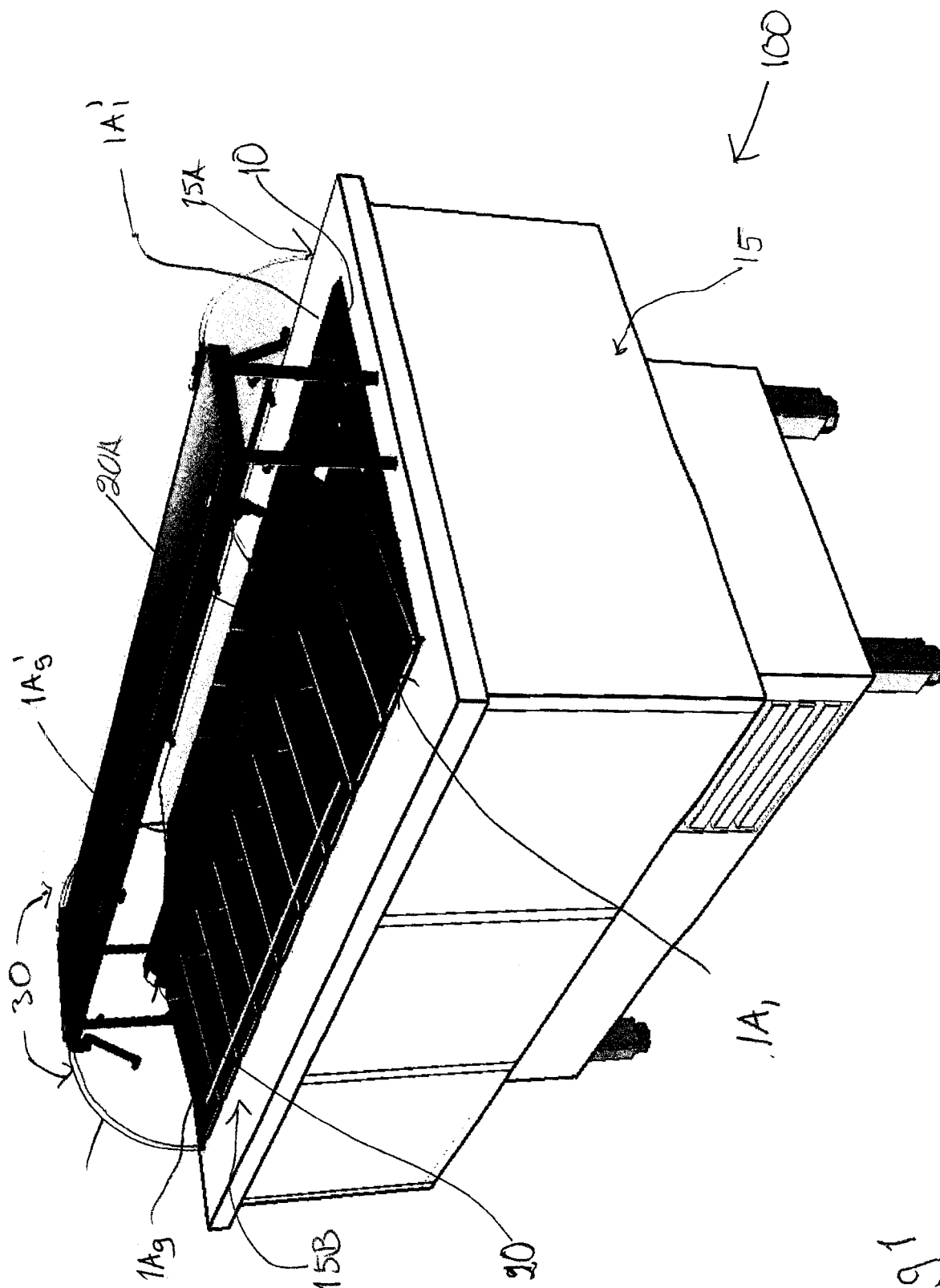


Fig1

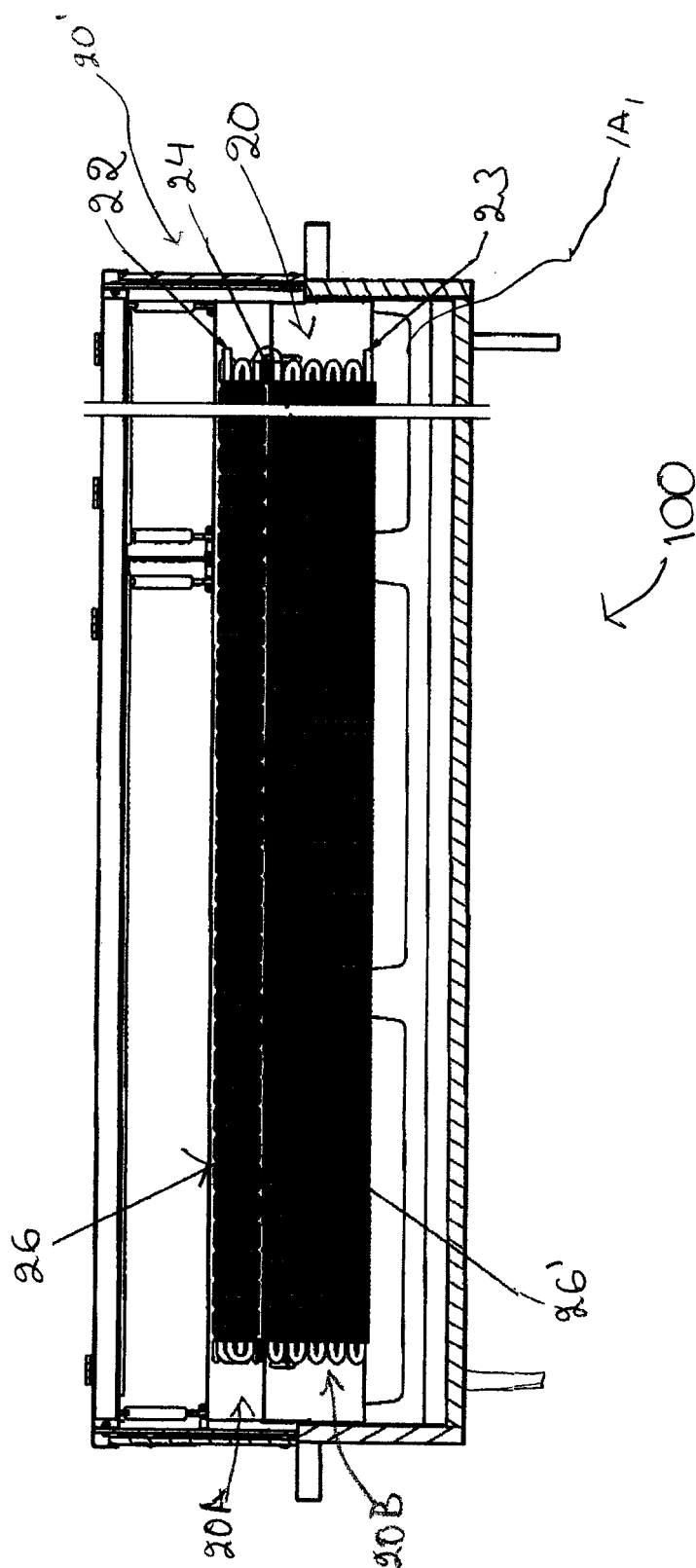


Fig 2

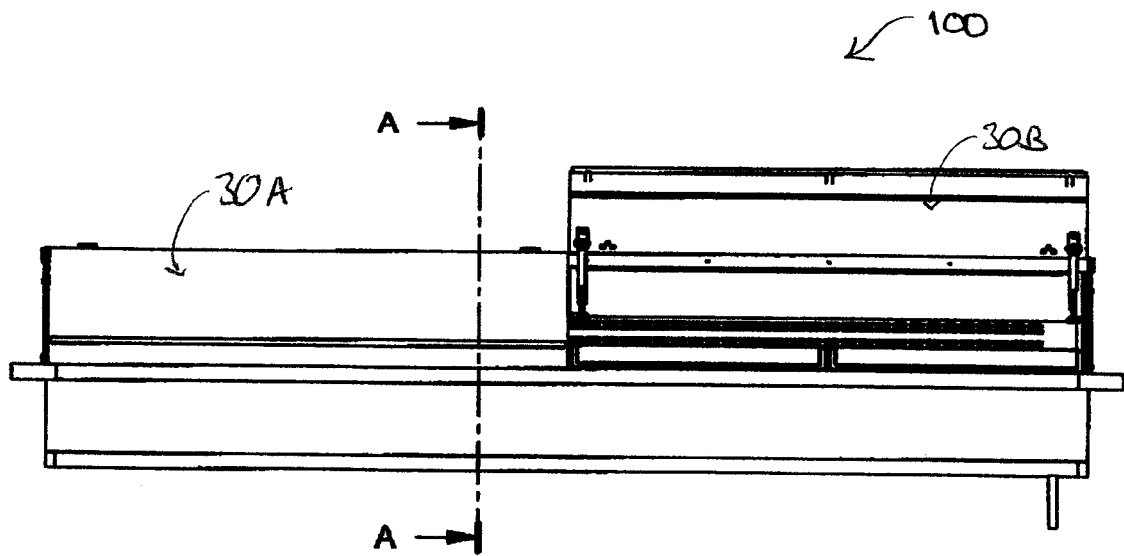


Fig 3

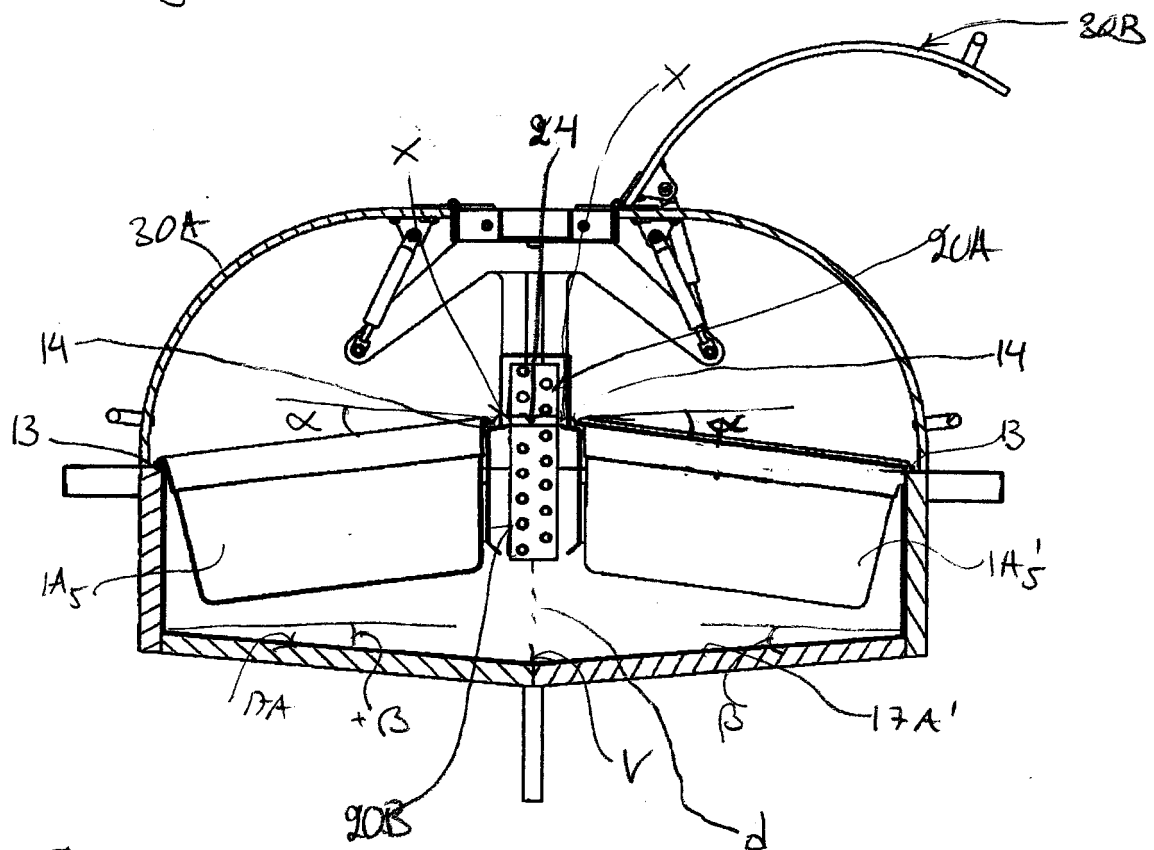


Fig 4

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 2201696 A [0005]