

(19)



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(11)

EP 2 976 981 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
27.01.2016 Bulletin 2016/04

(51) Int Cl.:
A47L 15/00 (2006.01) **A47L 15/08** (2006.01)
A47L 15/50 (2006.01)

(21) Application number: 15178105.1

(22) Date of filing: 23.07.2015

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**

Designated Extension States:

BA ME

Designated Validation States:

MA

(30) Priority: 25.07.2014 GB 201413220

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(54) CLEANING APPARATUS AND ASSOCIATED METHODS

(57) There is described cleaning apparatus and methods, particularly for use with industrial kitchen articles. Some examples of the apparatus comprise a cleaning tank for immersing kitchen articles having a generally rectangular configuration, with two opposing major sides and two opposing minor sides. There is also described an openable and closable lid, which may be pivotably openable and closable from one of the minor sides of the tank so as to allow access to the tank and to cover the tank in use. Further, a retaining device can be positioned within the tank in use and configured to support kitchen articles in immersion within the tank. In some examples, there is also provided a lifting mechanism for lifting and lowering the retaining device, the lifting mechanism coupled or connected between the lid and retaining device such that as lid is openable and closable, the retaining device raises and lowers within the cleaning tank, respectively. In some examples, the lid comprises an extendable handle portion configured to extend the effective length of the lid.

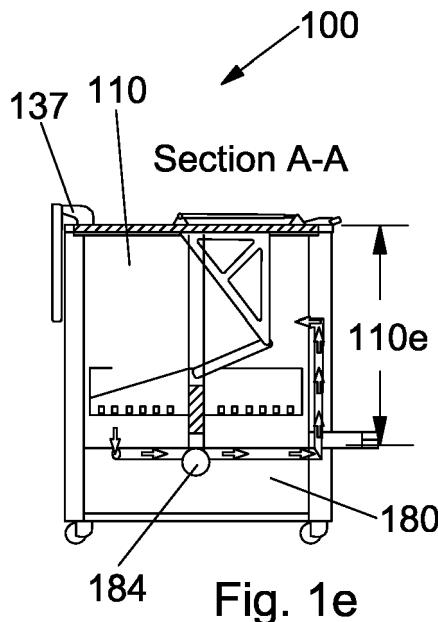


Fig. 1e

Description

Technical Field

[0001] The technical field relates to cleaning apparatus and methods particular for kitchen articles, for example industrial or catering kitchen articles.

Background

[0002] Significant innovation and technology development has occurred in recent years in relation to kitchen equipment particularly that used in catering kitchens, such as restaurants and the like, or in industrial kitchens such as those found in food processing plants. There is a continuing desire for such equipment to operate at the highest standards, while at the same time operating as cost effectively and hygienically as possible while minimising any risk of injury to a user or operator.

[0003] When cooking or preparing food, often kitchen articles such as branding plates, baking trays, filter meshes, pots, and kitchen utensils are used. Over time these articles become coated in deposits, for example baked or burnt foodstuff. For hygiene and efficiency reasons, these articles requiring cleaning from time to time. While this can be achieved offsite (i.e. remote from a kitchen), it is often desirable to have such articles cleaned at the premises (i.e. at that kitchen). For these purposes, industrial cleaning apparatus specifically designed to clean kitchen articles can be used. These apparatuses are often configured for use in a kitchen area and permit immersion of articles in a cleaning fluid, typically hot water together with a detergent for a period of time.

[0004] Because of the desire to clean articles at the kitchen, such cleaning apparatuses can often be used by kitchen porters, or the like, rather than specialist operators. As such, it is important that any cleaning apparatus be easy, effective and safe to use, as well as being easy to maintain.

[0005] This background serves only to set a scene to allow a skilled reader to better appreciate the following description. Therefore, none of the above discussion should necessarily be taken as an acknowledgement that that discussion is part of the state of the art or is common general knowledge. One or more aspects/embodiments of the invention may or may not address one or more of the background issues.

Summary

[0006] There are provided improved cleaning apparatus and methods particularly for kitchen articles. Such cleaning apparatus and methods may permit ease of use and maintenance, while also being safe and effective. In some examples, the apparatus may maximise effectiveness, while maintaining a minimum footprint, or floor space, in a kitchen or the like.

[0007] In some examples, there is provided a cleaning

apparatus comprising a cleaning tank for immersing kitchen articles. The tank may have a generally rectangular configuration. In other words, the tank may be considered to have two longer, or major, sides and two shorter, or minor, sides. The tank may also have particular depth or height to permit immersion of articles.

[0008] The apparatus may comprise an openable and closable lid. The lid may be a single or unitary lid, or indeed a combination of segments to form a lid. The lid may be pivotably openable and closable so as to allow access to tank and to cover the tank in use. The lid may be pivotably openable/closable from a shorter, or minor, side of the tank. The lid may be connected or coupled at that minor or shorter side.

[0009] The lid may comprise a handle portion, which may be configured to permit manual opening and/or closing of the lid. The handle portion may be extendable, for example, to extend the effective length of the lid. The handle may be extendable so as to extend the effective pivot length of the lid. The handle portion may have a stowed configuration and an operable configuration.

[0010] The apparatus may be configured to permit an operator to actuate the handle between the stowed configuration and the operable configuration when using the lid. The handle portion may be hingably coupled to the tank so as to provide stowed/operable configuration. In a stowed configuration, the handle portion may depend along some of the height of the tank. In an operable configuration, the handle portion may extend from the lid, outwardly from the tank. In some examples, the handle portion may extend in a plane common to the lid. In some examples, the apparatus may be configured such that handle portion is movable from the stowed configuration to a fixed, maximum, or locked operable configuration.

[0011] The handle portion may comprise a lifting member (e.g. configured to be operable by hand). The lifting member may be attached to one or more (e.g. two) connecting arms, connecting the member to the remainder of the lid. The or each connecting arm may be pivotably connected to a pivot mount. Such a pivot mount may be provided at the edge region of the lid. The pivot mount may be configured to extend beyond the edge region of the lid.

[0012] The lid may comprise an assisted-lift mechanism. The assisted-lift mechanism may be configured to reduce the force required by an operator to move the lid between a closed to an open configuration (e.g. from a closed to an open, and/or vice versa). The assisted-lift mechanism may be biased to assist opening of the lid.

[0013] The assisted-lift mechanism may be attached between the lid and the tank in order to assist an operator when moving the lid to an opened configuration. In some examples, the assisted-lift mechanism may comprise one or more extendable struts, such as gas struts. In some examples, the apparatus may comprise two extendable struts, which may be coupled between one longer side of the tank and the lid (e.g. one for each longer side of the tank).

[0013] The apparatus may comprise a retaining device positioned within the tank in use. The retaining device may be configured to support kitchen articles within the tank in use (e.g. support kitchen articles in immersion). The retaining device may be configured to attach to a tray, or may comprise a tray. The retaining device may be movable within the tank. The retaining device and apparatus may be configured such that the device is able to raise and lower within the tank.

[0014] The apparatus may comprise a lifting mechanism for lifting and lowering the retaining device. The lifting mechanism may be coupled or connected between the lid and movable retaining device such that as lid is openable and closable, the retaining device raises and lowers the within the cleaning tank, respectively.

[0015] The lifting mechanism may comprise a lid portion and a retaining device portion. The lid portion may be attached or mounted with the lid, while the retaining device portion of the lifting mechanism may be attached or mounted with the retaining device. The lid portion and retaining device portion may be movably coupled together. For example, the lid portion and retaining device portion of the lifting mechanism may be rotatably coupled. Such movable coupling may permit pilotable opening of the lid from a shorter side.

[0016] The apparatus may comprise one or more lifting guides. The lifting guides may be provided with the tank and/or retaining device, and configured to assist with raising and lowering of the retaining device. The lifting guides may be provided by one or more defined recesses or channels together with complementary guide elements. The recesses or channels may be provided with the tank, while the guide elements may be provided with the restraining device. The recesses or channels may depend along one or more internal sides of the tank. The lifting guides may ensure linear movement of the retaining device with respect to the tank, when moved within the tank.

[0017] The apparatus may comprise a circulation system configured to circulate cleaning fluid (e.g. water and detergent) within the tank. The circulation system may be contained within an outer housing of the tank. The circulation system may comprise a fluid outlet from the tank. The fluid outlet may be provided at a bottom region of the tank. The fluid outlet may be in fluid communication with a pump. The pump may be provided at a bottom region of the tank. The outlet of the pump may be in communication with a fluid communication with a fluid splitter, configured to split the flow into two or more streams. The or each stream may be in fluid communication with an inlet nozzle provided at one or more sides of the tank.

[0018] In some examples, there is provided cleaning apparatus for kitchen articles comprising:

a cleaning tank for immersing kitchen articles, a pivotably openable and closable lid configured to cover the tank in use, wherein the lid comprises an extendable handle portion configured to extend the effective length of the lid;

5 a movable retaining device positioned within the tank and configured to permit retaining of kitchen articles; and

a lifting mechanism coupled between the lid and movable tray, the lid being openable and closable using the extendable handle portion so as to raise and lower the retaining tray within the cleaning tank.

[0019] In further examples, there may be provided 10 cleaning apparatus for kitchen articles comprising:

a rectangular cleaning tank for immersing kitchen 15 articles, the tank having first and second longer sides (e.g. major sides) and third and fourth shorter sides (e.g. minor sides);

a pivotably openable and closable lid configured to cover the tank in use, wherein the lid is configured to pivotably open/close from the third or fourth side; a movable retaining device positioned within the tank 20 and configured to permit retaining of kitchen articles; and

a lifting mechanism coupled between the lid and movable tray, the lid being openable and closable so as to raise and lower the retaining tray within the 25 cleaning tank.

[0020] In further examples, there is described cleaning 30 apparatus for kitchen articles comprising:

a cleaning tank for immersing kitchen articles, having major and minor sides, the minor sides being shorter than the major side;

a pivotably openable and closable lid configured to cover the tank in use, wherein the lid is configured to pivotably open/close from a minor side

a movable retaining tray positioned within the tank and configured to hold kitchen articles; and

a lifting mechanism coupled between the lid and movable tray, the lid being openable and closable so as to raise and lower the retaining tray within the 40 cleaning tank.

[0021] In further examples, there are disclosed methods of cleaning kitchen articles, including use of any of 45 the above described apparatus.

[0022] Disclosed herein are one or more corresponding aspects, embodiments or features in isolation or in various combinations whether or not specifically stated (including claimed) in that combination or in isolation. It 50 will be appreciated that one or more embodiments/aspects may be useful with in providing cleaning apparatus and methods that allow ease of use and maintenance, while also being safe and effective.

[0023] The above summary is intended to be merely 55 exemplary and non-limiting.

Brief Description of the Figures

[0024] A description is now given, by way of example only, with reference to the accompanying drawings, in which:-

Figures 1a to 1f shows various views of cleaning apparatus according to a described example;

Figures 2a to 2e shows various perspective view of a lid opening using the apparatus of Figure 1;

Figure 3 shows further representations of the apparatus

Figures 4a and 4b show bottom and side view representations of a retaining device for use with the apparatus of Figures 1 to 3;

Figures 5a and 5b show lifting guides used together with the retaining device of Figure 5; and

Figures 6a to 6d show some features of a circulation system for use with the apparatus.

Description of Specific Embodiments

[0025] Figures 1a-1f shows various views of a described embodiment of cleaning apparatus 100, which in this example may be considered for use in catering kitchens, industrial kitchens, or the like.

[0026] Here, the cleaning apparatus 100 comprises a cleaning tank 110 for immersing kitchen articles (not shown for ease) in cleaning fluid, for example, as will be further described. Such cleaning fluids may comprise water together with a chemical detergent, which in some examples may be heated. Those kitchen articles may include branding plates, baking trays, filter meshes, pots, and kitchen utensils, or other such articles that may be used during food preparation and that may become coated in deposits, for example grease, and baked or burnt foodstuff.

[0027] In this example, the tank 110 may be considered to have a generally rectangular configuration. In other words, the tank 110 as shown in the plan elevation in Figure 1a can be considered to have two longer, or major, sides 110a, 110b and two shorter, or minor, sides 110c, 110d, corresponding major and minor sides 110a, 110b and 110c, 110d being opposite each other. In some examples, the minor sides 110a, 110b, may be less than $\frac{3}{4}$ the length of the major sides, or less than $\frac{2}{3}$ the length of the major sides, or even less than $\frac{1}{2}$ the length of the major side. In this particular example, the minor sides are approximately half the length of the major sides. The tank 110 may also have particular depth 110e or height, as shown in Figure 1e, to permit immersion of articles.

[0028] The apparatus 100 further comprises a lid 120,

which is shown in a closed configuration in the various views of Figures 1a-1f. In the closed configuration, the lid 120 seals, or at least covers, the tank 110. In an open configuration, the lid 120 permits access to the tank and allows for the introduction and removal of kitchen articles from the tank 110 by an operator. In the example shown, the lid 120 can be considered to be a single or unitary lid 120, but indeed a combination of segments may be used to form the lid 120.

[0029] In this example, and as shown in more detail in Figures 2a-2e, the apparatus 100 is configured such that the lid 120 is pivotably openable and closable so as to allow access to the tank 110 and to cover the tank 110 in use.

[0030] As is shown more clearly in Figures 2a-2e, in this example the lid 120 is connected or coupled at one of the shorter, or minor, sides of the tank 110. Here, the lid 120 can be considered to be pivotably openable/closable from that the shorter, or minor, side 110c of the tank 110. In the example shown a hinge mechanism is used to connect the lid with the tank 110.

[0031] The lid 120 comprises a handle portion 130. In the example given, the handle portion 130 is provided at the opposite shorter or minor side 110d of the tank 110 from that which attaches the lid 120 to the tank 110. The handle portion 130 is configured to permit manual opening and/or closing of the lid 120. Here, the handle portion 130 has a stowed configuration, as perhaps best shown in Figure 1a-1f and Figure 2a, together with an operable configuration, as shown in Figures 2b-2e. It may be that that handle portion 130 can be considered to be extendable, for example, to extend the effective length of the lid 120, and/or to extend the effective pivot length of the lid 120 (e.g. see Figures 2c 2d for example).

[0032] The handle portion 130 comprises a lifting member 132, which is configured to be operable by hand. The lifting member 132 may be attached to one or more connecting arms 135, connecting the member 132 to the remainder of the lid 120. In the example shown, two connecting arms 135 are provided, each attaching the lifting member 132 to a pivot mount 137 (see Figure 1e). Here, the pivot mount 137 is provided at the edge region of the lid 120, and in the examples shown is configured to extend beyond that edge region.

[0033] Because the pivot mount 137 extends beyond the edge region of the lid 120, this can assist with the handle portion 130 assuming the stowed configuration in which the handle portion 130 depends along some of the height 110e of the tank 110. Further, in an operable configuration, the handle portion 130 extends from the lid 120, outwardly from the tank 110. As is shown in Figure 2d, when in an operable configuration, the handle portion 130 can extend in a plane common to the lid. In this example, the apparatus 100, or at least the pivot mount/connecting arms 135/137 are configured such that handle portion 130 is movable from the stowed configuration to a fixed, maximum, or locked operable configuration. The maximum, or fixed configuration, may be considered to

be when the handle portion 130 extends in a common plane from the lid 120, as shown in Figures 2c and 2d. Of course, in other example, an alternative maximum or fixed configuration may be provided. In any event, in use, the apparatus 100 is configured to permit an operator to actuate the handle portion 130 between the stowed configuration and the operable configuration when using the lid 120.

[0034] The apparatus 100, and in particular the lid 120, further comprises an assisted-lift mechanism 140 (see Figure 3). The assisted-lift mechanism 140 is configured to reduce the force required by an operator to move the lid 120 between a closed and open configuration (e.g. from a closed to an open, and/or vice versa). Here, the assisted-lift mechanism 140 comprises one or more extendable struts 145, such as gas struts, coupled between the longer sides 110a, 110b, of the tank 110 and the lid 120 (e.g. one for each longer side 110a, 110b of the tank 110).

[0035] The struts 145 in this example are configured to provide a bias when the lid 120 is partially or fully opened, so as to urge the lid 120 to remain in that open configuration, e.g. without the need for an operator to hold the lid 120 open. In this particular example, the assisted-lift mechanism 140, and in particular the struts 145, are further configured such that a certain force is needed, by an operator, in addition to the weight of the lid 120 in order to close the lid 120. In such a way, rapid and accidental closing of the lid 120 can be avoided.

[0036] In addition, when in an open configuration, the apparatus 100 is configured such that the handle portion 130 remains fully or partially extended towards one of the shorter sides 110d of the tank 110. In other words, the apparatus is configured such that the handle portion 130 remains extended towards an operator, when the lid 120 is in an open configuration. In such a way, an operator need not reach or overextend across the opening of the tank 110 in order to close the lid 120.

[0037] The apparatus 100 further comprises a retaining device 150 positioned within the tank 110 in use. The retaining device 150 is configured to support kitchen articles within the tank 110 (e.g. support kitchen articles, such as branding plates, baking trays, etc. in immersion). Figures 4a and 4b show a bottom elevation and side view of the retaining device 150 respectively, without the tank 110 for ease.

[0038] The retaining device 150 is configured to be movable within the tank 110, as will be described. In essence, the retaining device 150 is configured such that it can be raised and lowered within the tank 110 in order to remove and immerse articles within the tank 110 and cleaning fluid. Here, the retaining device 150 is configured as a tray or basket, configured to support kitchen articles within the tank 110 in use (e.g. support kitchen articles in immersion), but in other examples other appropriate apparatus to retain articles while being raised and lowered may be used. The retaining device has a bottom portion 152 comprising a plurality of draining ap-

ertures 154. The draining apertures 154 permit flow and circulation of cleaning fluid through the device 150, as well as assisting with removal of fluid from the device when lifted in the tank 110. The device 150 may be considered to be configured in a complementary manner with the tank 110, i.e. having a generally rectangular configuration. In other words, like the tank 110, the retaining device 150 may be considered to have two longer, or major, sides 150a, 150b and two shorter, or minor, sides 150c, 150d.

[0039] Side portions along each of longer sides of device 150, and extending from the bottom portion 152, each comprise reduced (in this example tapered) side walls 156, as shown in Figure 4b. The device 150 is configured such that the side walls 156 are reduced, and in this case taper towards, the opening side of the lid/tank. Such a configuration permits ease of introduction and remove of kitchen articles, in use. Each side wall 156 further comprises a plurality of apertures 154, again permitting ease of circulation and drainage of cleaning fluid.

[0040] The device 150 further comprises one or more retaining fingers 158, provided at the shorter end regions of the device 150. The fingers 158 here extend into a retaining space defined within the sides and the bottom 152. The fingers 158 permit ease of location, and separation, of articles to be cleaned within the apparatus 100.

[0041] In order to assist with lifted and lowered the retaining device 150 within the tank 110, the apparatus 100 further comprises a lifting mechanism 160. In the examples shown, the lifting mechanism 160 can be considered be coupled or connected between the lid 120 and retaining device 150 such that as lid 120 is openable and closable, the retaining device 120 raises and lowers the within the tank 110, respectively.

[0042] Here, the lifting mechanism 160 comprises a lid portion 162 and a retaining device portion 164. The lid portion 162 is attached or mounted with the lid 120, while the retaining device portion 164 of the lifting mechanism 160 is attached or mounted with the retaining device 150 (see Figure 3 and 4b). The lid portion 162 and retaining device portion 164 are movably coupled together at a pivot point 166.

[0043] In addition to the lifting mechanism 160, the apparatus 100 in this example also comprises one or more lifting guides 170. The or each lifting guide 170 can be provided with the tank 110 and/or retaining device 150, and may be considered to be configured to assist with raising and lowering of the retaining device 150. Exemplary lifting guides 170a, 170b are shown in Figures 5a and 5b

[0044] In the example shown in Figures 5a and 5b, the lifting guides 170 are provided by one or more defined recesses or channels provided within the tank 110, and depend along one or more internal sides of the tank 110.

[0045] In the examples given, one guide 170a, 170b is provided at each longer or major side 110a, 110b of the tank 110. Figure 5a shows the guides 170a, 170b together with the retaining device 150 in a lifted or raised position, while

Figure 5b shows the guides 170a, 170b together with the retaining device 150 in the lowered configuration within the tank 110. As can be appreciated, the guide portions 170a, 170b operate together with complementary guide elements 175a, 175b, which in this example are provided with the restraining device 150 (see Figures 4a and 4b). **[0045]** In some examples, the apparatus 100 may further comprise a circulation system 180 configured to circulate cleaning fluid (e.g. water and detergent) within the tank 180, as exemplified in Figures 6a-6d. The circulation system 180 may be contained within an outer housing of the tank 110. To permit fluid circulation, the system 180 may comprise a fluid outlet 182 from the tank 110 (e.g. provided at a bottom region of the tank, as shown in Figure 6a) in fluid communication with a pump 184, as shown from a bottom view in Figure 6b (see also Figure 1e). The pump 184 can be provided at a bottom region of the tank, but may be positioned elsewhere, yet below the cleaning fluid level. In the examples shown, the outlet of the pump 184 is in communication with a fluid splitter 186, configured to split the flow into two or more streams (in this example two streams). The or each stream can then be in fluid communication with inlet nozzle(s) provided at one or more sides of the tank 110. Here, the apparatus comprises two inlet nozzles 188a, 188b, again provided at a side region of the tank 110. In the example shown, the inlet nozzle are opposite side of the handle portion, thus minimising any accidental spray of cleaning fluid to an operator if opened accidentally. In some examples, the tank 110 comprises a heating element configured to heat the cleaning fluid (e.g. to a desired cleaning temperature).

[0046] In use, the tank 110 can be filled initially with cleaning fluid (e.g. water and detergent). Water may be taken from a mains inlet, or poured into the tank 110, or the like. An operator, using the lifting member 132 of the handle portion 130 can move the handle portion 130 from the stowed configuration to the operable configuration in order to allow for opening of the lid 120. In doing so, the assisted-lift mechanism 140 helps urge the lid 120 to the open configuration. During opening, the lifting mechanism 160 also raises the retaining device 150. The lifting guides 170a, 170b not only help raise the retaining device 150 in a level manner (e.g. to avoid unwanted movement of articles retained with the device 150), but also mitigate the risk of the retaining device 150 becoming jammed, or the like, within the tank 110. In such a way, small clearances can be provided between the retaining device 150 and the tank 110 so that the size of the retaining device 150 can be maximised.

[0047] Because the lid 120 is configured to pivot open from a smaller or minor side of the tank 110, the depth of height through which the retaining device 150 can be raised or lowered can be maximised (e.g. when compared to pivoting via a longer or major side). In addition, the use of the stowable/operable handle portion 130, which effectively extends the length of the lid 120 in use, assists with the pivoting at the smaller or minor side, and

mitigates any risk of an operator leaning over the tank 110 in use. In such a way, a compact and effective cleaning apparatus 100 can be provided, which can occupy a small and effective footprint (i.e. floor area) within a kitchen, or the like. When open, an operator is able to place or load articles to be cleaning onto the retaining device 150, using the fingers 158 to separate each item. Due to the tapered or reduced sides, articles can be introduced with ease from the open side of the tank 110. Once loaded, an operator can easily reach the handle portion 130 of the apparatus 100 (given that it remains extended towards to open side of the tank), and urge the lid 120 closed. In doing so, articles to be cleaned an immersed in the cleaning fluid.

[0048] During cleaning, the circulation system 180 is able to circulate cleaning fluid through the tank 110 in order to maximise cleaning effectiveness.

[0049] After a period of time, an operator is able to once again use the handle portion 130 to open the lid 120, which in turn raises the retaining device 150, avoiding jamming, and can lift the articles out of, or to the surface of, the cleaning fluid. In such a way, an operator need not introduce an arm, or the like, in to tank (and potentially harmful cleaning fluid) in order to retrieve cleaned articled. In addition, the assisted-lift mechanism 140 may permit lid 120 to remain in an open configuration while articles dry and//or while articles are removed from the retaining device 150.

[0050] The applicant hereby discloses in isolation each individual feature described herein and any combination of two or more such features, to the extent that such features or combinations are capable of being carried out based on the present specification as a whole in the light of the common general knowledge of a person skilled in the art, irrespective of whether such features or combinations of features solve any problems disclosed herein, and without limitation to the scope of the claims. The applicant indicates that aspects of the present invention may consist of any such individual feature or combination of features. In view of the foregoing description it will be evident to a person skilled in the art that various modifications may be made within the scope of the invention

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Claims

1. Cleaning apparatus comprising:

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a cleaning tank for immersing kitchen articles, the tank having a generally rectangular configuration having two opposing major sides and two opposing minor sides; an openable and closable lid, the lid being pivotably openable and closable from one of the minor sides of the tank so as to allow access to the tank and to cover the tank in use; a retaining device positioned within the tank in

55

use and configured to support kitchen articles in immersion within the tank; and a lifting mechanism for lifting and lowering the retaining device, the lifting mechanism coupled or connected between the lid and retaining device such that as lid is openable and closable, the retaining device raises and lowers the within the cleaning tank, respectively.

2. The apparatus according to claim 1, wherein the lid comprises a handle portion, configured to permit manual opening and/or closing of the lid. 10

3. The apparatus according to claim 2, wherein the handle portion has a stowed configuration and a operable configuration, and wherein in the operable configuration the handle extends so as to extend the effective pivot length of the lid, and optionally wherein in the handle portion is hingably coupled to the tank so as to provide stowed/operable configurations. 15

4. The apparatus according to claim 3 wherein, in a stowed configuration, the handle portion depends along some of the height of the tank. 20

5. The apparatus according to claim 3 or 4, wherein in an operable configuration, the handle portion extends from the lid in a plane common to the lid. 25

6. The apparatus according to any of the claims 2 to 5, wherein the handle portion comprises a lifting member, configured to be operable by hand, the lifting member being attached to one or more connecting arms, pivotably connecting the member to the remainder of the lid, and optionally wherein the or each connecting arm is be pivotably connected to a pivot mount provided at the edge region of the lid, the pivot mount configured to extend beyond the edge region of the lid. 30

7. The apparatus according to any of the preceding claims further comprising an assisted-lift mechanism, the assisted-lift mechanism attached between the lid and the tank in order to assist an operator when moving the lid between a closed and an open, and optionally wherein the assisted-lift mechanism is biased to assist opening of the lid. 35

8. The apparatus according to claim 7, wherein the assisted-lift mechanism comprises one or more extendable struts, the or each strut coupled between a major side of the tank and the lid. 40

9. The apparatus according to any preceding claims, wherein the lifting mechanism comprises a lid portion and a retaining device portion, the lid portion being attached or mounted with the lid, while the retaining device portion of the lifting mechanism being at- 45

tached or mounted with the retaining device, the lid portion and retaining device portion being movably coupled together, and optionally wherein the lid portion and retaining device portion of the lifting mechanism are rotatably coupled. 50

10. The apparatus according to any preceding claim comprising one or more lifting guides, the lifting guides being provided with the tank and/or retaining device, and configured to assist with linearly raising and lowering of the retaining device, 55

11. The apparatus according to claim 10, wherein the lifting guides are provided by one or more defined recesses or channels together with complementary guide elements, and optionally wherein the recesses or channels are provided with the tank and depend along one or more internal sides of the tank, while the guide elements are provided with the retaining device.

12. The apparatus according to any preceding claims, further comprising a circulation system configured to circulate cleaning fluid within the tank, and optionally wherein the circulation system is contained within an outer housing of the tank.

13. The apparatus according to claim 12, wherein the circulation system comprises a fluid outlet from the tank, the fluid outlet being provided at a bottom region of the tank and being in fluid communication with a pump provided at a bottom region of the tank.

14. The apparatus according to claim 13, wherein the outlet of the pump is in fluid communication with a fluid splitter, configured to split the flow into two or more streams, each stream being in fluid communication with a respective inlet nozzle, and optionally wherein each inlet nozzle is provided at one or more sides of the tank.

15. Use of the apparatus according to any of the claims 1 to 14 for cleaning kitchen articles. 45

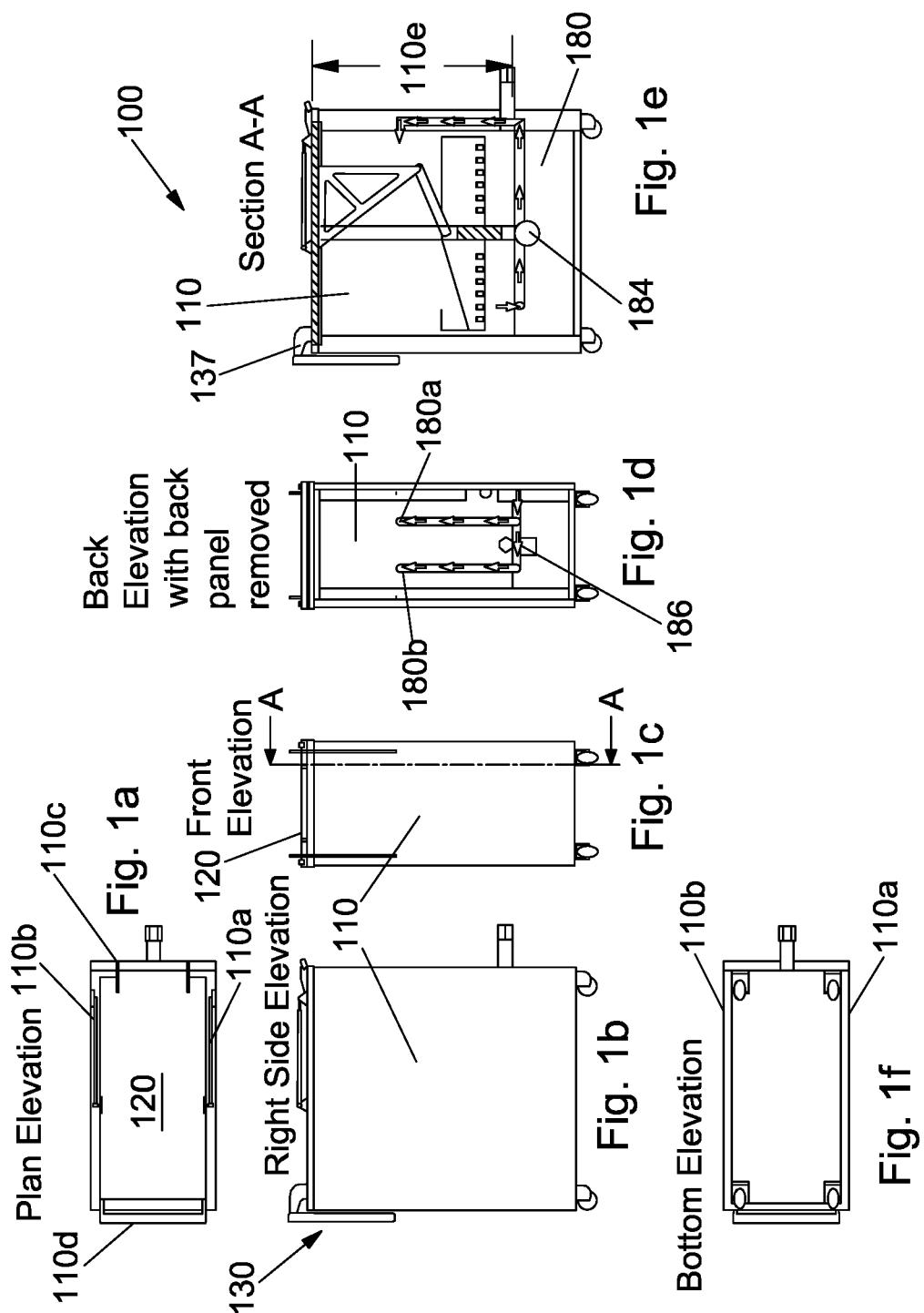


Fig. 2b

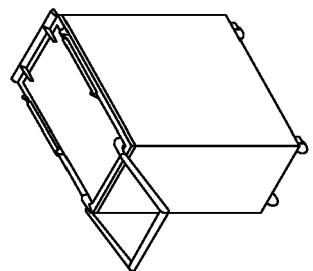


Fig. 2d

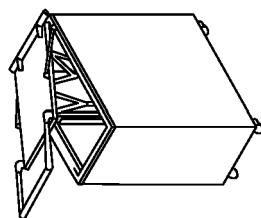


Fig. 2e

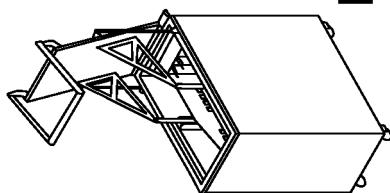


Fig. 2a

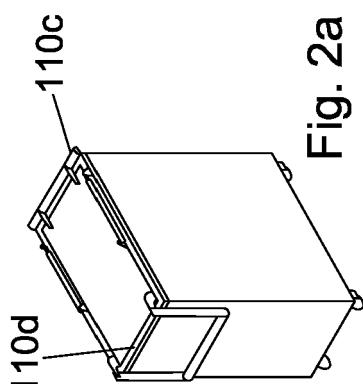
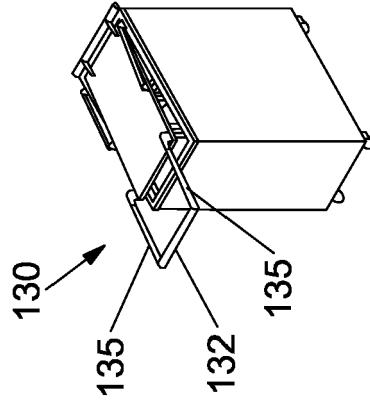


Fig. 2c



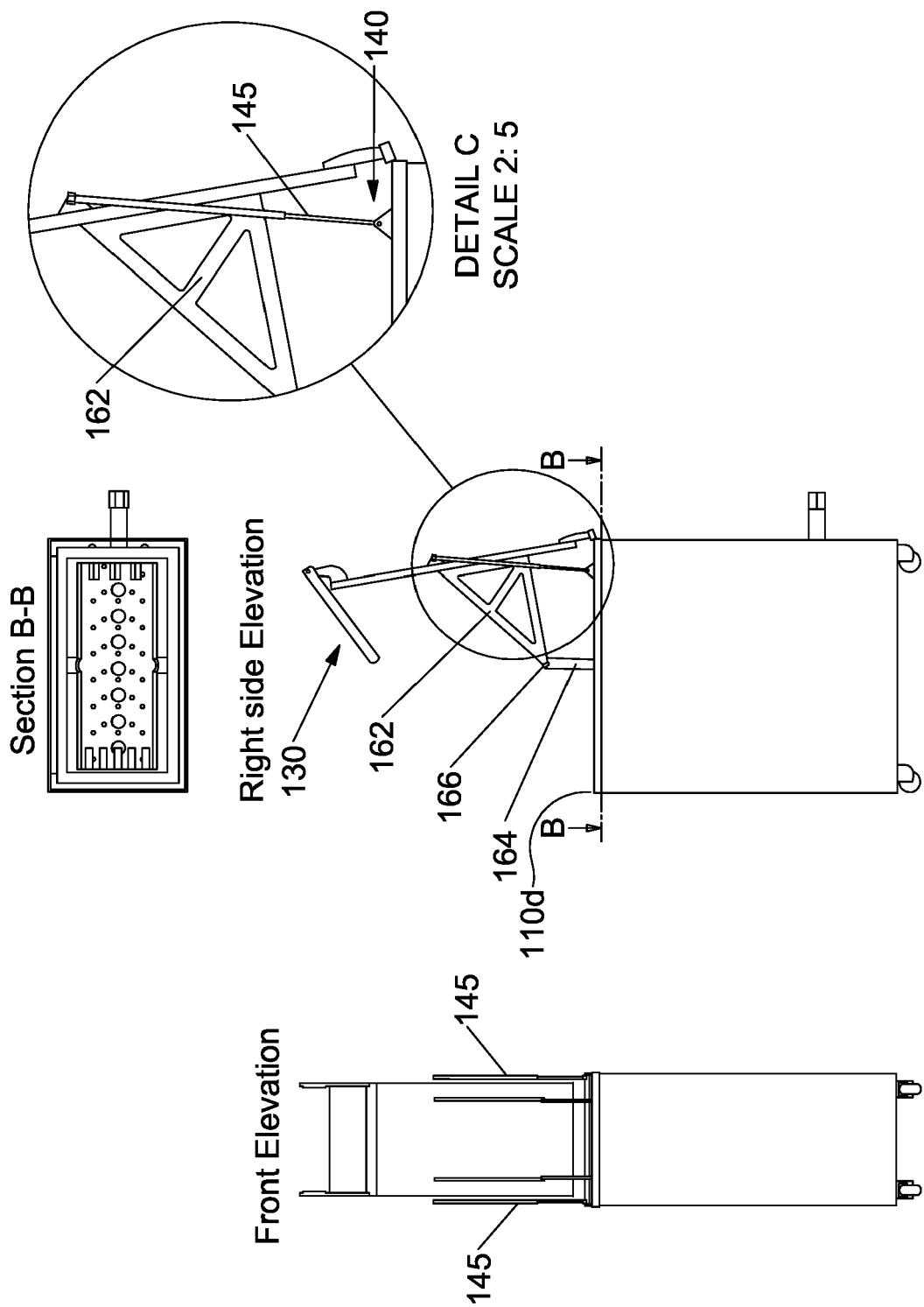
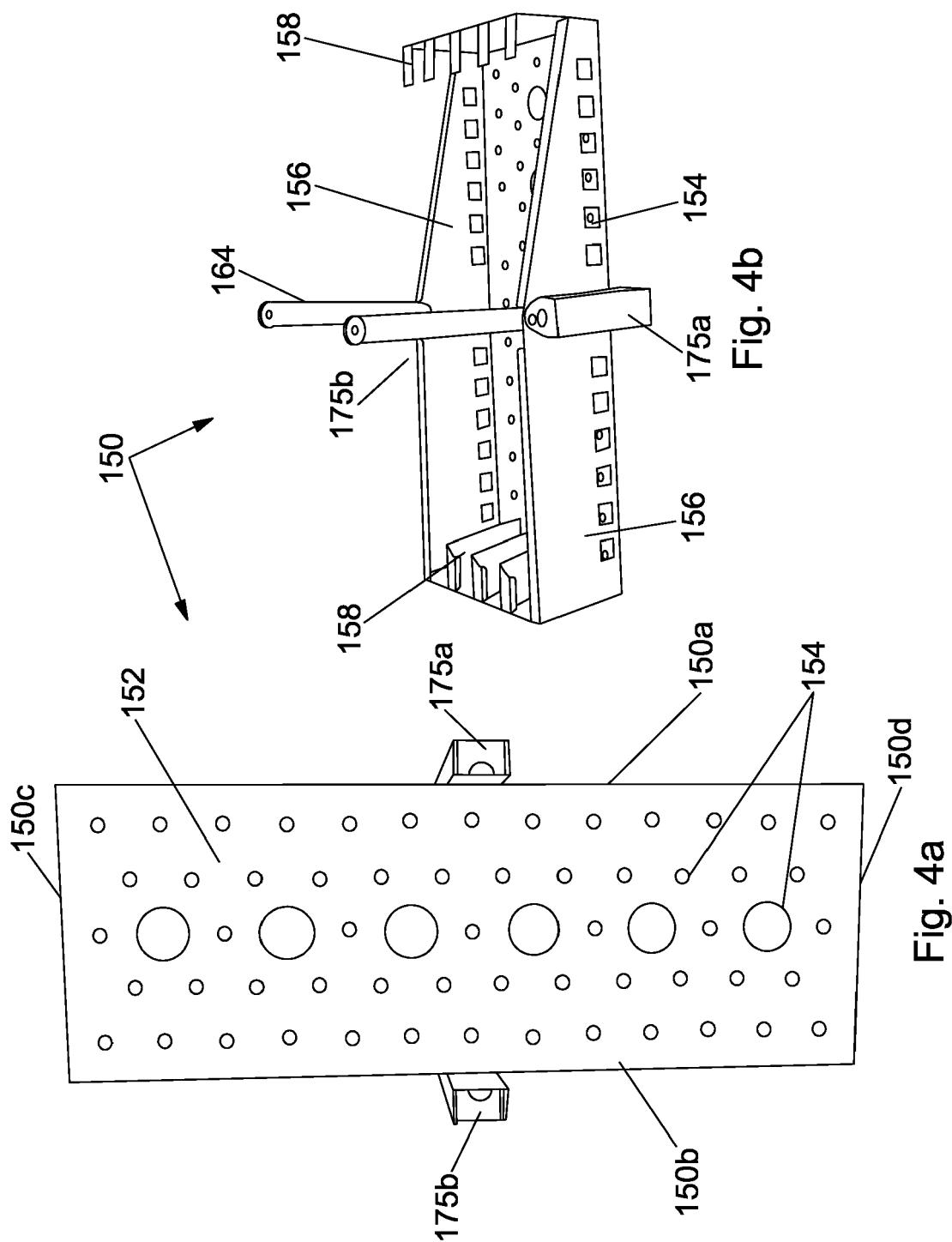


Fig. 3



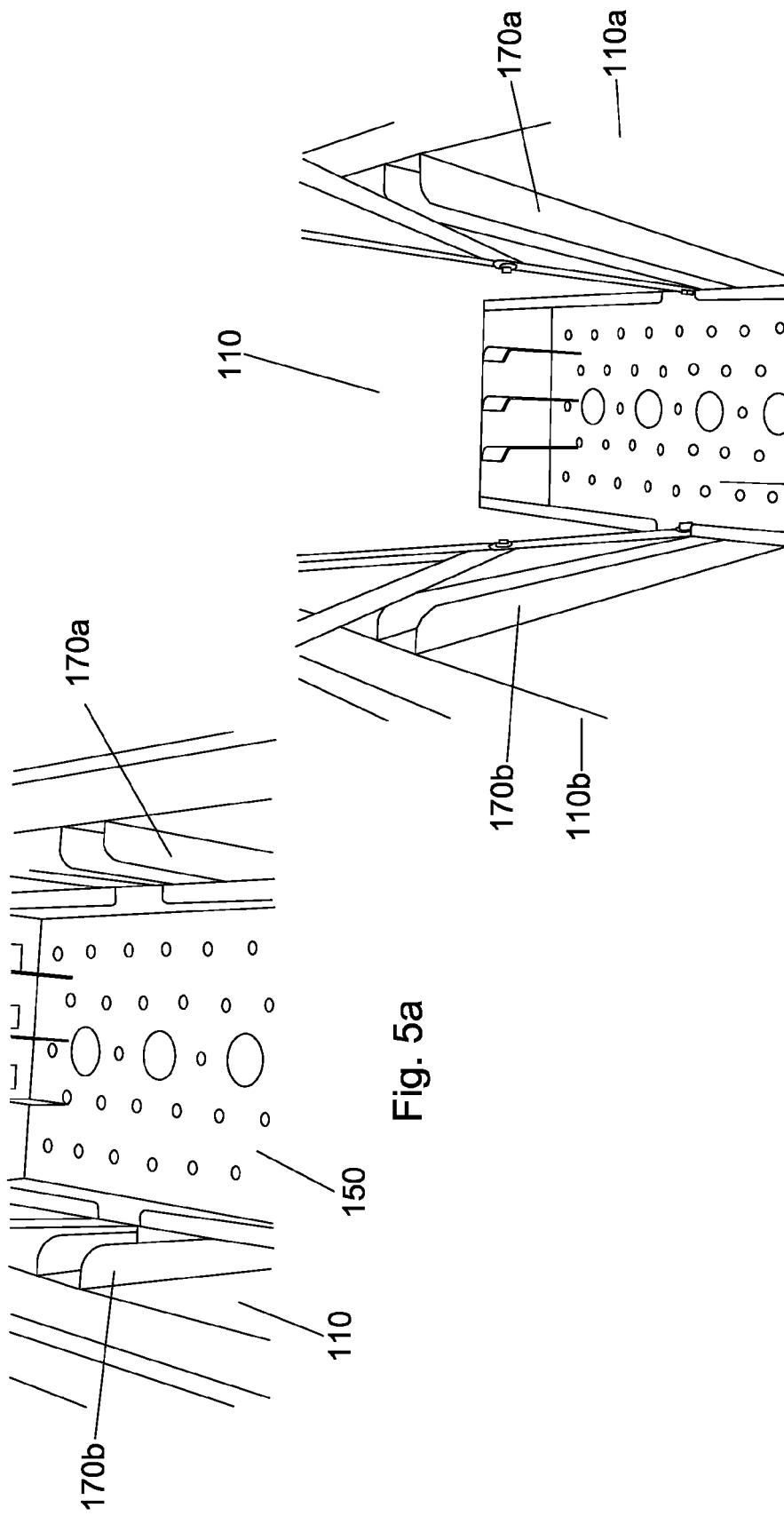


Fig. 5b

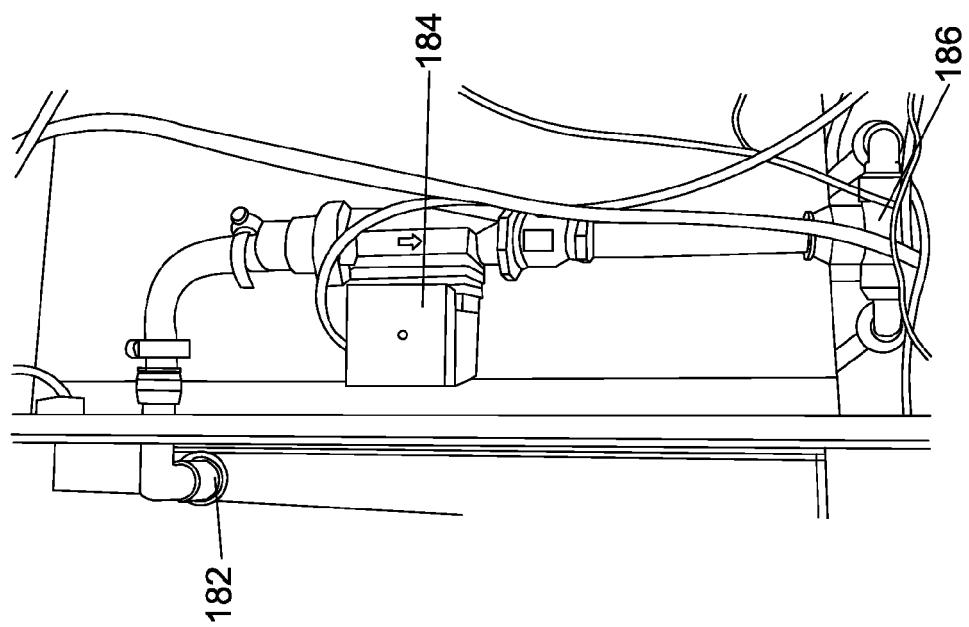


Fig. 6b

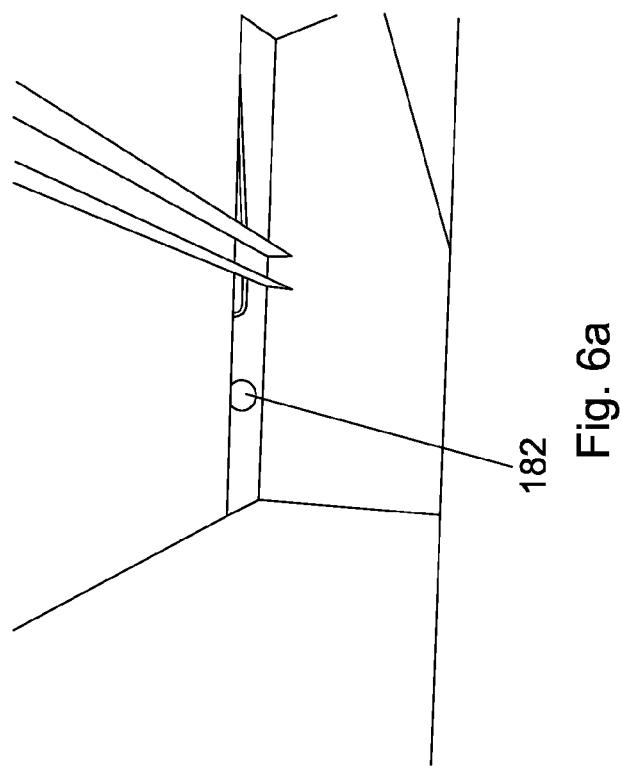


Fig. 6a

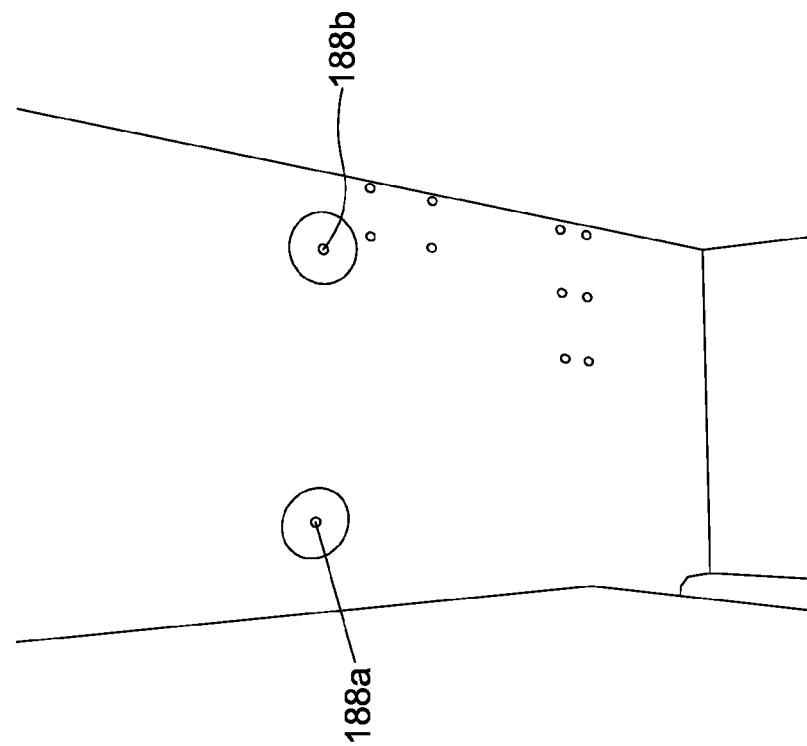


Fig. 6d

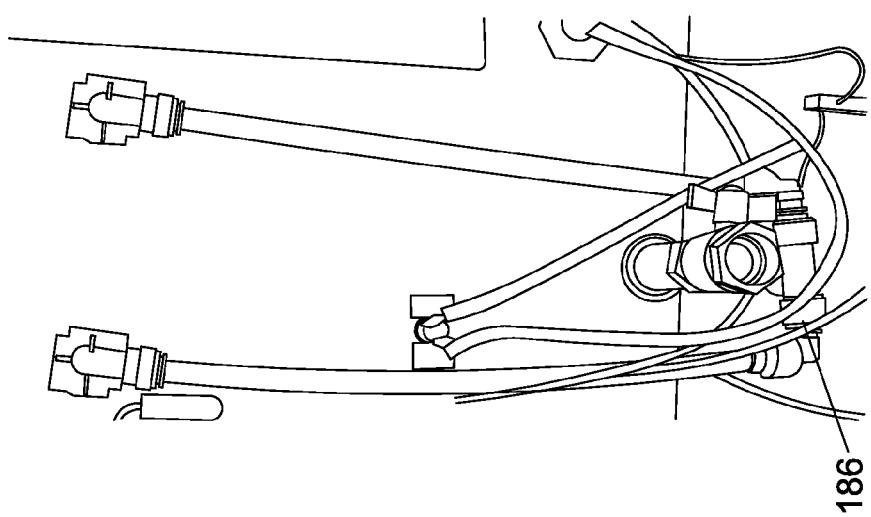


Fig. 6c



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