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(54) **DISHWASHER**

GESCHIRRSPÜLER

LAVE-VAISSELLE

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(56) References cited:
WO-A1-2008/093972
DE-A1- 3 730 316
GB-A- 885 984
GB-A- 1 129 762
JP-A- 2004 329 250
US-A- 1 667 119

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Description

[0001] The present invention relates to a dishwashing machine according to the preamble of the first claim.

[0002] Different types of dishwashing machines are known in the art.

[0003] A first type of such machines, which has quickly fallen into disuse, is the one in which crockery is washed simply by immersion into a bath containing a detergent.

[0004] These machines are not very effective due to the absence of a specific cleaning action and to the large quantity of water required, and their use has been rapidly supplanted by dishwashers equipped with rotary sprayers, which spray jets of wash liquid (typically water with detergent, rinse aid or the like) against the crockery.

[0005] Normally these dishwashing machines comprise a tub that houses racks where the crockery is placed.

[0006] The rotary sprayers are therefore associated with tub and supplied with a wash liquid by a pump; as it comes out of the sprayers' nozzles, the wash liquid causes them to rotate about a vertical axis, thus ensuring an effective and uniform cleaning action on the crockery contained in the racks.

[0007] Normally the dishwashing machines according to the prior art are self-standing machines equipped with a frame around which a cabinet extends; the tub is associated with the frame and is delimited by a horizontally-pivoted access door.

[0008] Of course, such a solution takes some room, which is not always available in a household environment.

[0009] Some dishwashing machines have been specifically conceived with different solutions for taking up less room.

[0010] One example of such machines is shown in patent US 4,919,162 to MC ILWRAITH DAVEY PTY LTD, which teaches how to make a dishwashing machine by using the kitchen sink to delimit the tub thereof.

[0011] To this end, the sink is provided with a pivotable cover which can be moved from a position behind the sink to a position on top of the latter, in which it closes the sink and creates a watertight environment, i.e. the dishwasher tub, within which the crockery is subjected to the washing action of the wash liquid sprayed by an impeller.

[0012] For this purpose, the latter is engaged onto a wash liquid delivery duct that opens into the bottom of the sink, where a grid-like rack can be positioned to contain the crockery to be washed

[0013] Although effective in reducing the space occupied by a dishwashing machine, this solution still suffers from some drawbacks.

[0014] First of all, when not in use the cover takes some room on the cabinet that houses the sink, and prevents the sink from being brought near the wall, thus not making full use of the available room.

[0015] Secondly, if the cover assembly is removed from the hinges, the cover, the rack and the impeller must necessarily be stored in a suitable place, thus requiring additional room.

[0016] Moreover, prearranging and mounting the parts required for operating the dishwashing machine require a certain number of steps: in fact the user has first to engage the impeller onto the duct that opens into the bottom of the sink, insert the rack, place the crockery on it, and finally position and close the cover over the sink opening

[0017] What is more, when such a dishwasher is in use the sink cannot be used for the whole duration of the wash cycle.

[0018] Yet another drawback is related to the fact that the volume of a tub thus made is rather small, resulting in limited load capacity of the machine, this derives from the fact that the tub volume could only be increased by increasing the dimensions of the sink, which however are normally standardised, or by increasing the dimensions of the pivotable cover: this latter solution cannot be easily implemented as well, in that increasing the height of the cover would necessarily imply an excessive volume occupied when the cover is in the unused overturned condition.

[0019] Patent application W02009127926 discloses a wall-mounted dishwasher comprising a movable rack for loading the crockery.

[0020] In addition to having limited load capacity, such a dishwasher does not use for its automatic washing cycle an existing kitchen component, i.e. the sink.

[0021] Document WO 2008/093972 A1 discloses a dishwasher of the type comprising at least one tub which can house a rack that can be loaded with crockery to be subjected to the cleaning action of a wash liquid, wherein said tub is at least partially delimited at the bottom by a sink.

[0022] The present invention aims at overcoming these and other drawback.

[0023] This object is achieved by a dishwashing machine according to claim 1.

[0024] The idea at the basis of the present invention is to provide a dishwashing machine provided with a tub in which the crockery is subjected to a washing action exerted by a jet of wash liquid generated by a rotary sprayer, wherein the tub is at least partly delimited by a sink and by a cover consisting of a wall-mounted draining cabinet which can translate vertically above said sink between a first position remote from the sink, where it stays over the latter, and a second position near the sink, where it delimits the upper portion of the wash tub.

[0025] In this manner, the cover only takes up little room, and when the machine is not in use it can advantageously be used as a wall-mounted draining cabinet.

[0026] In this description and in the appended claims, the term "wall-mounted draining cabinet" refers to a wall-mounted cabinet with walls defining an inner volume, comprising at least one bottom wall with holes for draining the crockery.

[0027] In the solution according to the present invention, as will be explained more in detail below, the wall-mounted cabinet is suspended from a vertical structure that allows it to move vertically away and towards the sink.

[0028] According to another advantageous feature, the dishwashing machine according to the present invention comprises a rotary sprayer associated with a crockery rack.

[0029] This makes it extremely easy to prepare the dishwasher for use, requiring only a few simple steps.

[0030] Also advantageously, the rack can be made up of multiple grid-like septa that can be folded relative to one another; when the rack is not in use, the grid-like septa can all be folded one onto the other parallel to the rotary sprayer, so as to take up very little room.

[0031] Further advantageous features will be set out in the appended claims, which are intended as an integral part of the present description.

[0032] These features as well as further advantages of the present invention will become apparent from the following description of an embodiment thereof as shown in the annexed drawings, which are supplied by way of non-limiting example, wherein:

Fig. 1 shows a dishwashing machine according to the present invention in the open condition;
Fig. 2 shows the dishwashing machine of Fig. 1 in the closed operating condition;
Fig. 3 shows a detail of the dishwashing machine of Fig. 1;
Fig. 4 shows the dishwashing machine of Fig. 3 in a working condition;
Fig. 5 is an exploded view of a detail of the dishwashing machine of Fig. 1;
Fig. 6 is a different view of the detail of Fig. 5;
Fig. 7 is a close-up view of the detail of Fig. 5;
Fig. 8 shows the hydraulic supply circuit of the machine of Fig. 1;
Fig. 9 shows an amelioration of the hydraulic circuit of Fig. 8;
Fig. 10 shows a variant of the hydraulic supply circuit of the machine of Fig. 1;
Figs. 11-13 show a variant of the dishwashing machine of Fig. 1 in different conditions;
Figs. 14-19 show a detail of the dishwashing machine of Fig. 10 in different working conditions.

[0033] Referring now to Fig. 1, there is shown a dishwashing machine 1 according to the present invention in the idle condition.

[0034] The machine 1 comprises a sink 2 fitted with a tap 5 and a wall-mounted draining cabinet 3 arranged on the vertical of the sink 2.

[0035] The latter is a sink of the traditional type, typically having an open mouth at the top that allows its normal use.

[0036] The wall-mounted draining cabinet 3 defines a volume within which wet crockery can be put to dry, and for this purpose it comprises a box 30 and a perforated support shelf 8 (shown in Figs. 3 and 4) on which the crockery to be dried is laid, so that the water dripping therefrom falls into the underlying sink 2.

[0037] As explained below, the perforated support shelf 8 is also used as a shelf for loading and supporting the crockery during the wash treatment carried out by the dishwasher 1.

[0038] The box 30 of the wall-mounted cabinet 3 can be moved between a first position, wherein it stays away from the sink 2 on the vertical thereof, as shown in Fig. 1, and a second position, i.e. the one shown in Fig. 2, wherein it hermetically closes the top of the sink 2, thereby creating a closed and watertight volume which is used as a dishwasher tub.

[0039] The box 30 of the wall-mounted draining cabinet 3 therefore defines at the top the wash tub of the machine 1, which tub is then defined at the bottom by the sink 2.

[0040] To this end, the box 30 of the wall-mounted cabinet 3 is open at the bottom.

[0041] This allows the water dripping from the crockery placed on the perforated support shelf 8 to pass through, as well as the box 30 and the sink 2 to be coupled together.

[0042] The perforated support shelf 8 can translate together with the box 30, so that the whole wall-mounted cabinet 3 can be moved closer to or farther from the sink 2.

[0043] This translational movement is obtained by means of guides 4 comprised in the dishwashing machine 1 as shown in the annexed drawings.

[0044] Said guides 4 are arranged vertically and are slideably coupled to the wall-mounted draining cabinet 3 to allow for vertical translation of the box 30 of the wall-mounted cabinet 3; they are of a per se known type and are fitted with locking means to stop the travel of the wall-mounted cabinet in the first position remote from the sink 2.

[0045] Guides of this type are per se known and will not therefore be discussed any further.

[0046] In addition to being movable simultaneously with the box 30, the support shelf 8 may also be given the possibility of moving relative thereto.

[0047] The box 30 of the wall-mounted cabinet may also be fitted with user interface means to allow the user to issue commands to the dishwasher 1 or to receive information about the dishwasher 1 and/or the wash cycle being carried out.

[0048] Said interface means may advantageously comprise a projector device adapted to project information and/or signals P onto the walls above the wall-mounted cabinet 3.

[0049] In the preferred embodiment, described herein with reference to Figs. 3 and 4, it can be noted that the perforated support shelf 8 can be moved vertically in or out of the box 30, so that it can be loaded with crockery S as shown in Fig. 4.

[0050] This advantageously avoids having to provide a pivoted access door, which would have to be made watertight as well, thus eliminating all the problems implied by such a solution.

[0051] In this example, the box 30 is advantageously monolithic and is open at the bottom to allow for the insertion and extraction of at least the perforated support shelf 8.

[0052] In this way, in fact, the user can lower the perforated support shelf 8, load the crockery onto it, and then lift the perforated support shelf 8 to bring it back into the box 30.

[0053] The movement of the perforated support shelf 8 in and out of the wall-mounted cabinet 3 is made possible either by the very guides 4 that allow the box 30 to move or by specific slide guides different from the guides 4.

[0054] Preferably, both the box 30 and the perforated support shelf 8 slide on the same guides 4.

[0055] The interface (or contact) surface between the box 30 of the wall-mounted cabinet 3 and the sink 2 consists of the peripheral edge of the open bottom side of the box 30 (positioned around the perforated bottom wall 8) and the edge of the sink 2 around the open mouth thereof.

[0056] At said interface there is a gasket 25 adapted to ensure a watertight seal between the sink 2 and the box 30 when the latter is in the position of Fig. 2, so that the volume jointly defined by the box 30 and the sink 2 is sealed and not subject to water leaks.

[0057] In the embodiment shown in the annexed drawings, the gasket 25 is laid on and extends all around the edge of the open bottom side of the box 30, but it may likewise be provided only around the edge of the open mouth of the sink, or on both edges.

[0058] When crockery has to be subjected to a washing action, the user lowers the wall-mounted cabinet 3 (by moving down both the box 30 and the perforated support shelf 8) towards the sink 2 along the guides 4, until the box 30 rests on the edge of the sink 2, thus creating the closed and sealed volume that defines the tub of the dishwashing machine 1; in this condition it is then possible to start the wash process.

[0059] If the crockery must only be dried, the user leaves the wall-mounted cabinet 3 in the position remote from the sink 2 being sure that, since the former is located on the vertical of the latter, the water drops will fall into the sink 2; the crockery can be loaded onto the perforated support shelf 8 by extracting the latter from the box as previously described.

[0060] One extremely advantageous feature is shown in Fig. 4, which shows that in the sink 2 there are a vertical separator wall 7 and a rack 9.

[0061] In fact, although in principle the planimetric dimensions of the wall-mounted cabinet 3 may equal those of the sink 2, thus creating a high-volume tub for the machine 1, this would nevertheless prevent the sink 2 from being used as such when the box 30 is in the lowered position.

[0062] Since sometimes the volume of the crockery to be washed within a household environment is small, and therefore it may not be appropriate to occupy the whole sink 2, the solution shown in Figs. 3 to 6 advantageously adopt a vertical separator wall 7 in the sink 2, which is thus divided into two half-tubs 2A and 2B.

[0063] The vertical separator wall 7 extends vertically from the bottom of the sink 2 up to the open mouth thereof.

[0064] In this example, the planimetric dimensions of the wall-mounted cabinet 3 are substantially equal to those of the half-tub 2A on which it can be superimposed.

[0065] It becomes thus possible to use the half-tub 2B as a normal sink even when the machine 1 is in operation; in fact, the wall-mounted cabinet 3 is lowered onto the half-tub 2A only, and closes it at the top.

[0066] Advantageously, the separator wall 7 is removable or rotatable, so that, if needed, the user can make use of a larger sink 2.

[0067] As far as the rack 9 is concerned, it is shown in greater detail in Figs. 5 to 7: in this embodiment it comprises the rotary sprayer 10.

[0068] The latter is rotatably coupled to the bottom grid of the rack 9, so that it can be engaged onto the wash liquid supply duct 16 shown in Fig. 8, which is connected to the pump 15, as will be further described below.

[0069] The rotary sprayer 10 is provided with at least one, but preferably two arms having a series of holes inclined relative to the vertical axis of rotation of the sprayer 10, so that the wash liquid delivered by the pump 15 causes the sprayer 10 to rotate by reaction in accordance with a principle widespread in prior-art dishwashers.

[0070] The sprayer 10 is rotatably associated with the rack 9 by means of a rack fastening element and a bushing (not shown) that ensures low-friction sprayer rotation.

[0071] As can be seen in Fig. 7, the rack 9 can advantageously be folded, so that it can conveniently be stored without taking up much space.

[0072] Also advantageously, the rack 9 is made up of grid-like septa hinged to one another, which can be turned over in a position where they are parallel to the wall associated with the rotary sprayer 10.

[0073] As regards the hydraulic circuit of the machine 1, reference should be made to Fig. 8: it comprises an intake duct 18 normally connected to the household water mains.

[0074] The intake duct 18 branches off into a branching duct 17, directed towards the tap 5, and a supply duct 16 which, passing by the pump 15, delivers water to the rotary sprayer 10 when the latter is engaged, so that the latter generates water or wash liquid jets (shown by dashed lines in Fig. 8) that hit the crockery loaded in the rack 9 and those placed on the perforated support shelf 8, which are thus washed.

[0075] The wash liquid is drained, possibly with the help of a pump, through the same drain duct 14 of the sink 2, which is connected to a sewage system or to the household drain system.

[0076] In order to add a washing agent (detergent, rinse aid or the like) to the water, it is conceivable to associate with the duct 16 or with the pump 15 a suitable dispenser that releases the washing agent in one or more doses during the wash cycle.

[0077] Alternatively, the washing agent may be put into a specific compartment of the upper rack 8.

[0078] A further advantageous feature relates to the tap 5, which in the solution show herein can be translated vertically to be put into a protective housing inside the sink 2 (as in Fig. 8).

[0079] Of course, the above-described solutions may be subject to many modifications, all of which will still fall within the scope of the present invention.

[0080] One of such modifications is schematically shown in Fig. 9, wherein the same reference numerals designate the same parts, which for brevity will not be discussed any further.

[0081] In this improved solution, the crockery arranged on the perforated support shelf 8 of the wall-mounted cabinet 3 is cleaned by water or wash liquid jets sprayed by a series of spray nozzles 20 supplied by the duct 19.

[0082] The nozzles 20 are arranged peripherally on at least one side of the sink, preferably on more than one side thereof, and are directed upwards so as to generate water jets as those shown by means of dashed lines in Fig. 9.

[0083] This amelioration offers the advantage that no supplementary sprayer is required for washing the crockery laid on the wall 8.

[0084] If, on the contrary, one wants to provide a sprayer for washing the crockery housed on the bottom wall 8, reference will have to be made to the hydraulic circuit variant shown in Fig. 10.

[0085] In this variant, an upper sprayer 16A is rotatably associated with the perforated support shelf 8, which sprayer can rotate freely with respect to the perforated support shelf 8, but translates vertically integrally therewith.

[0086] The upper sprayer 16A is wholly similar to the lower sprayer 16 and to those used in the prior art, and therefore it will not be discussed any further.

[0087] The upper sprayer 16A is supplied by the upper supply duct 16B that ends with a downward funnel-like mouth 16C adapted to engage into the open duct 16D afferent to the supply duct 16 arranged downstream of the pump.

[0088] The upper supply duct 16B is also integral with the perforated support shelf 8, and therefore it translates therewith to and from the sink 2: thus, when the box 30 is lowered onto the sink 2 (as shown in Fig. 2), the funnel-like mouth 16C will engage into the open duct 16D, thereby allowing the upper sprayer 16A to be supplied.

[0089] One advantageous variant of the present invention is shown in the annexed Figs. 11 to 18. This variant shows a dishwashing machine 1'; the same reference numerals, with the addition of an apostrophe', designate equivalent parts, which will not be discussed any further.

[0090] The basic principle of the machine 1' is the same as that of the machine 1: The wall-mounted draining cabinet is lowered onto the sink to define a sealed tub of the dishwashing machine 1'.

[0091] The difference in this case is that there are two wall-mounted draining cabinets 3'A and 3'B, similar to the wall-mounted draining cabinet 3.

[0092] The two wall-mounted draining cabinets 3'A and 3'B are independently movable relative to the sink 2', as shown in the annexed Figs. 11 to 13, so that it is possible to create one or two wash tubs of the machine 1' depending on the load requirements.

[0093] Just like the machine 1, each wall-mounted draining cabinet 3'A and 3'B comprises one perforated support shelf (Fig. 11 only shows the shelf 8'A of the cabinet 3'A) and one box 30'A, 30'B open at the bottom for inserting/extracting the perforated support shelf and for coupling it to a matching area of the sink 2'.

[0094] In this respect, it should pointed out that in this solution the sink 2' can be subdivided into three separate half-tubs 2'A, 2'B, 2'C, as shown in detail in Figs. 14 to 17.

[0095] In fact, the sink 2' comprises a fixed central wall 90' which extends vertically from the bottom and from the middle of one side of the sink to substantially the geometrical centre thereof.

[0096] This fixed central wall 90' preferably constitutes a housing for the tap 5', which can be inserted into or extracted from it, thus advantageously reducing the overall dimensions and facilitating the descent of the wall-mounted cabinets 2'A e 2'B.

[0097] Between the fixed wall 90' and the side walls of the sink 2' it is possible to sealingly secure two separator walls 7'A and 7'B which extend vertically from the bottom of the sink 2' and divide it, together with the fixed central wall 90', into the three half-tubs 2'A, 2'B, 2'C. Two of said half-tubs, i.e. 2'A and 2'B in the example shown, are located on the vertical of the two wall-mounted draining cabinets 3'A or 3'B, and each separator wall, respectively 7'A or 7'B, is positioned in the sink 2' in a manner such that it is in line with one wall of the box 30'A or 30'B of one of the wall-mounted draining cabinets 3'A or 3'B, respectively. Although the separator walls 7'A or 7'B have been described herein in combination with two tubs, it is also possible, as shown in Fig. 3, to provide at least one separator wall 7 in combination with even just one tub.

[0098] Each separator wall 7, 7'A or 7'B comprises a hole 77 that puts the tub in communication with the drain pipe when the machine is used as a sink. When the machine is used as a dishwasher, instead, said hole can be occluded by means of a suitable plug 88.

[0099] Each separator wall is also fitted with a grip element 99 that makes it easier to lift.

[0100] The dishwashing machine 1' thus conceived offers great versatility: in fact, it is possible to install just one separator wall, e.g. 7'A, to delimit the portion of the sink 2' that will be closed at the top by a wall-mounted draining cabinet, e.g. 3'A, leaving the remaining part of the sink 2' available for other uses, as shown in Figs. 15,

16 and 18.

[0101] Alternatively, if the volume of the crockery to be washed is large, it is possible to install both separator walls 7'A and 7'B in order to use both draining cabinets 3'A and 3'B and obtain a machine 1' having a bigger tub, as shown in Figs. 17 and 19.

[0102] Finally, it is advantageously conceivable that the separator walls 7'A and 7'B are pivoted to the sink bottom and can be brought to a vertical position starting from an idle horizontal position wherein they are parallel to the sink bottom.

[0103] In this case the separator walls 7'A and 7'B may also act as covers for two lower housings 91'A and 91'B that contain the racks 9'A and 9'B shown in Fig. 17.

[0104] In this case, the two separator walls 7'A e 7'B are arranged at a certain distance from the bottom of the sink 2' and cover both racks 9'A and 9'B when not in use, the latter remaining thus hidden in their housings 91'A and 91'B and making available a flat support surface to the user.

Claims

1. A dishwashing machine (1,1') of the type comprising at least one tub which can house a rack (9,9'A,9'B) that can be loaded with crockery to be subjected to the cleaning action of a wash liquid, wherein said tub is at least partially delimited at the bottom by a sink (2,2'), **characterised in that**
said dishwashing machine (1,1') comprises a wall-mounted draining cabinet (3,3'A,3'B) which can translate vertically above said sink (2,2') from a first position remote from the sink, where it stays on the vertical of the latter, to a second position near the sink (2,2'), where it delimits said wash chamber at the top.

2. A machine according to claim 1, wherein said wall-mounted draining cabinet (3,3'A,3'B) comprises a perforated support shelf (8,8'A) and a box (30,30'A, 30'B) which is open towards the sink (2,2').

3. A machine according to claim 2, wherein said perforated support shelf (8,8'A) can be moved vertically in order to be extracted from or inserted into the volume defined by said wall-mounted draining cabinet (3,3'A,3'B) and brought closer to or farther from said sink (2,2').

4. A machine according to one or more of the preceding claims, comprising vertical guides (4) slideably coupled to said box (30,30'A,30'B) and adapted to guide the vertical translational movement between said first position and said second position.

5. A machine according to one or more of the preceding claims, comprising a gasket (25) at an interface surface between said wall-mounted cabinet (3,3'A,3'B) and said sink (2) for ensuring a watertight seal therebetween.

6. A machine according to one or more of the preceding claims, comprising at least one vertical separator wall (7,7'A,7'B) of said sink (2,2') which can be so positioned as to extend vertically from the bottom of the latter in order to divide it into at least two half-tubs (2A,2B,2'A,2'B,2'C), and wherein the planimetric dimensions of the box (30,30'A,30'B) of said wall-mounted draining cabinet (3,3'A,3'B) are substantially equal to those of the half-tub (2A,2B,2'A,2'B) underneath.

7. A machine according to one or more of the preceding claims, comprising a crockery rack (9,9'A,9'B) adapted to be placed into said sink (2), and wherein said rack (9,9'A,9'B) comprises a rotary sprayer (10) for generating at least one jet of wash liquid against the crockery.

8. A machine according to the preceding claim, comprising a wash liquid supply duct (16) which opens into the bottom of said sink (2), and wherein said rotary sprayer (10) can be engaged onto said supply duct (16) in order to be supplied with said wash liquid.

9. A machine according to one or more of claims 7 or 8, wherein said rack (9) is obtained by means of grid-like septa hinged to one another, which can be turned over in at least one position where they are arranged parallel to a septum associated with the rotary sprayer (10).

10. A machine according to one or more of the preceding claims, comprising a plurality of spray nozzles (20) for said wash liquid arranged on at least one side of said sink (2).

Patentansprüche

1. Geschirrspülmaschine (1, 1'), vom Typ, welcher wenigstens eine Wanne umfasst, welche ein Gestell (9, 9' A, 9' B) beherbergen kann, welches mit Geschirr beladen werden kann, welches der Reinigungswirkung einer Waschflüssigkeit ausgesetzt werden soll, wobei die Wanne wenigstens teilweise an dem Boden von einem Abfluss (2, 2') begrenzt ist,
dadurch gekennzeichnet, dass
die Geschirrspülmaschine (1, 1') ein an einer Wand montiertes Gehäuse (3, 3' A, 3' B) umfasst, welches vertikal über dem Abfluss (2, 2') von einer ersten Position entfernt von dem Abfluss, wo es sich an der Vertikalen des Letzteren befindet, zu einer zweiten Position nahe dem Abfluss (2, 2'), wo es die Waschkammer an der Oberseite begrenzt, verschiebbar ist.

2. Maschine nach Anspruch 1, wobei das an einer Wand montierte Gehäuse (3, 3' A, 3' B) einen perforierten Trageboden (8, 8' A) und einen Kasten (30, 30' A, 30' B) umfasst, welcher in Richtung des Abflusses (2, 2') offen ist.

3. Maschine nach Anspruch 2, wobei der perforierte Trageboden (8, 8' A) vertikal bewegt werden kann, um aus dem Volumen, welches von dem an einer Wand montierten Gehäuse (3, 3' A, 3' B) definiert wird, entfernt zu werden oder in dieses eingeführt zu werden, und dem Abfluss (2, 2') näher gebracht zu werden oder von ihm entfernt zu werden.

4. Maschine nach einem oder mehreren der vorhergehenden Ansprüche, umfassend vertikale Führungen (4), welche gleitbar mit dem Kasten (30, 30' A, 30' B) gekoppelt sind und dazu eingerichtet sind, die vertikale Verschiebungsbewegung zwischen der ersten Position und der zweiten Position zu führen.

5. Maschine nach einem oder mehreren der vorhergehenden Ansprüche, umfassend eine Dichtung (25) an einer Verbindungsfläche zwischen dem an einer Wand montierten Gehäuse (3, 3' A, 3' B) und dem Abfluss (2) zum Sicherstellen einer wasserdichten Dichtung dazwischen.

6. Maschine nach einem oder mehreren der vorhergehenden Ansprüche, umfassend wenigstens eine vertikale Trennwand (7, 7' A, 7' B) des Abflusses (2, 2'), welche derart positioniert werden kann, dass sie sich vertikal von dem Boden des Letzteren erstreckt, um ihn in wenigstens zwei Halbwannen (2A, 2B, 2' A, 2' B, 2' C) zu unterteilen, und wobei die planimetrischen Abmessungen des Kastens (30, 30' A, 30' B) des an einer Wand montierten Gehäuses (3, 3' A, 3' B) im Wesentlichen gleich denen der Halbwanne (2A, 2B, 2' A, 2' B) darunter sind.

7. Maschine nach einem oder mehreren der vorhergehenden Ansprüche, umfassend ein Geschirr-Gestell (9, 9' A, 9' B), welches dazu eingerichtet ist, in den Abfluss (2) platziert zu werden, und wobei das Gestell (9, 9' A, 9' B) einen Rotations-Sprüher (10) zum Erzeugen wenigstens eines Strahls von Waschflüssigkeit gegen das Geschirr umfasst.

8. Maschine nach dem vorhergehenden Anspruch, umfassend eine Waschflüssigkeits-Zufuhrleitung (16), welche sich in den Boden des Abfluss (2) öffnet, und wobei der Rotations-Sprüher (10) mit der Zufuhrleitung (16) verbunden werden kann, um mit der Waschflüssigkeit versorgt zu werden.

9. Maschine nach einem oder mehreren aus Ansprüchen 7 oder 8, wobei das Gestell (9) mittels gitterförmiger Trennwände erhalten wird, welche aneinander angelenkt werden können, welche in wenigstens eine Position umgesetzt werden können, in welcher sie parallel zu einer Trennwand angeordnet sind, welche dem Rotations-Sprüher (10) zugeordnet ist.

10. Maschine nach einem oder mehreren der vorhergehenden Ansprüche, umfassend eine Mehrzahl von Sprühdüsen (20) für die Waschflüssigkeit, welche an wenigstens einer Seite des Abflusses (2) angeordnet sind.

Revendications

1. Machine lave-vaisselle (1,1') du type comportant au moins un bac qui apte à recevoir un support (9,9'A, 9'B) qui peut être chargé de vaisselle à soumettre à l'action de nettoyage d'un liquide de lavage, ledit bac étant au moins partiellement délimité au niveau du fond par un évier (2,2'),
caractérisée en ce que
ladite machine lave-vaisselle (1,1') comporte un coffret d'écoulement (3,3'A,3'B), fixé au mur, qui est apte à se déplacer verticalement en translation au-dessus dudit évier (2,2') depuis une première position éloignée de l'évier, où il est à la verticale de ce dernier, jusqu'à une deuxième position près de l'évier (2, 2'), où il délimite ladite chambre de lavage située au-dessus.

2. Machine selon la revendication 1, dans laquelle ledit coffret d'écoulement (3,3'A,3'B), fixé au mur, comporte une étagère de support perforée (8,8'A) et une caisse (30,30'A,30'B) qui est ouverte en direction de l'évier (2,2').

3. Machine selon la revendication 2, dans laquelle ladite étagère de support perforée (8,8'A) peut être déplacée verticalement de manière à être retirée du volume, ou insérée dans celui-ci, défini par le coffret d'écoulement (3,3'A,3'B), fixé au mur, et rapproché ou éloigné dudit évier (2,2').

4. Machine selon l'une ou plusieurs des revendications précédentes, comportant des guides verticaux (4) couplés, de façon à pouvoir coulisser, à ladite caisse (30,30'A,30'B) et adaptés pour guider le mouvement de translation verticale entre ladite première position et ladite deuxième position.

5. Machine selon l'une ou plusieurs des revendications précédentes, comportant un joint d'étanchéité (25) au niveau d'une surface d'interface entre ledit coffret (3,3'A,3'B), fixé au mur, et ledit évier (2) pour assurer une étanchéité entre eux.

6. Machine selon l'une ou plusieurs des revendications

précédentes, comportant au moins un mur séparateur vertical (7,7'A,7'B) dudit évier (2,2') qui peut être placé de manière à s'étendre verticalement depuis le fond de ce dernier afin de le diviser en au moins deux demi-bacs (2A,2B,2'A,2'B,2'C), les dimensions planimétriques de la caisse (30,30'A,30'B) dudit coffret d'écoulement (3,3'A,3'B), fixé au mur, étant sensiblement égales à celles du demi-bac (2A, 2B,2'A,2'B) située au-dessous.

7. Machine selon l'une ou plusieurs des revendications précédentes, comportant un support de vaisselle (9,9'A,9'B) adapté pour être placé dans ledit évier (2), ledit support (9,9'A,9'B) comportant un pulvérisateur rotatif (10) destiné à générer au moins un jet de liquide de lavage contre la vaisselle.

8. Machine selon la revendication précédente, comportant un conduit d'alimentation en liquide de lavage (16) qui débouche dans le fond dudit évier (2), ledit pulvérisateur rotatif (10) pouvant être engagé sur ledit conduit d'alimentation (16) afin d'être alimenté avec ledit liquide de lavage.

9. Machine selon l'une ou plusieurs des revendications 7 ou 8, dans lequel ledit support (9) est réalisé au moyen de cloisons de type grilles articulées l'une à l'autre, qui peuvent être retournées dans au moins une position où elles sont disposées parallèlement à une cloison associée au pulvérisateur rotatif (10).

10. Machine selon l'une ou plusieurs des revendications précédentes, comportant une pluralité d'ajutages (20) de pulvérisation dudit liquide de lavage disposés sur au moins un côté dudit évier (2).

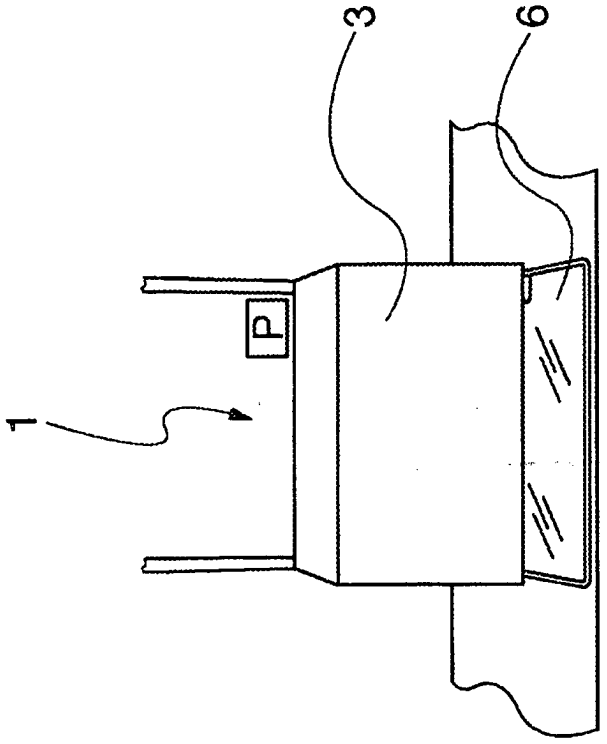


Fig. 2

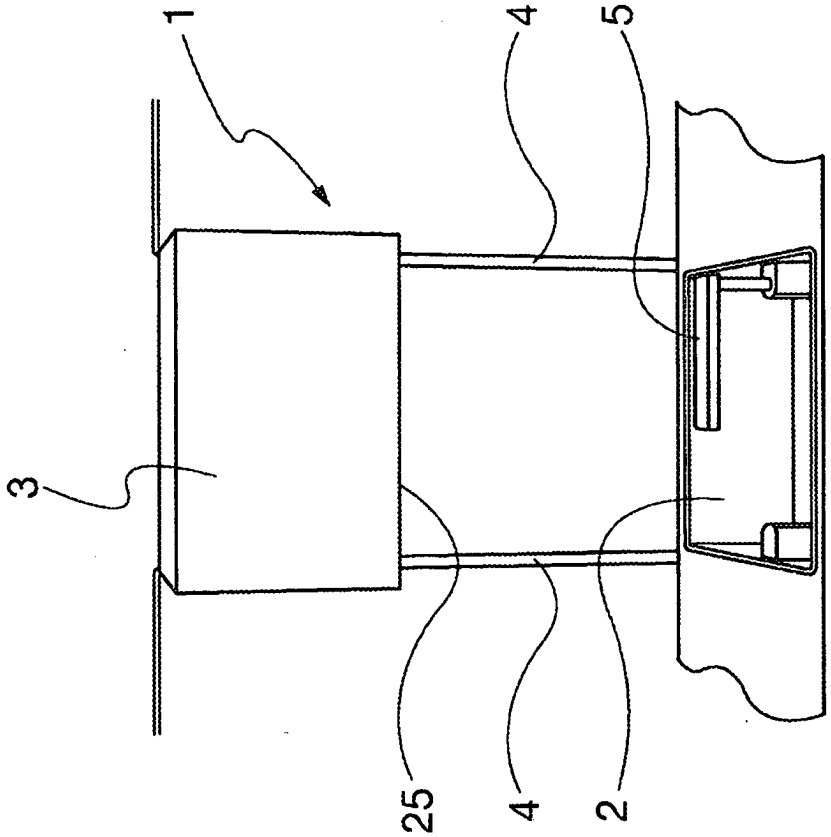


Fig. 1

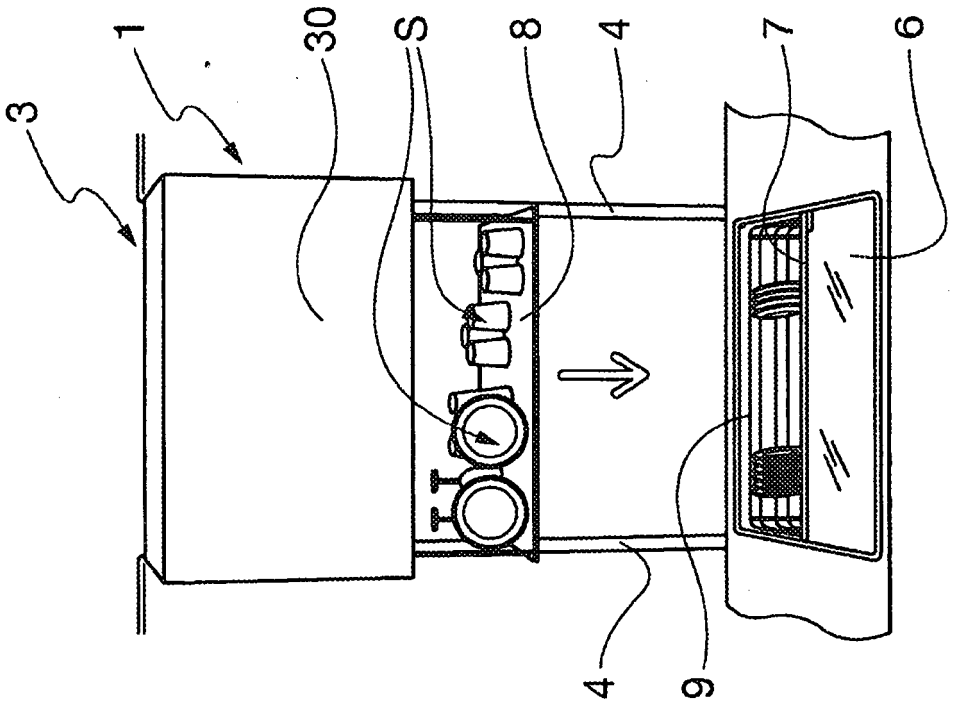


Fig. 4

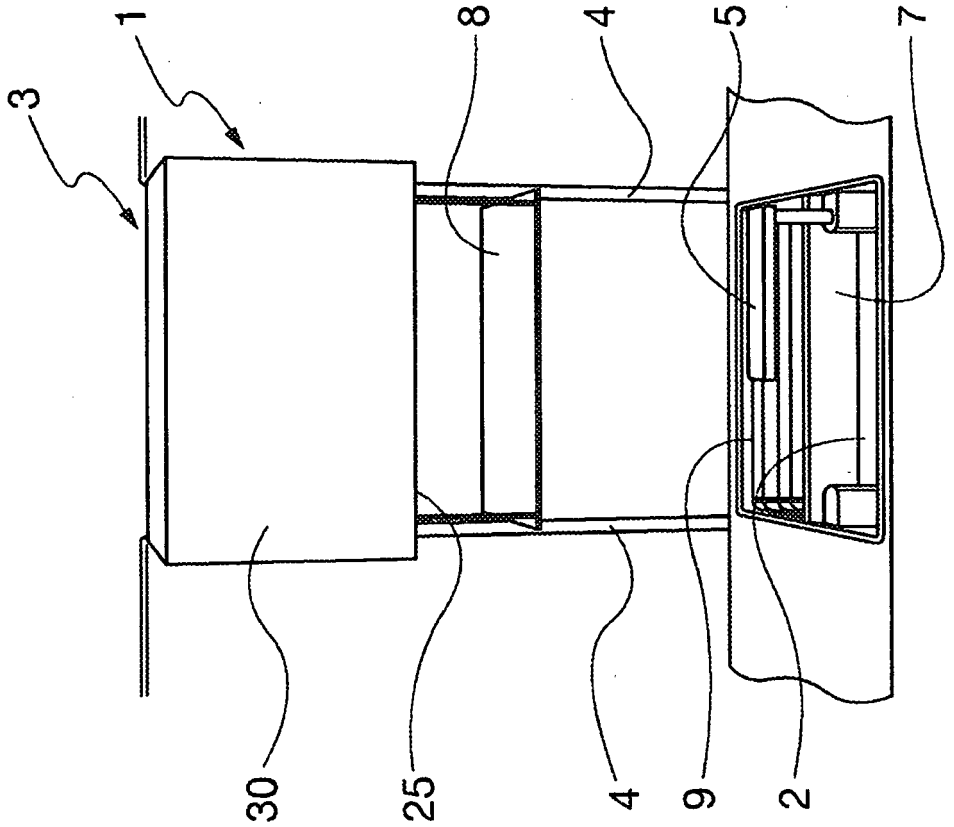


Fig. 3

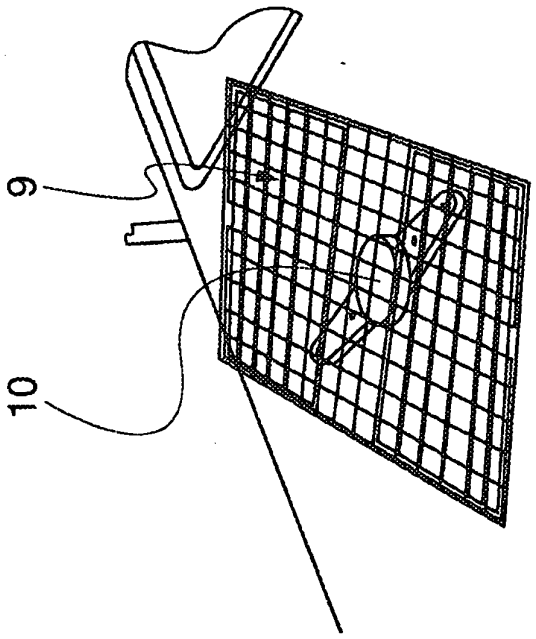


Fig. 7

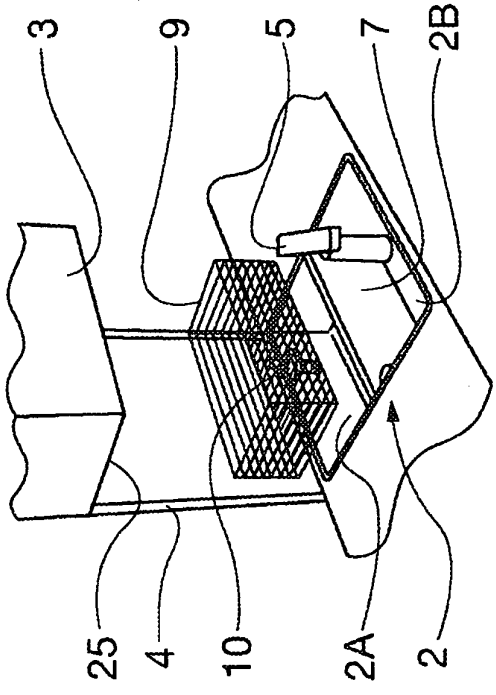


Fig. 5

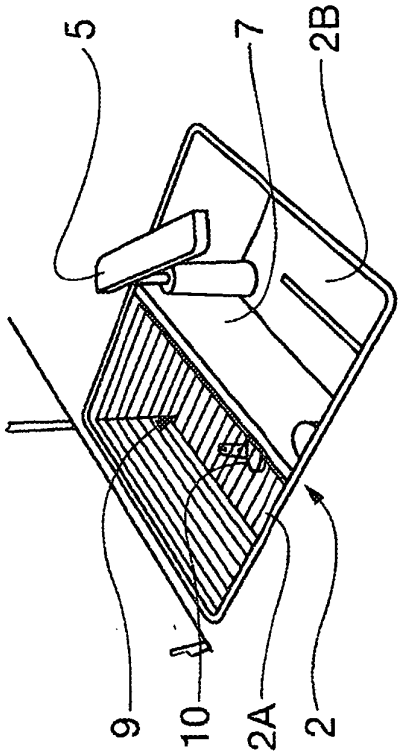


Fig. 6

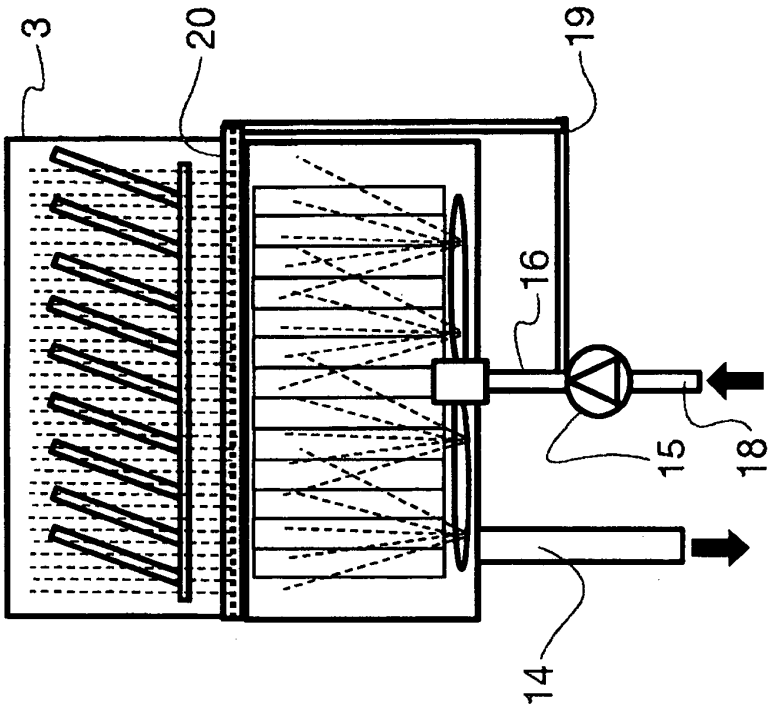


Fig. 9

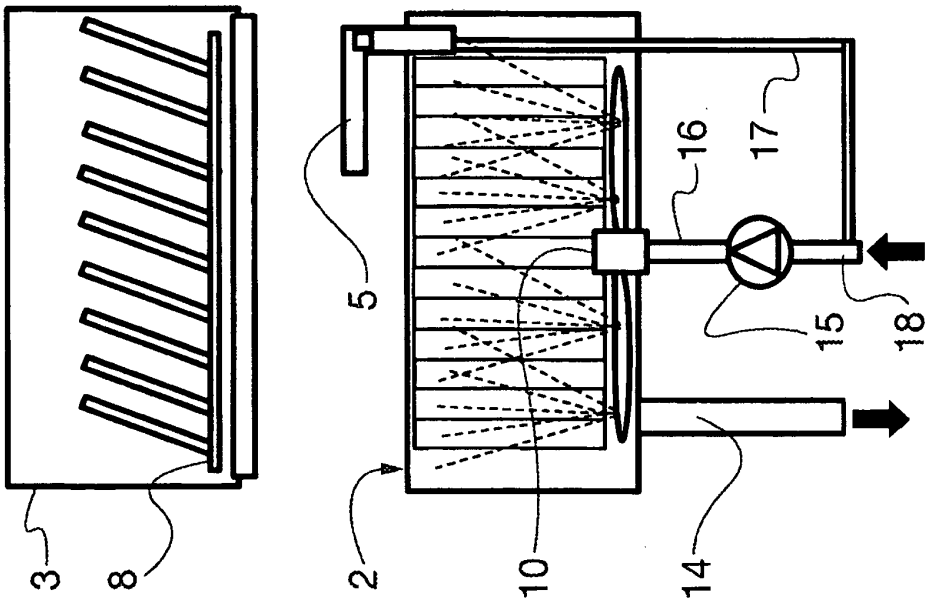


Fig. 8

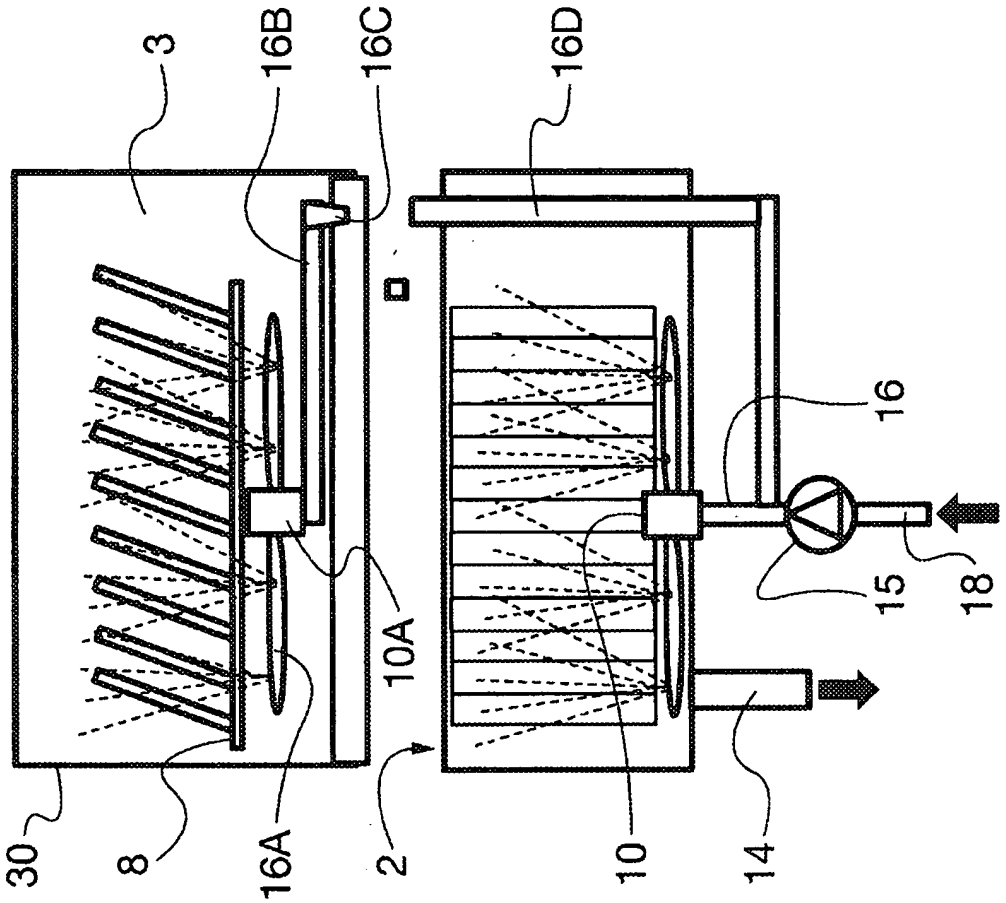


Fig. 10

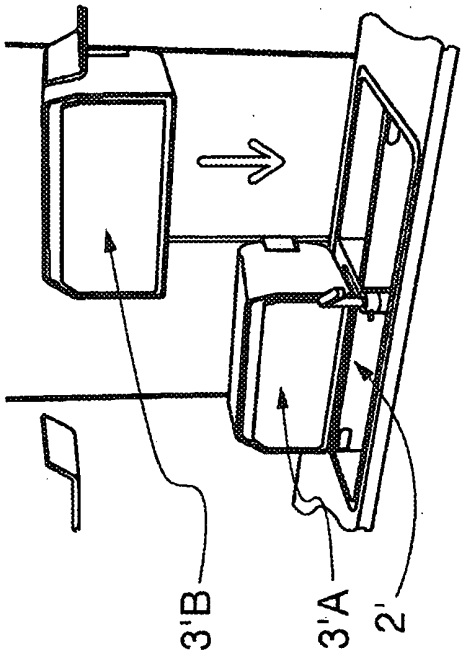


Fig. 12

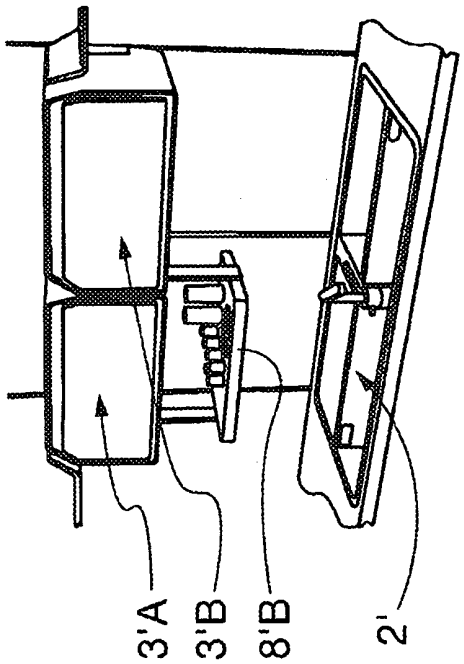


Fig. 11

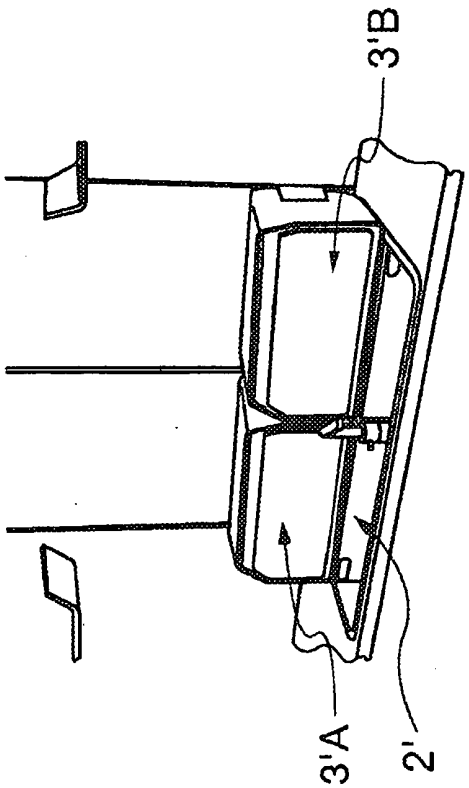


Fig. 13

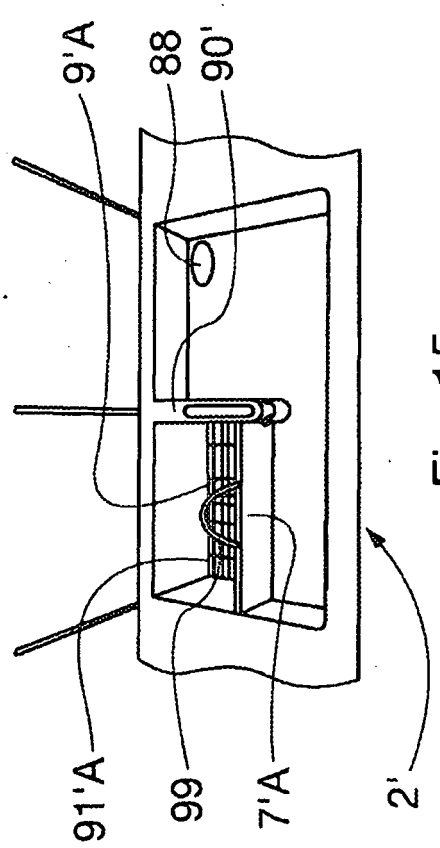


Fig. 15

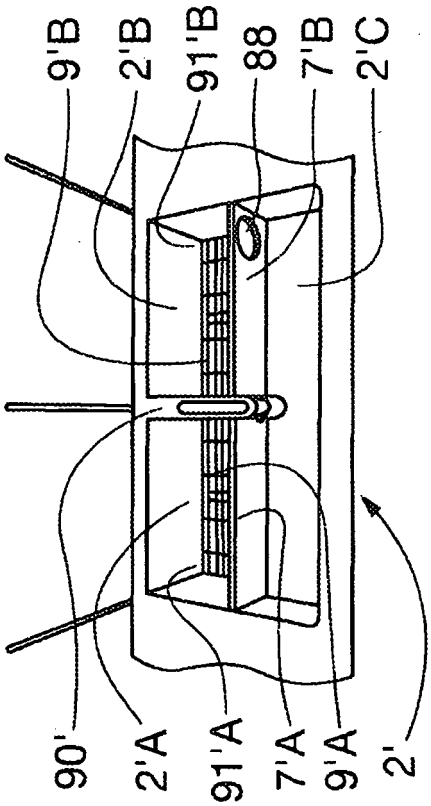


Fig. 17

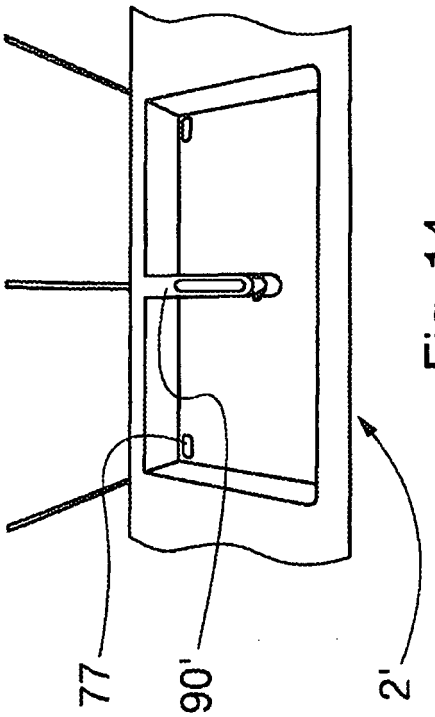


Fig. 14

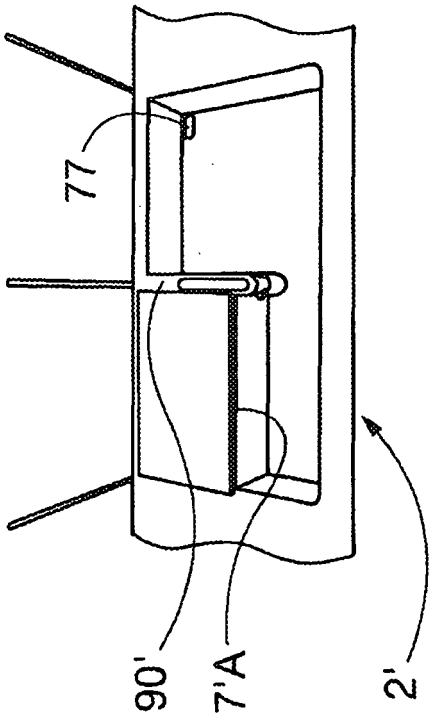


Fig. 16

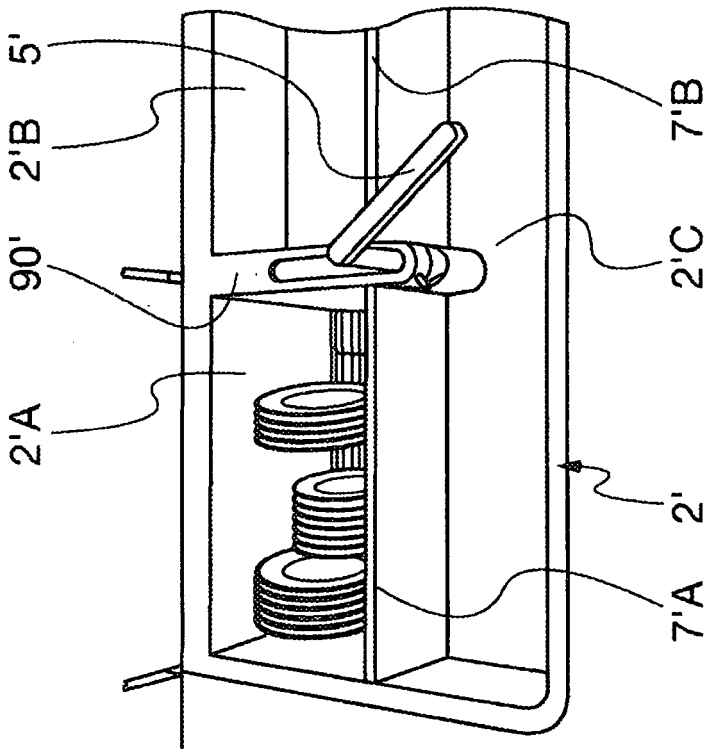


Fig. 19

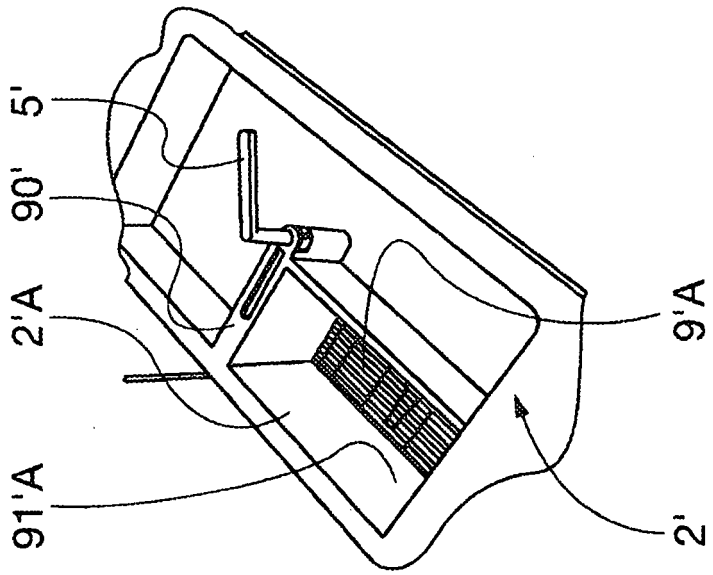


Fig. 18

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 4919162 A **[0010]**
- WO 2009127926 A **[0019]**
- WO 2008093972 A1 **[0021]**