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(54) **COOKING DEVICE WITH DRAIN WATER COLLECTION WITH SPILLAGE REDUCTION
FUNCTIONALITY**

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Description

BACKGROUND

1. Field of the Disclosure

[0001] The present disclosure relates to an assembly and a method for avoiding spillage of the drain/waste water. More particularly, the present disclosure relates to devices for automatically emptying the drain/waste water of cooking devices that employing moveable collection devices referred to in the state of the art as a "water taxi" and provides for minimal spillage of the drain/waste water and simplified disposal of the drain/waste water. The moveable collection devices of the present disclosure provide increased safety by reducing the possibility of a slippery floor, reducing the potential of food/food area contamination and reducing the possibility of water penetrating building construction or causing mold growth.

2. Background of the Disclosure

[0002] Already known are moveable collection devices that can hold drain /waste water of cooking devices. These systems are sometimes called "water taxis", and are often used when the cooking devices cannot be connected or hard-piped to a floor drain system. For example, when the cooking device is installed at a distance from a drain system of the building where the cooking device is installed, the drain system of the cooking device may not be able to be connected or piped directly into that drain system. In this situation, the drain/waste water that is produced by the cooking device is fed through a pipe system of, or attached to, the cooking device, that ends in the opening of the water taxi. When the water taxi is filled it is wheeled to a nearby floor drain, where the water is disposed.

[0003] The types of water taxi systems disclosed in the above state of the art suffer from several drawbacks. One such drawback is that when the water taxi is filled with drain/waste water the device needs to be wheeled to a floor drain for emptying. During this emptying phase, the cooking device is often still in operation causing a constant flow of drain/waste water. Drain/waste water will exit the cooking device in normal operation due to moisture from the cooking cycle in the form of condensed steam or as condensed moisture from the food being cooked. Greater quantities of water will, of course, exit the cooking device during the cleaning cycle when larger quantities of water are intentionally used to clean the inside of the cooking device. In either case, the drain/waste water will flow out of the drain pipe system of the cooking device and will fall on the kitchen floor. This situation results in safety concerns due to slippery floors, hygienic issues surrounding the presence of waste water in the environment, water possibly penetrating the building construction and forming areas of mold or other pathogens over time, etc.

[0004] Also, according to the known state of the art devices, there is a lack of any indication of when the water taxi is full and needs emptying. Therefore, a need exists for a moveable collection device for the removal of drain/waste water that does not suffer from the drawbacks of the state of the art.

[0005] Some of these problems are addressed in a system disclosed in DE 10 2010 017 177. In the disclosed system, the possibility of additional drain/waste water exiting and being spilled on the floor is somewhat alleviated. However, the disclosed system requires that the cooking device be shut off for emptying the water taxi and this is accomplished by electromechanical control of the main controller of the cooking device. Also, the system disclosed determines if the drain/waste water level is such that the water taxi needs to be emptied. However, once again, the drain/waste water level sensor is connected to the cooking device main controller and shuts off the cooking device when a filled state is reached. Thus, the disclosed system requires that the operational cycle of the cooking device be terminated (whether a cooking cycle or cleaning cycle) if the water taxi is removed or becomes full. In addition, the water taxi itself is in a complex arrangement on a sort of "trolley" or "platform" and is fixed on that trolley, has a complex filling and emptying structure, and is controlled in its operation, in part, by the placement of the trolley. For example, the disclosed water taxi has a filling port near its upper surface, and an emptying port different from the filling port disposed on its bottom surface. The filling port must be aligned with an external rigid drain pipe in order to accommodate receiving the drain/waste water. The emptying port is also complex in design, requiring communication to a separate valve that must be actuated between an open and closed position. Also included as part of the water taxi is a complex arrangement for the communication between the emptying port and the valve associated therewith, including a separate drain line. In addition, the disclosed system includes a complex drain/waste water drainage system that includes a plurality of valves that are electromechanically controlled by either the water taxi level sensor, by the water taxi trolley position, or by the door of the cabinet where the water taxi is placed.

[0006] DE 10 2006 031 581 relates to an apparatus for heat treatment of foods, with a heated oven, which is connectable to an exhaust duct and which has a base which can be connected via a bypass line to the environment, preferably with the exhaust duct, and connected with a container for collecting fat and grease from the floor drain. The floor drain opens out into a branch with a first and a second output, where the first output via a valve is connectable to a sewer, and to the second output via a valve. The second output is at a higher level than the first output and the bottom of the branch to the first output has a slope which is between 0° and 30°. A cleaning device is provided for cleaning the cooking chamber, and wherein the branch is designed such that residues and cleaning agent can flow out.

[0007] EP 2 389 808 relates to device for heat treatment of food products consisting of a heat treatment apparatus and a base cupboard. The heat treatment device may be an oven or a combi steamer. The device has a vaporization or a cleaning system for the heat treatment apparatus. Usually both units are present, whereby the amount of resulting liquids is particularly high. In the heat treatment apparatus condensate and/or accumulating cleaning fluid is passed through several pipelines in the cabinet, where there is a waste water tank for receiving the condensate and/or the cleaning liquid. The waste water tank is integrated into a mobile tank device which consists of a movable floor beam on which the waste water tank is attached. The movable base carrier has wheels, which should be at least partially steerable. The waste water tank has at least one filling opening and a discharge opening. The filling opening can be used as a vent port simultaneously. Usually, however, an extra vent will be present. The discharge opening is connected to a manually operable outlet valve.

[0008] EP 0 425 474 relates to a portable gas grill having a cart of generally rectangular configuration and consisting of a plurality of tubular members and including at least two transversely-spaced upper members defining a space therebetween. A housing defining a cooking chamber and having opposed ledges supported on the upper members. The housing has a cooking grid adjacent an upper edge and a cover thereon, and a removable side burner that is supported on the upper members adjacent the housing. The portable grill has a V-shaped bottom tray for receiving cooking waste and is configured to trap heat from the portable grill to vaporize the cooking waste.

SUMMARY

[0009] It is, therefore, an object of the present disclosure to provide a moveable collection device for the removal of drain/waste water from a cooking device that prevents the continual draining of drain/waste water onto the floor while the moveable collection device is out of place and being emptied, even if the operation of the cooking device is not stopped.

[0010] It is also an object of the present disclosure to provide a moveable collection device for the removal of drain/waste water from a cooking device in which the moveable collection device provides an indication that it is ready to be emptied by a drain/waste water level sensor, but where the sensor, preferably, does not control the operation cycle of the cooking device.

[0011] The above and other objects are met by the assembly according to claim 1 and a method according to claim 8. The cooking device itself is of general, known design.

[0012] One embodiment of the present disclosure relates to an assembly comprising a cooking device, in particular a commercial cooking device (such as, preferably, a combisteamer, a baking oven or a microwave oven)

comprising a housing including a cooking chamber, a door for opening and closing the cooking chamber, and a drain for allowing drain/waste water to drain from the cooking device. External to the cooking device and in close association with the drain is a drain tray or catch basin that is disposed in cooperative relationship with a moveable collection device for the removal of drain/waste water from the drain tray/catch basin. The flow of drain/waste water into the drain and thereafter into the drain tray/catch basin is, preferably, not controlled by a valve or stop of any sort, and the drain/waste water may continually drain from the cooking device into the drain tray/catch basin even when the moveable collection device is removed. The moveable collection device is disposed in relation to the drain tray/catch basin so that when the moveable collection device is removed for emptying, the drain tray/catch basin is rotated to continue to receive drain/waste water exiting the cooking chamber through the drain, but is configured so that drain/waste water that enters the drain tray/catch basin remains therein until the moveable collection device is returned to position underneath the drain tray/catch basin. This ability of the drain tray/catch basin to continue to receive drain/waste water exiting the cooking device is, preferably, attained without the use of any valve or stop of any sort.

[0013] In another embodiment of the present disclosure, a method of receiving and disposing of drain/waste water produced during operation of the cooking device by the device to hold the drain/waste water, performed by the assembly according to the invention, is provided. The method is performed as follows: disposing the moveable collection device in relation to the drain tray/catch basin, collecting drain/waste water from the drain that passes into the drain tray/catch basin, passing the drain/waste water from the drain tray/catch basin to the moveable collection device, removing the moveable collection device for emptying, wherein the drain tray/catch basin is rotated to continue to receive drain/waste water exiting the cooking chamber through the drain, and preventing drain/waste water that enters the drain tray/catch basin while the moveable collection device is removed from exiting the drain tray/catch basin.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Further features, advantages and details of the present disclosure will become apparent from the following description of the drawings in that:

Fig. 1 shows a schematically simplified side cross-sectional view of a cooking device according to the present disclosure;

Fig. 2 is a top front perspective view of a moveable collection device according to the present disclosure;

Fig. 3 is a perspective view of a moveable collection device according to the present disclosure in upright position for rolling to a drain for emptying;

Fig. 4 shows a schematic view of two cooking devices in stacked configuration with a moveable collection device according to the present disclosure disposed thereunder behind a door;

Figs. 5-6 show an embodiment of the method of present disclosure wherein the moveable collection device is being removed, with the drain tray thereafter disposed in position to continue to catch drain/waste water from the cooking devices;

Figs. 7-8 show the same embodiment as shown in Figs. 5-6 wherein the moveable collection device is being placed back into position to receive drain/waste water from the drain tray; and

Figs. 9a and 9b show views of the underside of the drain tray/catch basin according to one embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0015] Fig. 1 shows the cooking device 1 as a generalized combisteamer suitable for use in accordance with the present disclosure. Cooking device 1 in Fig. 1 has a housing 2 containing a cooking chamber 3 and a heating chamber 4 divided by a suction panel 5 that separates cooking chamber 3 from heating chamber 4 and thereby protects a fan wheel 6 and a heating element/coil 7 from being damaged or touched.

[0016] Through a central area of suction panel 5 is a suction panel opening 8, through which air is sucked from cooking chamber 3 to heating chamber 4 in the direction of arrows "A" and distributed and heated with fan wheel 6 and heating element/coil 7. During steam cooking, water is distributed within heating chamber 4 through an inlet pipe (not shown) disposed in heating chamber 4. For dehumidification during cooking, a flap 9 is opened and fresh air is sucked into the chamber in the direction of arrow "B" via an intake suction pipe 10. Fresh cold air is sucked into cooking chamber 3 via intake pipe 10 and the cold air flowing through intake pipe 10 is pushed into cooking chamber 3 by fan wheel 6 in the direction of arrows "C", causing wet air in cooking chamber 3 to be pushed out through a drain 13 as condensed heated air from cooking chamber 3 into a condenser tray 14. Thereafter, the condensed heated air collected as liquid in condenser tray 14 drains into and through a drain pipe 12. Heated air exits into the environment through an air outlet pipe 15. A water inlet pipe 11 is often employed for filling condenser tray 14 for various purposes, such as during the cleaning cycle of cooking chamber 3 of cooking device 1. At the time of cleaning, drain pipe 12 will be closed (by a mechanism not shown) so that the cleaning cycle

can be completed without the loss of cleaning liquid, etc., through drain pipe 12.

[0017] As can be appreciated, and as is known to those skilled in the art, drain/waste water exits cooking device 1 under varied circumstances, for example, during steaming for steam cooking, during dehumidification and, generally, after cleaning as noted above (although when progressing from, for example, a cleaning cycle to a rinsing cycle, drain/waste water may exit cooking device 1 between cycles), but also under normal cooking operation due to moisture from the food being cooked that is driven off and exits cooking chamber 3. Thus, it is not uncommon for drain/waste water to be continually draining from cooking device 1.

[0018] In Fig. 2, a moveable collection device 20 comprises a tank 21 for holding drain/waste water from cooking device 1. Disposed at, preferably, one end of tank 21 and on opposing sides of tank 21 are, also preferably, one or more wheels 22 for ease of transporting moveable collection device 20 from cooking device 1 to a drain where moveable collection device 20 will be emptied. Moveable collection device 20 is not fixed upon a trolley or platform and includes, preferably, its own wheels for moving the moveable collection device from a position to receive drain/waste water to a position to dispose drain/waste water. Disposed on a surface of tank 21 is an opening 23 that, in Fig. 2, is closed and sealed by use of a threaded screw cap 24. Of course, opening 23 could be closed by any suitable means such as a snap closure, cam actuated pressure fitted cap, and similar closures. In the embodiment shown in FIG. 2, opening 23 comprises a threaded portion disposed above the outer surface of moveable collection device 20, the threaded portion of which is suitable to accommodate threaded screw cap 24. In use, opening 23 is disposed in relation to an opening in drain tray/catch basin according to the present disclosure, as will be explained in more detail hereinafter. Opening 23 is also preferably disposed near an edge surface (such as is shown in Fig. 2) of moveable collection device 20 so that when emptying the drain/waste water through opening 23, the emptying is complete, or nearly complete. Opening 23 can of course be disposed in other locations on the surface of tank 21, but other positions may not effect as complete emptying of tank 21. The placement of opening 23 allows for it to be both the "filling" opening for accepting drain/waste water from cooking device 1 and also the "emptying" opening for disposing of drain/waste water from tank 21. In this manner, the structure of moveable collection device 20 does not require a separate opening for emptying on the opposite side/surface from opening 23 of water tank 21 such as is required in the above mentioned DE 10 2010 017 177. It is believed that the opposite, separate emptying openings of the apparatus in the DE document, one for filling and one for emptying, are required because of the "fixed" position of the "water taxi" on the "trolley" disclosed therein.

[0019] According to the present disclosure, in opera-

tion, when moveable collection device 20 is full and is removed for emptying, screw cap 24 is used to close/seal opening 23 (covered by 24 in Fig. 2) to prevent spillage of drain/waste water from tank 21. Also as part of the embodiment of moveable collection device 20 is a handle 25 that, in Fig. 2, is shown in closed, retracted position. Handle 25 is not unlike, and is similar in function to, the retractable handle commonly used for moving luggage along the ground in airports, on street sidewalks, etc. In Fig. 2, moveable collection device 20 may also comprise elements 26, 27 and 28. Element 26 is a handle that may, in some cases, be used to transport moveable collection device 20 away from cooking device 1 rather than handle 25. Element 27 is a "false" screw cap holder onto which screw cap 24 may be stored while moveable collection device 20 is located in a position relative to cooking device 1 and is collecting drain/waste water. Element 27 is an item of convenience so that screw cap 24 is less likely to be misplaced. Element 28 is an additional optional opening that is also secured, preferably with a cap such as screw cap 24. Element 28 can serve the purpose of accommodating an additional drain pipe from one or more other cooking devices 1 and/or may also be used to accept a drain/waste water level sensor device/filling indicator that may be placed into moveable collection device 20 to provide an indication when moveable collection device is full or nearly full and/or may be used to accept a source of water or other liquid to clean and rinse tank 21 of movable collection device 20. Element 28 may be omitted altogether.

[0020] Fig. 3 is similar to Fig. 2 but shows moveable collection device 20 in an upright position for moving to and from a drain pipe, both before and after emptying, as the case may be. In Fig. 3, like numerals denote like elements as set forth with respect to Fig. 2.

[0021] Fig. 4 shows a configuration of moveable collection device 20 of the present disclosure in relationship to a stacked arrangement of cooking devices 1. This embodiment and relationship is for illustrative purposes only. In Fig. 4, it can be seen that two cooking devices 1, similar in general configuration to cooking device 1 of Fig. 1, are disposed above each other in stacked arrangement on a rack 40. Disposed on the lower front side of rack 40 is a door 41 that encloses moveable collection device 20 while in operating (i.e., drain/waste water receiving) position. Door 41 serves to keep moveable collection device 20 in correct position with respect to its receiving drain/waste water, but also serves additional purposes, as will be explained in more detail below. Disposed above and toward one end of moveable collection device 20 is a drain tray/catch basin 42 that is placed in position so as to receive waste/drain waste water exiting cooking device(s) 1, in the embodiment of Fig. 4, through one or more drain pipes (not shown in Fig. 4). As will also be explained in more detail below with respect to the embodiments in Figs. 4-8, drain tray/catch basin 42 is held in moveable position in relation to moveable collection device 20 and drain pipe(s) by at least one bracket 43.

In turn, bracket 43, in the embodiment shown in Fig. 4 and the following description in relation to Figs. 5-8, is connected to drain tray/catch basin 42 in rotatable fashion via a connector 44, such as a pin or fastener. For support, bracket 43 may also be attached to rack 40 by any suitable means, such as, as shown in Fig. 4, a retaining bracket 45. The means of connecting bracket 43 to drain tray/catch basin 42 is of no particular import, and can be, for example, a rivet, a screw, a pin and similar attachments. In the same manner, the attachment of retaining bracket 45 to rack 40 is of no particular import and retaining bracket 45 may be slidably attached, welded, screwed, glued, or provided with similar attachments.

[0022] Fig 5. shows a view of moveable collection device 20 disposed below rack 40 such as shown in Fig. 4. In Fig. 5, cooking devices 1 and door 41 are not shown. In Figs. 5-6, it can be seen that in the embodiment shown, drain tray/catch basin 42 is rotatably fastened to bracket 43 by connectors 44 disposed on opposite sides of drain tray/catch basin 42 substantially equidistant from the front edge 51 of drain tray/catch basin 42 and connectors 44 are engagingly connected to each vertically disposed portion 52 of bracket 43 via a "notch" or hollow 53 designed for engaging connectors 44. In the embodiment shown in Figs. 5-8, connectors 44 that hold drain tray/catch basin 42 in rotatable connection to bracket 43 are shown as appendages disposed on each side of drain tray/catch basin 42. As can be seen in Fig. 5, disposed above and toward one edge of drain tray/catch basin 42 is a drain pipe 54 (not shown in Fig. 4), leading from cooking devices 1 (not shown in Fig. 5). Drain pipe 54 is disposed in relation to drain pipe 12 of Fig. 1 so as to receive drain/waste water therefrom. Drain/waste water from drain pipe 54 flows into drain tray/catch basin 42 and is collected and held therein. Disposed in the bottom 55 of drain tray/catch basin 42, at a location preferably disposed away from the entry point of drain/waste water from drain pipe 54 into drain tray/catch basin 42, is an opening (not shown on Fig. 5) that is disposed above opening 23 of moveable collection device 20. Drain tray/catch basin 42 is preferably disposed such that drain/waste water from drain pipe 54 is inclined to run toward the opening (not shown) in bottom 55 of drain tray/catch basin 42 above opening 23 of moveable collection device 20. In the embodiment shown in Fig. 5, screw cap 24 has been removed from opening 23 and transferred to "false" screw cap holder 27, as noted in Fig. 5. Drain/waste water drains from drain tray/catch basin 42 directly into moveable collection device 20 from opening in drain tray/catch basin 42, preferably without the use of any pipe or intervening connector between the opening in drain tray/catch basin 42 and opening 23 of moveable collection device 20.

[0023] Fig. 6 shows one embodiment of the interaction between moveable collection device 20 and drain tray/catch basin 42 as moveable collection device 20 is removed from under drain tray/catch basin 42 and out of rack 40 for emptying. In Fig. 6, as moveable collection

device 20 is removed from beneath drain tray/catch basin 42, drain tray/catch basin 42 tilts in a manner caused by the placement of drain tray/catch basin 42 in relationship to bracket 43 and connectors 44 on drain tray/catch basin 42. Due to the arrangement of connectors 44 on drain tray/catch basin 42, drain tray/catch basin 42 is caused to tilt downwardly in the area disposed below drain pipe 54, and upwardly in the area disposed above opening 23 of moveable collection device 20. As this movement is effected, drain/waste water is prevented from flowing through the opening (not shown) in bottom 55 of drain tray/catch basin 42 in the area above opening 23 of moveable collection device 20. At the same time, drain/waste water flowing from drain pipe 54 into drain tray/catch basin 42 is caused to collect and remain in drain tray/catch basin 42 in the volume of space created in drain tray/catch basin 42 between the lower edge 61 of drain tray/catch basin 42 and the opening in drain tray/catch basin 42 above opening 23 in moveable collection device 20. Thus, cooking device 1 need not be stopped in its operation or its cooking or cleaning cycle shut off when moveable collection device 20 is removed for emptying, and drain/waste water may continue to exit cooking device 1 via drain pipe 54 without the need for valves or other apparatus/structure to shut the flow of drain/waste water through drain pipe 54. Of course, drain tray/catch basin 42 may be configured, and the relationship between drain tray/catch basin 42 and bracket 43 and connectors 44 modified, so as to adjust the volume heretofore described to accommodate continued flow of drain/waste water from drain pipe 54 as necessary in any particular application (such as the distance from a floor drain into which the drain/waste water stored in moveable collection device 20 must travel before emptying).

[0024] Subsequent to the position of moveable collection device 20 depicted in Fig. 6, moveable collection device 20 is moved away from under rack 40, screw cap 24 is removed from "false" cap holder 27 and screwed onto opening 23 of moveable collection device 20 so as to close opening 23. Thereafter, moveable collection device 20 may be taken by rolling or carrying, using either handle 25 or handle 26 according to the embodiments of Figs. 2 or 3, to a remote drain for emptying. As mentioned above, while moveable collection device 20 is not receiving drain/waste water from drain pipe 54, the drain/waste water continues to flow into drain tray/catch basin 42 and is caused to collect and remain in drain tray/catch basin 42 in the volume of space created in tilted drain tray/catch basin 42 between lower edge 61 of drain tray/catch basin 42 and the opening (not shown) in drain tray/catch basin 42 previously disposed above opening 23 in moveable collection device 20.

[0025] After moveable collection device 20 is emptied, it is returned to place in relation to drain tray/catch basin 42, and the steps described above with respect to Figs. 5 and 6 are reversed. Figs. 7 and 8 show these reversed steps. In Fig. 7 moveable collection device 20 is placed back into position to resume receiving drain/waste water

from drain tray/catch basin 42. As shown in Fig. 7, screw cap 24 is again placed on "false" screw cap holder 27 for retention. Fig. 8 shows moveable collection device 20 returned to position below drain tray/catch basin 42 to receive additional flow and quantity of drain/waste water from drain pipe 54. Now, in connection with Figs. 9a and 9b, an aspect of the interrelationship between opening 23 of moveable collection device 20 and drain tray/catch basin 42 will be described.

[0026] As shown in Fig. 9a, disposed on bottom 55 of drain tray/catch basin 42 is opening 91, described earlier but not shown, that is disposed above opening 23 of moveable collection device 20 while moveable collection device 20 is receiving drain/waste water flowing from drain pipe 54 into drain tray/catch basin 42. Surrounding a portion of the periphery of opening 91 is a protrusion 92. As shown in fig. 9b, protrusion 92 may be a portion of bottom 55 of drain tray/catch basin 42, or may be an addition to bottom 55 of drain tray/catch basin 42, such as a vertically disposed flange member. Although shown as circular in Fig. 9a, opening 91 can be of any configuration (e.g., square, rectangular, oval, a combination of slots, and similar configurations). All that is necessary is that the inside periphery/diameter of opening 23 of moveable collection device 20 be sufficient to accommodate water flowing from the outer periphery/diameter of opening 91. In other words, the inner periphery of opening 23 regardless of its geometry should be sufficiently large to remain outside of the outer periphery of the corresponding, or opposing, geometry of opening 91. Also as shown in Figs. 9a and 9b, preferably there is disposed a flange as protrusion 92 around at least a portion of opening 91. When employed, protrusion 92 may be used in the following manner and perform the following functions. In part, protrusion 92 assists in ensuring that drain/waste water flowing from drain pipe 54 into drain tray/catch basin 42 and therefrom into opening 23 of moveable collection device 20 is, in fact, more completely flowing into opening 23. In this respect, protrusion 92 may aid in directing drain/waste water from drain tray/catch basin 42 into opening 23 of moveable collection device 20 to avoid or limit "splash" or spillage of drain/waste water. In another aspect, protrusion 92 may serve as a safety device in the following manner. In a preferred embodiment, protrusion 92 has an inner periphery/diameter 93 that is large enough to accommodate the raised threaded portion of opening 23 (as mentioned with respect to Fig. 2) when screw cap 24 is not present, but insufficient to accommodate opening 23 when screw cap 24 is present. In this manner, moveable collection device 20 cannot be accidentally placed back into position for receiving drain/waste water from drain tray/catch basin 42 with opening 23 closed with screw cap 24. This has the beneficial effect of preventing drain/waste water from being spilled or disposed in any place other than into opening 23 of moveable collection device 20. Also, when protrusion 92 acts to prevent moveable collection device 20 from being fully placed into position to receive drain/waste water, move-

able collection device 20 will preferably protrude from rack 40 and prevent door 41 from closing (see, Fig. 4). In this respect, the present disclosure is simpler in design, construction and operation than that disclosed in the above DE10 2010 017 177 document that requires electrome-

[0027] Other embodiments of constructing/designing opening 91 so that water does not empty while moveable collection device 20 is moved away for emptying or other reason are envisioned. For example, opening 91 may be closed by a slidable seal (not shown) that is slid longitudinally into open position for allowing drain/waste water to empty from drain tray 42 as moveable collection device 20 is placed into position and slid longitudinally into closed position as moveable collection device 20 is removed for emptying. This sliding motion can be provided, for example, by a catch on the slidable seal that engages with the top of the moveable collection device 20 and is pushed away rearwardly as moveable collection device 20 is placed into receiving position for filling and pulled back into place as moveable collection device 20 is removed from receiving position for emptying. In an alternative sliding arrangement, opening 91 may be closed by a seal that is rotatably slid into closed position as moveable collection device 20 is removed for emptying and rotatably slid into open position as moveable collection device 20 is placed back into position for receiving additional drain/waste water.

Claims

1. An assembly comprising a cooking device (1) and a device to hold the drain/waste water from the cooking device, wherein the cooking device (1) comprises a housing (2) including a cooking chamber (3) and a drain (13) for allowing drain/waste water to drain from the cooking device (1), the cooking device (1) being in cooperative relation with the device to hold the drain/waste water, wherein the device to hold the drain/waste water comprises:
 - a drain tray (42) external to the cooking device (1) for receiving the drain/ waste water from a drain pipe (54), the drain tray (42) comprising:
 - i) a bottom (55) and sides to form a volume,
 - ii) an opening (91) disposed in the bottom (55) for allowing the drain/waste water to exit the drain tray (42) and,
 - a movable collection device (20), wherein the movable collection device (20) is movable be-

tween a position for receiving the drain/waste water from the opening (91) of the drain tray (42), and a position for disposing the drain/ waste water, the movable collection device (20) including an opening (23) for receiving the drain/waste water from the drain tray (42) opening (91), a rack (40) on which the cooking device is disposed,

wherein the rack (40) comprises a door (41) disposed on its lower front side that encloses the movable collection (20) device in the position for receiving the drain/waste water and that serves to keep the movable collection device (20) in correct position when it receives drain/waste water,

characterized in that

the drain tray (42) further comprises connectors (44) disposed on opposite sides of the drain tray (42) substantially equidistant from a front edge (51) of the drain tray (42),

wherein each connector (44) is engagingly connected to a vertically disposed portion of a bracket (43) via a notch (53) designed for engaging the connectors (44),

wherein the bracket (43) is attached to the rack (40), and

wherein when the movable collection device (20) is moved to the position for disposing the drain/waste water, the drain tray (42) rotates about the connectors (44) engaged in the brackets (43) so that the drain tray (42) continues to receive additional drain/waste water exiting the cooking chamber (3) through the drain and prevents said additional water from exiting the drain tray (42).

2. The device according to claim 1, wherein the connectors (44) of the drain tray (42) are engagingly connected to each vertically disposed portion (52) of bracket (43) via the notch (53) such that the rotation of the drain tray (42) causes a lower edge (61) of the drain tray (42) to lower away from the drain pipe (54) and causes the opening (91) of the drain tray (42) to elevate.
3. The device according to claim 2, wherein the rotation of the drain tray (42) creates a volume in the drain tray (42) between the lower edge (61) of the drain tray (42) and the opening (91) in the drain tray (42), wherein the volume is disposed away from the opening (91) in the drain tray (42) to receive additional drain/waste water from the drain pipe (54).
4. The device according to claim 1, wherein the opening (23) of the moveable collection device (20) for receiving the drain/waste water is also used for emptying the drain/waste water from the moveable collection device (20).

5. The device according to claim 1, wherein the opening (23) of the moveable collection device (20) for receiving the drain/waste water has associated therewith a closure.
6. The device according to claim 5, wherein the closure is a threaded screw cap (24) configured to engage a threaded portion of the opening (23) disposed above the outer surface of moveable collection device (20).
7. The device according to claim 5, wherein the drain tray (42) further comprises a protrusion (92) disposed on the bottom (55) surrounding a portion of the opening (91) that prevents the moveable collection device (20) from being placed into position for receiving drain/waste water from the drain pipe (54) if the closure (24) is associated with the threaded portion.
8. A method of receiving and disposing of drain/waste water produced during operation of a cooking device (1) by the device to hold the drain/waste water performed by an assembly according to any of claims 1-7, the method **characterized by**:

allowing the drain/waste water exiting the drain (13) from the cooking device (1) to be received through the drain pipe (54) by the drain tray (42); allowing the drain/waste water in the drain tray (42) to exit the drain tray (42) by the opening (91); allowing the drain/waste water that exits the drain tray (42) by the opening (91) to be received by the moveable collection device (20) through the opening (23) in the moveable collection device (20); and removing the moveable collection device (20) to dispose of the drain/waste water, wherein the drain tray (42) rotates and continues to receive additional drain/waste water exiting the cooking chamber (3) through the drain (13) and prevents said additional water from exiting the drain tray (42).
9. The method according to claim 8, wherein the rotation of the drain tray (42) causes the lower edge (61) of the drain tray (42) to lower away from the drain pipe (54) and causes the opening (91) of the drain tray (42) to elevate.
10. The method according to claim 9, wherein the rotation of the drain tray (42) creates a volume in the drain tray (42) between the lower edge (61) of the drain tray (42) and the opening (91) in the drain tray (42), wherein the volume is disposed away from the opening (91) in the drain tray (42) and receives ad-

ditional drain/waste water from the drain pipe (54).

11. The method according to claim 9, wherein the emptying of the drain/waste water from the moveable collection (20) device uses the opening (23) of the moveable collection device (20) that is used for receiving the drain/waste water.
12. The method according to claim 9, wherein the opening (23) of the moveable collection device (20) for receiving the drain/waste water has associated therewith a closure.
13. The method according to claim 12, wherein the closure is a threaded screw cap (24) configured to engage a threaded portion of the opening (23) disposed above the outer surface of the moveable collection device (20).
14. The method according to claim 13, wherein the drain tray (42) further comprises a protrusion (92) on the bottom (55) surrounding a portion of opening (91) that prevents the moveable collection device (20) from being placed into position for receiving drain/waste water from the opening (91) if the threaded screw cap (24) is associated with the threaded portion.

30 Patentansprüche

1. Baugruppe, umfassend eine Kochvorrichtung (1) und eine Vorrichtung zum Aufnehmen des Abwassers/Schmutzwassers aus der Kochvorrichtung, wobei die Kochvorrichtung (1) ein Gehäuse (2) umfasst, das eine Kochkammer (3) und einen Abfluss (13), um das Abfließen von Abwasser/Schmutzwasser aus der Kochvorrichtung (1) zu ermöglichen, beinhaltet, wobei die Kochvorrichtung (1) in einer zusammenwirkenden Beziehung zu der Vorrichtung zum Aufnehmen des Abwassers/Schmutzwassers steht, wobei die Vorrichtung zum Aufnehmen des Abwassers/Schmutzwassers umfasst:

eine außerhalb der Kochvorrichtung (1) befindliche Ablaufschale (42) zum Aufnehmen des Abwassers/Schmutzwassers aus einer Abflussleitung (54), wobei die Ablaufschale (42) umfasst:

- i) einen Boden (55) und Seiten zum Bilden eines Raumes,
- ii) eine in dem Boden (55) angebrachte Öffnung (91), die den Austritt des Abwassers/Schmutzwassers aus der Ablaufschale (42) ermöglicht, und

eine bewegliche Sammelvorrichtung (20), wo-

bei die bewegliche Sammelvorrichtung (20) zwischen einer Position zum Aufnehmen des Abwassers/Schmutzwassers aus der Öffnung (91) der Ablaufschale (42) und einer Position zum Entsorgen des Abwassers/Schmutzwassers beweglich ist, wobei die bewegliche Sammelvorrichtung (20) eine Öffnung (23) zum Aufnehmen des Abwassers/Schmutzwassers aus der Öffnung (91) der Ablaufschale (42) aufweist, ein Gestell (40), auf dem die Kochvorrichtung platziert ist,

wobei das Gestell (40) eine Tür (41) umfasst, die an seiner unteren Vorderseite angebracht ist, die die bewegliche Sammelvorrichtung (20) in der Position zum Aufnehmen des Abwassers/Schmutzwassers umschließt und die dazu dient, die bewegliche Sammelvorrichtung (20) in der richtigen Position zu halten, wenn sie das Abwasser/Schmutzwasser aufnimmt,

dadurch gekennzeichnet, dass

die Ablaufschale (42) ferner Verbindungszapfen (44) umfasst, die auf gegenüberliegenden Seiten der Ablaufschale (42) im Wesentlichen in demselben Abstand von einer Vorderkante (51) der Ablaufschale (42) angebracht sind,

wobei jeder Verbindungszapfen (44) mit einem vertikal angebrachten Abschnitt einer Halterung (43) über eine zum Angreifen an den Verbindungszapfen (44) gestaltete Einkerbung (53) angreifend verbunden ist,

wobei die Halterung (43) mit dem Gestell (40) verbunden ist und

wobei, wenn die bewegliche Sammelvorrichtung (20) in die Position zum Entsorgen des Abwassers/Schmutzwassers bewegt wird, die Ablaufschale (42) sich um die Verbindungszapfen (44) dreht, an denen die Halterungen (43) angreifen, so dass die Ablaufschale (42) weiterhin zusätzliches Abwasser/Schmutzwasser aufnimmt, das aus der Kochkammer (3) durch den Abfluss fließt, und verhindert, dass das zusätzliche Wasser die Ablaufschale (42) verlässt.

2. Vorrichtung nach Anspruch 1, wobei die Verbindungszapfen (44) der Ablaufschale (42) jeweils mit dem vertikal angebrachten Abschnitt (52) der Halterung (43) über die Einkerbung (53) derart angreifend verbunden sind, dass die Drehung der Ablaufschale (42) ein Absenken einer unteren Kante (61) der Ablaufschale (42) weg von der Abflussleitung (54) bewirkt und ein Anheben der Öffnung (91) der Ablaufschale (42) bewirkt.
3. Vorrichtung nach Anspruch 2, wobei die Drehung der Ablaufschale (42) einen Raum in der Ablaufschale (42) zwischen der unteren Kante (61) der Ablaufschale (42) und der Öffnung (91) der Ablaufschale

(42) erzeugt, wobei der Raum sich entfernt von der Öffnung (91) in der Ablaufschale (42) befindet, um zusätzliches Abwasser/Schmutzwasser aus der Abflussleitung (54) aufzunehmen.

4. Vorrichtung nach Anspruch 1, wobei die Öffnung (23) der beweglichen Sammelvorrichtung (20) zum Aufnehmen des Abwassers/Schmutzwassers auch zum Entleeren des Abwassers/Schmutzwassers aus der beweglichen Sammelvorrichtung (20) verwendet wird.
5. Vorrichtung nach Anspruch 1, wobei zu der Öffnung (23) der beweglichen Sammelvorrichtung (20) zum Aufnehmen des Abwassers/Schmutzwassers ein Verschluss gehört.
6. Vorrichtung nach Anspruch 5, wobei der Verschluss ein Schraubdeckel mit Gewinde (24) ist, der so gebaut ist, dass er in einen Gewindeabschnitt der Öffnung (23) eingreift, der sich oberhalb der äußeren Oberfläche der beweglichen Sammelvorrichtung (20) befindet.
7. Vorrichtung nach Anspruch 5, wobei die Ablaufschale (42) ferner einen am Boden (55) angebrachten Vorsprung (92) umfasst, der einen Abschnitt der Öffnung (91) umgibt und verhindert, dass die bewegliche Sammelvorrichtung (20) in die Position zum Aufnehmen von Abwasser/Schmutzwasser aus der Abflussleitung (54) platziert wird, wenn der Verschluss (24) mit dem Gewindeabschnitt verbunden ist.
8. Verfahren zum Aufnehmen und Entsorgen von Abwasser/Schmutzwasser, das während des Betriebs einer Kochvorrichtung (1) erzeugt wird, durch die Vorrichtung zum Aufnehmen des Abwassers/Schmutzwassers, das von einer Baugruppe nach einem der Ansprüche 1-7 ausgeführt wird, wobei das Verfahren durch Folgendes gekennzeichnet ist:

Ermöglichen, dass das Abwasser/Schmutzwasser, das aus dem Abfluss (13) aus der Kochvorrichtung (1) austritt, durch die Abflussleitung (54) von der Ablaufschale (42) aufgenommen wird;

Ermöglichen, dass das Abwasser/Schmutzwasser in der Ablaufschale (42) die Ablaufschale (42) durch die Öffnung (91) verlässt;

Ermöglichen, dass das Abwasser/Schmutzwasser, das die Ablaufschale (42) durch die Öffnung (91) verlässt, von der beweglichen Sammelvorrichtung (20) durch die Öffnung (23) in der beweglichen Sammelvorrichtung (20) aufgenommen wird, und

Entnehmen der beweglichen Sammelvorrichtung (20), um das Abwasser/Schmutzwasser zu

entsorgen, wobei sich die Ablaufschale (42) dreht und weiterhin zusätzliches Abwasser/Schmutzwasser aufnimmt, das aus der Kochkammer (3) durch den Abfluss (13) fließt, und verhindert, dass das zusätzliche Wasser die Ablaufschale (42) verlässt.

9. Verfahren nach Anspruch 8, wobei die Drehung der Ablaufschale (42) bewirkt, dass sich die untere Kante (61) der Ablaufschale (42) von der Abflussleitung (54) weg senkt, und bewirkt, dass sich die Öffnung (91) der Ablaufschale (42) anhebt.
10. Verfahren nach Anspruch 9, wobei die Drehung der Ablaufschale (42) einen Raum in der Ablaufschale (42) zwischen der unteren Kante (61) der Ablaufschale (42) und der Öffnung (91) in der Ablaufschale (42) erzeugt, wobei sich der Raum von der Öffnung (91) in der Ablaufschale (42) entfernt befindet und zusätzliches Abwasser/Schmutzwasser aus der Abflussleitung (54) aufnimmt.
11. Verfahren nach Anspruch 9, wobei das Entleeren des Abwassers/Schmutzwassers aus der beweglichen Sammelvorrichtung (20) die Öffnung (23) der beweglichen Sammelvorrichtung (20), die zum Aufnehmen des Abwassers/Schmutzwassers verwendet wird, nutzt.
12. Verfahren nach Anspruch 9, wobei zu der Öffnung (23) der beweglichen Sammelvorrichtung (20) zum Aufnehmen des Abwassers/Schmutzwassers ein Verschluss gehört.
13. Verfahren nach Anspruch 12, wobei der Verschluss ein Schraubdeckel mit Gewinde (24) ist, der so gebaut ist, dass er in einen Gewindeabschnitt der Öffnung (23) eingreift, der sich oberhalb der äußeren Oberfläche der beweglichen Sammelvorrichtung (20) befindet.
14. Verfahren nach Anspruch 13, wobei die Ablaufschale (42) ferner einen Vorsprung (92) am Boden (55) umfasst, der einen Abschnitt der Öffnung (91) umgibt und verhindert, dass die bewegliche Sammelvorrichtung (20) in die Position zum Aufnehmen des Abwassers/Schmutzwassers aus der Öffnung (91) platziert wird, wenn der Schraubdeckel mit Gewinde (24) mit dem Gewindeabschnitt verbunden ist.

Revendications

1. Ensemble comprenant un dispositif de cuisson (1) et un dispositif pour retenir l'eau de purge/usée du dispositif de cuisson, dans lequel le dispositif de cuisson (1) comprend un logement (2) comprenant une chambre de cuisson

(3) et un drain (13) pour permettre à l'eau de purge/usée de s'écouler du dispositif de cuisson (1), le dispositif de cuisson (1) étant en relation de coopération avec le dispositif pour retenir l'eau de purge/usée, dans lequel le dispositif pour retenir l'eau de purge/usée comprend :

un plateau d'évacuation (42) externe au dispositif de cuisson (1) pour recevoir l'eau de purge/usée d'un tuyau d'évacuation (54), le plateau d'évacuation (42) comprenant :

- i) un fond (55) et des côtés pour former un volume,
- ii) une ouverture (91) placée dans le fond (55) pour permettre à l'eau de purge/usée de sortir du plateau d'évacuation (42) et,

un dispositif de collecte mobile (20), dans lequel le dispositif de collecte mobile (20) est mobile entre une position pour recevoir l'eau de purge/usée de l'ouverture (91) du plateau d'évacuation (42), et une position pour évacuer l'eau de purge/usée, le dispositif de collecte mobile (20) comprenant une ouverture (23) pour recevoir l'eau de purge/usée de l'ouverture (91) du plateau d'évacuation (42), un chariot (40) sur lequel le dispositif de cuisson est placé,

dans lequel le chariot (40) comprend une porte (41) placée sur son côté avant inférieur qui entoure le dispositif de collecte mobile (20) dans la position pour recevoir l'eau de purge/usée et qui sert à maintenir le dispositif de collecte mobile (20) dans une position correcte quand il reçoit l'eau de purge/usée, **caractérisé en ce que**

le plateau d'évacuation (42) comprend en outre des connecteurs (44) placés sur des côtés opposés du plateau d'évacuation (42) essentiellement équidistants d'un bord avant (51) du plateau d'évacuation (42),

dans lequel chaque connecteur (44) est raccordé de manière solidaire à une partie verticale d'un support (43) par une encoche (53) conçue pour mettre en prise les connecteurs (44),

dans lequel le support (43) est fixé au chariot (40), et dans lequel, quand le dispositif de collecte mobile (20) est déplacé à la position pour évacuer l'eau de purge/usée, le plateau d'évacuation (42) tourne autour des connecteurs (44) en prise dans les supports (43) de sorte que le plateau d'évacuation (42) continue de recevoir de l'eau de purge/usée supplémentaire sortant de la chambre de cuisson (3) par le drain et empêche ladite eau supplémentaire de sortir du plateau d'évacuation (42).

2. Dispositif selon la revendication 1, dans lequel les connecteurs (44) du plateau d'évacuation (42) sont raccordés de manière solidaire à chaque partie verticale (52) du support (43) par l'encoche (53) de sorte que la rotation du plateau d'évacuation (42) amène un bord inférieur (61) du plateau d'évacuation (42) à s'abaisser en s'éloignant du tuyau d'évacuation (54) et amène l'ouverture (91) du plateau d'évacuation (42) à s'élever.
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3. Dispositif selon la revendication 2, dans lequel la rotation du plateau d'évacuation (42) crée un volume dans le plateau d'évacuation (42) entre le bord inférieur (61) du plateau d'évacuation (42) et l'ouverture (91) du plateau d'évacuation (42), dans lequel le volume est placé à distance de l'ouverture (91) dans le plateau d'évacuation (42) pour recevoir l'eau de purge/usée supplémentaire du tuyau d'évacuation (54).
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 - 20
4. Dispositif selon la revendication 1, dans lequel l'ouverture (23) du dispositif de collecte mobile (20) pour recevoir l'eau de purge/usée est également utilisée pour vider l'eau de purge/usée du dispositif de collecte mobile (20).
 - 25
5. Dispositif selon la revendication 1, dans lequel l'ouverture (23) du dispositif de collecte mobile (20) pour recevoir l'eau de purge/usée s'est associée à un dispositif de fermeture.
 - 30
6. Dispositif selon la revendication 5, dans lequel le dispositif de fermeture est un bouchon à vis fileté (24) conçu pour mettre en prise une partie filetée de l'ouverture (23) placée au-dessus de la surface extérieure du dispositif de collecte mobile (20).
 - 35
7. Dispositif selon la revendication 5, dans lequel le plateau d'évacuation (42) comprend en outre une saillie (92) placée sur le fond (55) entourant une partie de l'ouverture (91) qui empêche le dispositif de collecte mobile (20) d'être placé dans une position pour recevoir l'eau de purge/usée du tuyau d'évacuation (54) si la fermeture (24) est associée à la partie filetée.
 - 40
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8. Procédé de réception et d'évacuation de l'eau de purge/usée produite pendant le fonctionnement d'un dispositif de cuisson (1) par le dispositif pour retenir l'eau de purge/usée, exécuté par un ensemble selon l'une quelconque des revendications 1 à 7, le procédé **caractérisé en ce qu'il** :
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permet à l'eau de purge/usée qui sort du drain (13) du dispositif de cuisson (1) d'être reçue par le tuyau d'évacuation (54) par le plateau d'évacuation (42) ;

permet à l'eau de purge/usée dans le plateau de récupération (42) de sortir du plateau de récupération (42) par l'ouverture (91) ;

permet à l'eau de purge/usée qui sort du plateau de récupération (42) par l'ouverture (91) d'être reçue par le dispositif de collecte mobile (20) par l'ouverture (23) dans le dispositif de collecte mobile (20) ; et

retire le dispositif de collecte mobile (20) pour évacuer l'eau de purge/usée, dans lequel le plateau d'évacuation (42) tourne et continue à recevoir de l'eau de purge/usée supplémentaire qui sort de la chambre de cuisson (3) par le drain (13) et empêche ladite eau supplémentaire de sortir du plateau d'évacuation (42).
9. Procédé selon la revendication 8, dans lequel la rotation du plateau d'évacuation (42) amène le bord inférieur (61) du plateau d'évacuation (42) à s'abaisser en s'éloignant du tuyau d'évacuation (54) et amène l'ouverture (91) du plateau d'évacuation (42) à s'élever.
 - 50
10. Procédé selon la revendication 9, dans lequel la rotation du plateau d'évacuation (42) crée un volume dans le plateau d'évacuation (42) entre le bord inférieur (61) du plateau d'évacuation (42) et l'ouverture (91) dans le plateau d'évacuation (42), dans lequel le volume est placé à distance de l'ouverture (91) dans le plateau d'évacuation (42) et reçoit l'eau de purge/usée supplémentaire du tuyau d'évacuation (54).
 - 25
11. Procédé selon la revendication 9, dans lequel la vidange de l'eau de purge/usée du dispositif de collecte mobile (20) utilise l'ouverture (23) du dispositif de collecte mobile (20) qui est utilisée pour recevoir l'eau de purge/usée.
 - 35
12. Procédé selon la revendication 9, dans lequel l'ouverture (23) du dispositif de collecte mobile (20) pour recevoir l'eau de purge/usée s'est associée à un dispositif de fermeture.
 - 40
13. Procédé selon la revendication 12, dans lequel le dispositif de fermeture est un bouchon à vis fileté (24) conçu pour mettre en prise une partie filetée de l'ouverture (23) placée au-dessus de la surface extérieure du dispositif de collecte mobile (20).
 - 45
14. Procédé selon la revendication 13, dans lequel le plateau d'évacuation (42) comprend en outre une saillie (92) sur le fond (55) entourant une partie de l'ouverture (91) qui empêche le dispositif de collecte mobile (20) d'être placé dans une position pour recevoir de l'eau de purge/usée de l'ouverture (91) si le bouchon à vis fileté (24) est associé à la partie filetée.
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 - 55

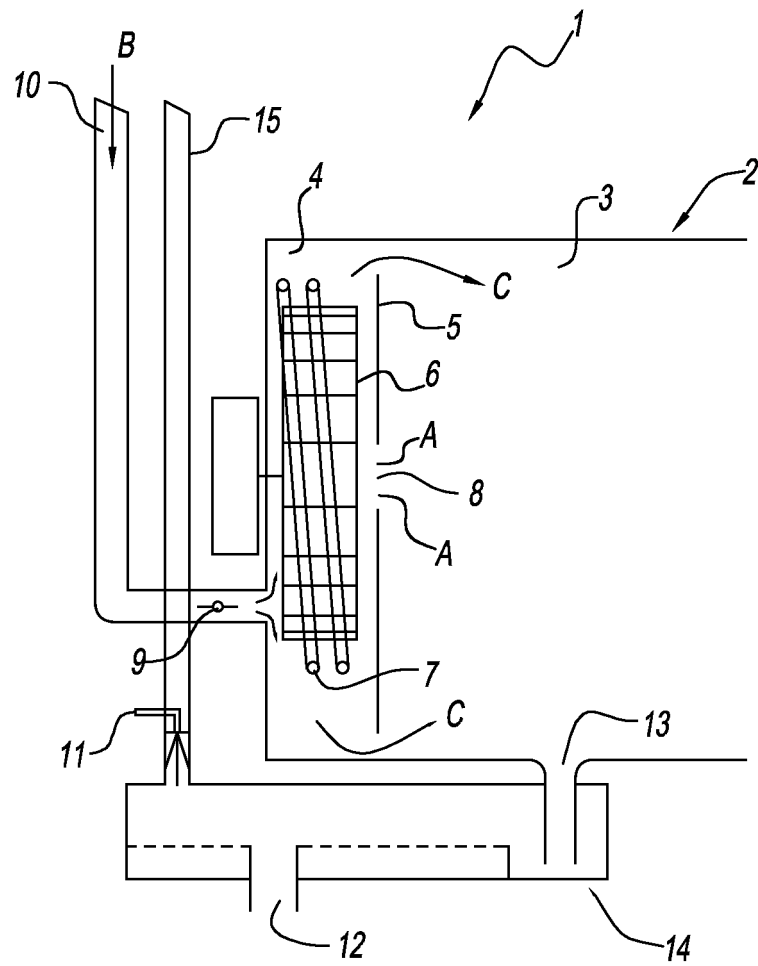


FIG. 1

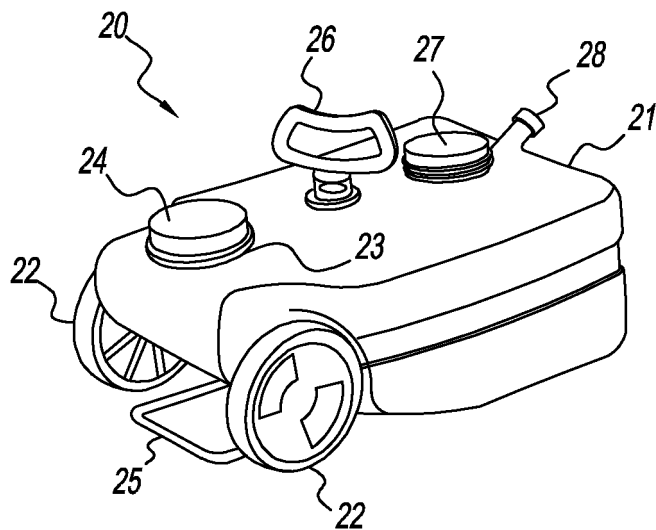


FIG. 2

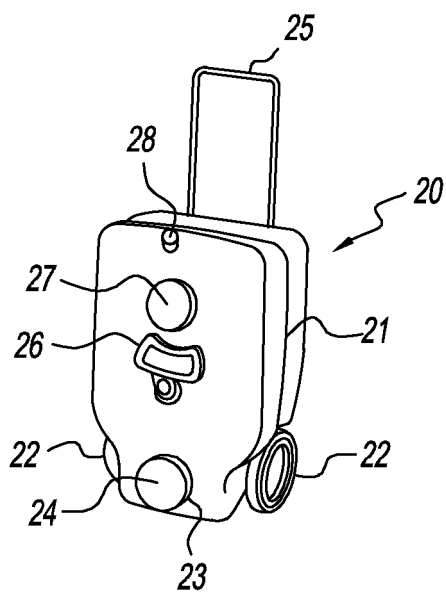


FIG. 3

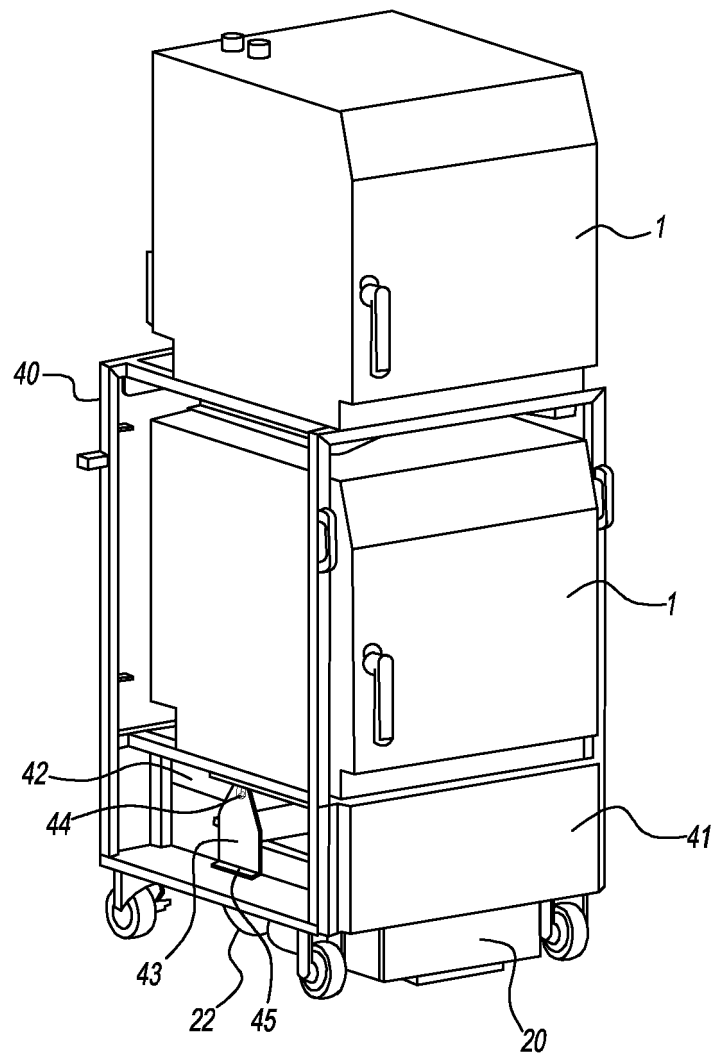


FIG. 4

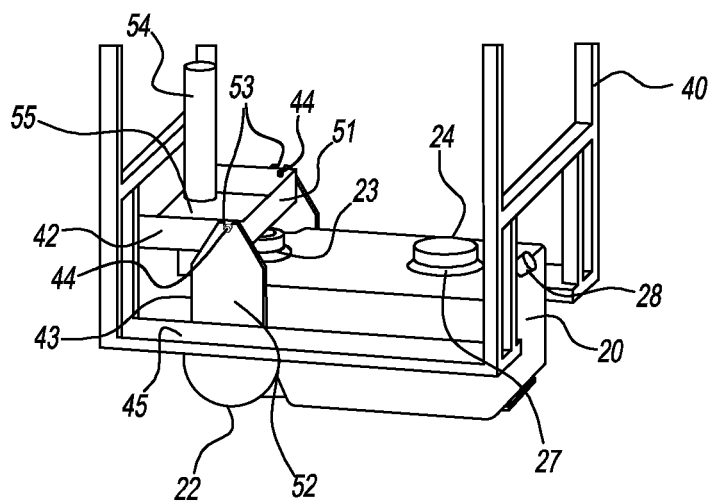


FIG. 5

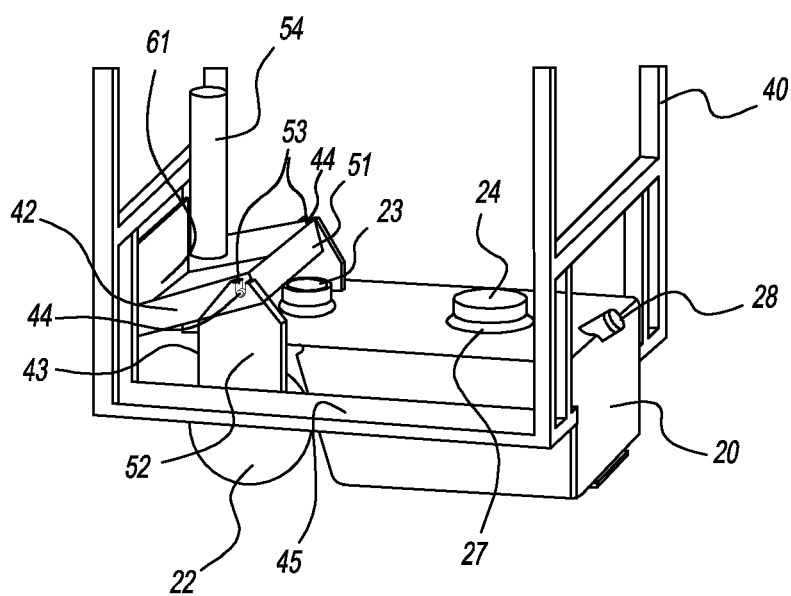


FIG. 6

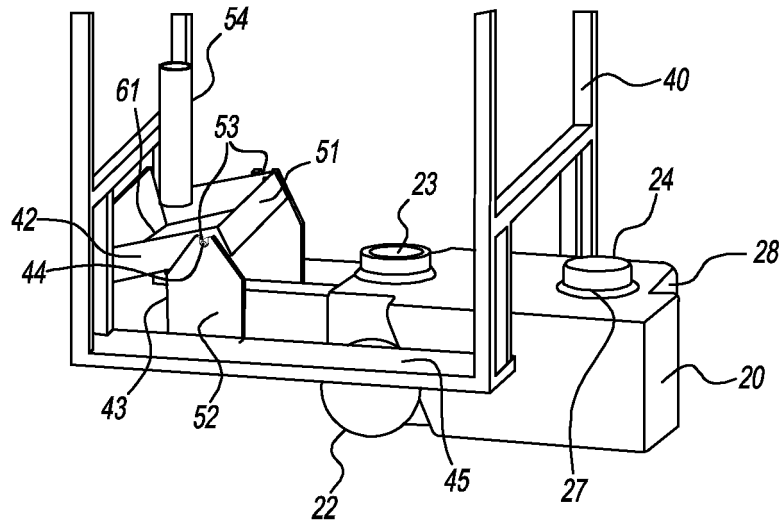


FIG. 7

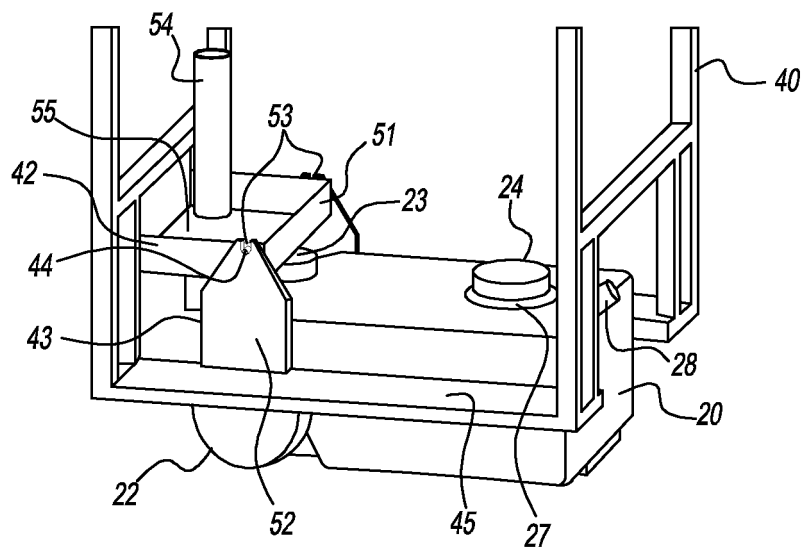


FIG. 8

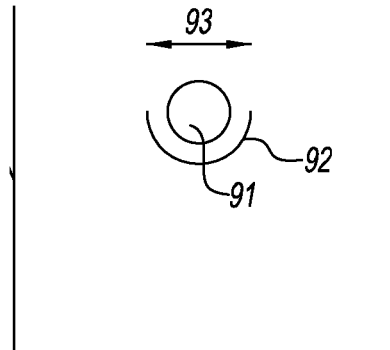


FIG. 9a

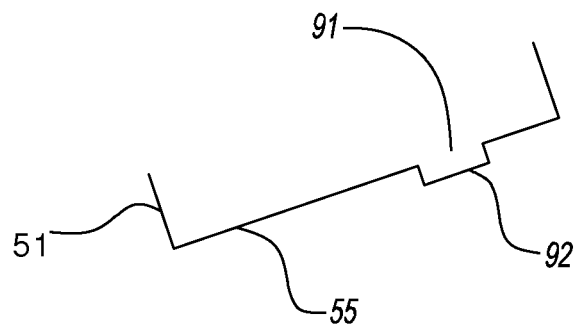


FIG. 9b

REFERENCES CITED IN THE DESCRIPTION

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