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(54) **CONTAINER FOR COLLECTION OF FLOWING SUBSTANCES, DRAINAGE AUXILIARY TOOL AND HOUSEHOLD APPLIANCE**

(57) The invention relates to a container (64) for collection of flowing substances. The container (64), which is particularly configured for an arrangement at or a connection, preferably a detachable connection, with a household appliance (10), comprises a bottom area (64a), on which the collected flowing substances are gathered, and at least one, particularly circumferential, lateral elevation (64b), which is preferably a side wall. A

drainage opening (70) is arranged in the bottom area (64a) and/or the lateral elevation (64b), preferably at or next to a lowest section of the container (64). The drainage opening (70)

- is configured to enable an at least partial emptying of the container (64), and
- is preferably closable by a closing means (72), in particular by a drain valve.

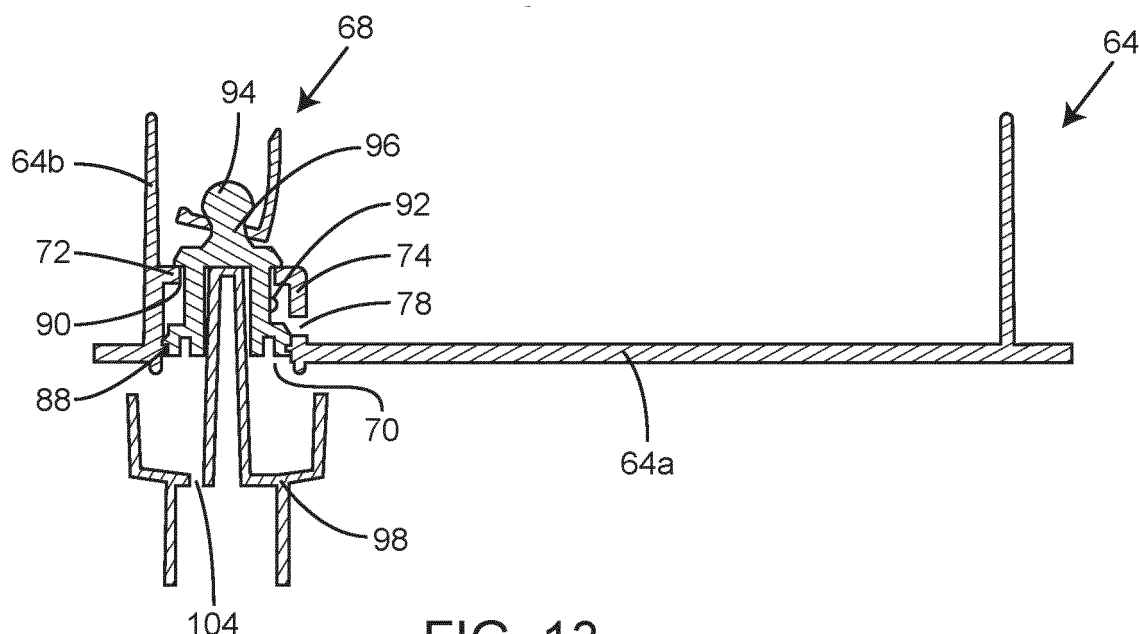


FIG. 13

Description

[0001] The present invention relates to a container for collection of flowing substances, according to claim 1. The present invention relates further to a drainage auxiliary tool configured to support drainage of such a container, according to claim 13. Finally, the present invention also relates to a household appliance comprising or being configured to be equipped with such a container, according to claim 14.

[0002] In the business of household appliances containers forming liquid collectors are known, especially in the technical field of combination apparatuses, which include a hob and an extraction device for extraction of cooking fumes. However, such containers are characterized by a relatively complex configuration placement and/or disassembly or removal. Moreover, the handling of such containers is difficult, specifically with regard to emptying from the collected liquids and it may well happen that collected liquids are spilled.

[0003] EP 3 951 270 A1 discloses a combination appliance including a cooking hob and an extraction device. The extraction device comprises a filter unit including a filter carrier with a bottom area forming a first liquid collector and an overflow opening for passing the liquids collected in the first liquid collector on to a second liquid collector, which may be formed as a tray-like shell arranged beneath the filter carrier or as a detachable casing part of the extraction device. All particular embodiments disclosed in this document are characterized by the previously mentioned risk of spilled liquids during emptying the liquid collectors.

[0004] It is hence an object of the present invention to provide an improved container for collection of flowing substances, which is configured such that the container with collected substances can be emptied easily from the substances and that a spilling is avoided. It is a further object of the present invention to provide a drainage auxiliary tool being configured to support the emptying of a container, which is filled with flowing substances. It is, finally, an object of the present invention, to provide a household appliance, which comprises or is configured to be equipped with a container that can be easily emptied without the risk of a spillage of flowing substances.

[0005] The object is achieved by the container according to the combination of the features of claim 1.

[0006] A container for collection of flowing substances, in particular for the collection of liquids, comprises a bottom area, on which the collected flowing substances are gathered. The container further comprises at least one lateral elevation, which particularly raises or protrudes from the bottom area, specifically in orthogonal direction to the bottom area plane. Said lateral elevation is preferably a side wall of the container and is particularly of a circumferential design. A drainage opening is arranged in the bottom area and/or the lateral elevation, preferably at or next to a lowest section of the container. The drainage opening is configured to enable an at least partial

emptying of the container. Moreover, the drainage opening is preferably closable by a closing means, in particular by a drain valve.

[0007] Due to the drainage opening arranged in the bottom area and/or the, particularly circumferential, lateral elevation, flowing substances collected in the container can be easily at least partly removed, so that a potential detachment of the container, e. g. for its complete emptying or cleaning, does not involve the risk of a spillage.

[0008] The container may comprise a side element to form a container volume of the container, wherein the side element can protrude from a bottom element of the container, preferably essentially perpendicularly from the bottom element, and may form an opening of the container.

[0009] The container is particularly configured for an arrangement at or a connection, preferably a detachable connection, with a household appliance. The household appliance may be of any type that may get into contact with any kind of flowing substances, in particular with spilled liquids. As an example, such household appliance is a dishwasher, a washing machine or a refrigerator with arising condensates. A household appliance for which the present invention is specifically applicable, is a combination appliance, which includes a cooking hob and an extraction device for the extraction of cooking fumes from a cooking zone of the hob.

[0010] Hence, the present invention provides a container that can be easily handled in connection with a household appliance such that, for example, the container can be at least partly emptied from the flowing substances and need not to be completely released or removed from the housing wall for any emptying. If it, however, shall be released or removed from the household appliance, e. g. for a complete emptying and/or for cleaning purposes, the present invention makes sure that the container is not completely filled with the flowing substances. Consequently, a spilling of such substances can be avoided.

[0011] According to an embodiment, when the container comprises the preferred closing means, said closing means or a part of said closing means comprises at least a first state or position for sealing the drainage opening and a second state or position allowing the at least partial emptying of the container. With such closing means, the user of the container or the household appliance, in which the container may be arranged or to which it may be connected, can decide at which time the emptying shall take place, and the closing means may be in a state of retaining the collected flowing substances in the container until the user executes the at least partial emptying.

[0012] The closing means may be operable manually and/or spring loaded and/or by magnetic activation and/or electronically and/or motor-driven. For the case of a manual operation, the closing means may comprise a respective operating point or area, preferably a point or area, which is easily accessible by a suitable part of

the human body, favourably by a hand or a finger. If an automated operation shall be provided, a respective operating point or area may be included as well, however, such operating point or area may provide a connection to the means for the automated operation.

[0013] According to a specific embodiment, the closing means is accessible from an inner side and/or from an outer side of the container. In the particular case, where the drainage opening is arranged in the bottom area of the container, the drainage opening and the closing means, respectively, may be accessible from a top side and/or a bottom side of said bottom area of the container. Said accessibility from the inner side and/or the outer side, or more specifically from the top side and/or the bottom side of the bottom area, is in particular suitable for a manual operation of the closing means. In the specifically preferred solution of an accessibility from both the inner side and the outer side of the container, the user is given the opportunity to determine the location of access, which user's determination may depend on the particular installation conditions.

[0014] More specifically, the closing means comprises a handle means or section and/or a touching area for a manual operation. A particular solution is characterized by a waisted handle means or section and/or a touching area for a convenient grabbing. Not only said manual, but also any one of the previously indicated types of automated operation particularly includes at least one of a lifting, a pressing down, a tilting, a rotational, and a screwing movement. Independent from the used type or direction of movement, the purpose may be a release (or a closure, respectively, the other way round) of the drainage opening for the performance of the at least partial emptying of the container.

[0015] According to embodiments, the handle means or section is accessible by an auxiliary tool and/or by an engagement element. Such an auxiliary tool and/or engagement means is favourable, when an easy or direct access by the user's hand or finger is not provided. Said engagement element is preferably arranged at least partly in the container. That way, the engagement element may be accessible to the user, or to any means for an automated operation, if such an automated operation shall be provided. In particular embodiments, the waisted handle means or section and/or a touching area is accessible by the auxiliary tool and/or by the engagement element.

[0016] According to a specifically preferred embodiment, the closing means comprises at least a first component and a second component, which components are in relationship with one another. More specifically, the second component is displaceable in relation to the first component and is preferably formed like a plunger. The first component is particularly in a stationary arrangement in relation to the container.

[0017] The closing means may be a self-closing element. The self-closing effect is in particular based on gravity. An additional, or alternative source for the self-

closing effect may be a dependency on the intensity of the stream, more specifically a dependency on a reducing stream intensity or on a breaking-off of the stream, of a drained liquid. This effect may occur after a, particularly manual, operation of the closing means with the result of starting the emptying process, which causes a flow of the flowing substances collected in the container, which may be a liquid flow. The closing means may stay in such an opened state as long as the flow continues. As soon as the flow tears off, or at any time after termination of the flow of the collected flowing substances, the self-closing feature of the closing means may be initiated, i. e. the closing means is transferred to the closed, specifically sealed, state. More specifically, the second component of the closing means may return into its starting state or position, without any specific further initiation by the user or by an automated triggering.

[0018] In some implementations, the closing means comprises a locking means configured for preventing a resetting, in particular a self-closing, of the closing means. More specifically, a reset of the closing means, particularly being caused by gravity, is prevented. With regard to the closing means that comprises said first and second components, the second component is prevented from being transferred to the closed state, but it remains in the specific relationship with the first component, which defines the open state of the closing means. Said locking means is in particular a slub or knob, preferably an elastic slub or knob, which may be compressible during an active transfer of the closing means from the open to the closed state.

[0019] The closing means is in particular operable, in particular manually operable, from below, i. e. from a bottom side of the container, which is specifically also a bottom side of the household appliance, at which the container is arranged or connected to. The operation is specifically performed by a part of the human body and/or by an activation means, in particular a drainage auxiliary tool. Moreover, the operation is preferably a push up movement.

[0020] One particularly specific embodiment of the present invention provides for the first component of the closing means, which first component comprises a drain hole providing a passage for the at least partial emptying of the container. Said drain hole is preferably arranged at or close to a low, preferably a lowest, level of the closing means. A particularly preferred solution is an arrangement of the drain hole at a lower zone of a side wall of the first component. The drain hole prevents draining of the container in a first state or position of the closing means or of a part of the closing means. On the other hand, the drain hole allows draining of the container in a second state or position of the closing means or of a part of the closing means. More specifically, said part of the closing means is formed by or comprises the second component, which may be movable or displaceable in relation to the first part. During said movement or displacement, the second component may be configured to

release, or seal respectively, the drain hole, particularly by a side wall or lateral surface.

[0021] The closing means may be of any kind of material suitable for the purpose underlying the present target of the invention. Preferably, the closing means, in particular at least the second component, is made of plastics or silicon or rubber. That way, it may itself provide a sealing effect, so that any additional sealing can be omitted.

[0022] According to a second aspect of the present invention, the object is also achieved by a drainage auxiliary tool according to the combination of the features of claim 13.

[0023] A drainage auxiliary tool configured to support a draining of the container is provided. The container is configured or designed as herein disclosed. The draining of the container may be supported by the drainage auxiliary tool by supporting a manual operation of the closing means of the container. The drainage auxiliary tool comprises an activation means configured for performing or for supporting the performance of the draining of the container, which draining may be performable by means of an action on the closing means. More specifically, according to a first specific embodiment, the drainage auxiliary tool or the activation means may include a function or component, which forwards or transfers a user's motion to the closing means. One particular drainage auxiliary tool or activation means may comprise a stem for pushing against a handle means or section of the closing means. When pushing against the handle means or section of the closing means, the stem particularly engages with this handle means or section. In addition to the stem, or as an alternative thereto, the drainage auxiliary means preferably comprises a collection body for an at least transitionally retention of the drained flowing substance, e. g. the drained liquid. Said collection body is particularly funnel-shaped in order to collect the drained substances and to guide them to a collecting vessel, which the user may position beneath the container in order catch the drained liquid. Preferably, said collecting vessel provides not only sufficient volume for including the entire drained flowing substances, but also provides a shape, which avoids a spillage, when the collection vessel is moved. The drainage auxiliary tool, in particular the collection body, may further comprise an emptying hole for emptying the collection body, wherein the emptying hole, more specifically, may comprise closing means for an at least temporary closing the emptying hole. Additionally, or alternatively, the drainage auxiliary tool particularly comprises a connection branch configured to be connected with a drainage hose for conducting liquids to an emptying system, in particular a domestic drainage system. According to a second specific embodiment, the drainage auxiliary tool may comprise a lifting tool configured to engage with a handle means or section and/or a touching area of the closing means of the container, in particular for a manual operation. For example, the drainage auxiliary tool may be couplable or may engage with the pre-

viously mentioned waisted handle means or section and/or a touching area. More specifically, the lifting tool may comprise a fork-shaped gripper device, which may be designed to take up said waisted handle means or section and/or a touching area.

[0024] According to a third aspect of the present invention, the object is also achieved by a household appliance according to the combination of the features of claim 14.

[0025] A household appliance comprises or is configured to be equipped with a container as herein disclosed. The household appliance preferably comprises receiving means for an accommodation of the container and/or first attachment means for a fastening of the container. Said receiving means fit with the structure of the container. Additionally, or as an alternative, the attachment means are compatible with second attachment means arranged at or allocated to the container.

[0026] According to embodiments, the household appliance further comprises an extraction device with a suction opening, and the closing means of the container, more specifically the second component of the closing means, is accessible through the suction opening. The closing means is particularly accessible through the suction opening in order to enable a manual operation of the closing means.

[0027] The previously described examples and features of the present invention can be combined with each other in any way.

[0028] Further or other details and advantageous effects of the present invention are described in more detail below with reference to the attached figures, in which

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| Fig. 1 | is a perspective view of a general setup of a combination appliance comprising a cooking hob and a downdraft extraction device installed in a kitchen cabinet, wherein the combination appliance is structured according to a first example; |
| Fig. 2 | is a cross-sectional perspective view of the disassembled combination appliance of Fig. 1 with a frontal surface cut away; |
| Fig. 3 | is a top perspective view of a second example for a combination appliance; |
| Fig. 4 | is a bottom perspective view of the combination appliance according to Fig. 3; |
| Fig. 5 | is a front view of the combination appliance according to Figs. 3 and 4; |
| Fig. 6 | is a top perspective view of the isolated extraction device of the combination appliance according to Figs. 3 to 5; |
| Fig. 7 | is a cross-sectional view of the combina- |

- tion appliance according to Fig. 5 along the line VII - VII;
- Fig. 8 is a cross-sectional view of the combination appliance according to Fig. 3 along the line VIII - VIII;
- Figs. 9a,b illustrate cross-sectional views of an emptying mechanism arranged in a fluid collector with a drain valve of the combination appliance, according to a first valve concept; and
- Figs. 10a...c illustrate cross-sectional views of an emptying mechanism arranged in a fluid collector with a drain valve of the combination appliance, according to a second valve concept.

[0029] In all figures the same or equivalent part are marked with the same reference numbers.

[0030] Fig. 1 illustrates a general setup of a combination appliance 10 comprising a cooking hob 12 and a downdraft extraction device 14 installed in a kitchen cabinet 16. The combination appliance 10 illustrated in Figs. 1 and 2 presents a structure of a combination appliance 10 according to a first example. In general, and as shown in Fig. 1, the combination appliance 10 is implemented in a cut-out of a kitchen countertop 18 forming a top cover plate of the kitchen cabinet 16. The downdraft extraction device 14 is configured to take away cooking vapours occurring during cooking processes, in particular when cooking with uncovered cookware. The cooking hob 12 comprises cooking regions 20a, 20b arranged on a left half and a right half of a cooktop 22 of the cooking hob 12, which left and right halves are separated from each other by a suction opening 24 for an intake of the cooking vapours, the suction opening 24 being arranged alongside a cooktop centreline. The suction opening 24 is covered by a cover grid 26 for preventing items, e. g. cookware, to fall into the suction opening 24. Instead of the cover grid 26 a lid may be used for entirely covering the suction opening when the extraction device 14 is out of use, but for the operation of the extraction device 14 the lid is pivotable into an upright open position.

[0031] A housing 28 of the extraction device 14 is shown in Fig. 1 in transparent illustration. Said housing 28 provides a closed outer shell or channel segment for a flow of the sucked-in cooking vapours on their way from the suction opening 24 to an exhaust opening 30 in a base area 32 of the kitchen cabinet 16. Said exhaust opening 30 is also covered, namely by an outlet grille 34.

[0032] The flow of the sucked-in cooking vapours through the extraction device 14 is driven by the operation of an extraction fan 36 arranged inside of the housing 28. Said extraction fan 36 comprises a bottom-sided intake opening 38 for sucking the cooking vapours from the interior space of the housing 28.

[0033] A rear-sided fan outlet is arranged for a horizontal exit of the air blown out backwards from the extraction fan housing 42. The fan outlet is connected to a first end of an air duct 44 designed as a rectangular tube and forms a second channel arranged downstream the above-mentioned first channel. Directly at the passage from the fan outlet to the air duct 44, an air duct bending by 90 degrees is implemented, which redirects the air flow from horizontal to vertical downwards. The air duct 44 may be guided alongside a rear side of the kitchen cabinet 16 and may be bent again by 90 degrees close to a rear lower edge of the kitchen cabinet 16 in order to direct the airflow towards exhaust opening 30 in the base area 32 of the kitchen cabinet 16. Accordingly, the second end of the air duct 44 is connected to the exhaust opening 30. The embodiment illustrated in Fig. 1 shows a solution of the air duct 44 with an inclined section of its downwardly directed portion, directed slightly to the right. Naturally, a solution with said portion arranged in an exact vertical direction is considerable as well.

[0034] The course of the cooking vapours from the cooking area through the extraction device 14 to a re-entry into ambient air is illustrated in Fig. 1 by dotted arrows 46¹ to 46⁵. On their way through the extraction device 14, the cooking vapours pass through a filter assembly 48, which is arranged downstream directly behind the suction opening 24 for providing a purification of the conveyed air. Said filter assembly 48 includes a filter carrier 50 supporting a filter element (not shown) that is usually configured for filtering out grease particles and droplets.

[0035] The cross-sectional view of Fig. 2 further shows two power boards 54, one for the left cooking region 20a and one for the right cooking region 20b, the power boards 54 providing cooking zones in the left and right cooking regions 20a, 20b with electrical power. In the present embodiment, the cooking hob 12 is an induction cooking hob and the cooking zones are defined by induction coils (not shown) that are arranged below the cooktop 22 of the cooking hob 12. Attached to the bottom side of the power board 54 assigned to the right cooking region 20b, a further circuit board is arranged forming a control electronics 56 for the combination appliance 10.

[0036] The embodiment illustrated in Figs. 3 to 9b is a structure of a combination appliance 10 according to a second example. In contrast to the first example, the combination appliance 10 according to second example provides a modular setup for a combination appliance 10 with a general downdraft extraction device 14, which can be combined with different models of cooking hobs 12. In this respect, the cooking hob 12 of the combination appliance 10 according to Figs. 3 to 9b having a width of about 60 cm in order to be installable above a standard kitchen cabinet of 60 cm, is only one representative of a number of different cooking hobs 12, in particular with different widths, which can be combined with the general extraction device 14. Insofar, the general extraction device 14 as particularly illustrated in Fig. 6 in an isolated

view may be connected for example to a cooking hob 12 having a width of 80 or 90 cm. The general extraction device 14 specifically according to Fig. 6 is configured to be placed in a top section of a standard kitchen cabinet 16 having a width of 60 cm, namely such that the cabinet space in the horizontal plane is utilised in best way, i. e. only a minimized gap between the housing 28 of the extraction device 14 and internal surfaces of the sidewalls of the kitchen cabinet 16 may be left.

[0037] The combination appliance embodiment according to Figs. 3 to 9b generally differs from the setup of the combination appliance 10 according to Figs. 1 and 2 in that all parts or modules of the cooking hob 12, except the two power board modules 54, are aggregated in a hob assembly part 12', which is dimensioned such that this hob assembly 12' will entirely find place in a cut-out area provided by a kitchen installer in a standard kitchen countertop 18, whereas said non-accommodated power board modules 54 are attached to an outer surface of the housing 28 of the extraction device 14, as will be described more in detail further down below.

[0038] Figs. 3 to 5 show the combination appliance 10 according to the second example from various angles. As can be specifically seen in Fig. 6, which is an illustration from a similar view as that one of Fig. 3, but which is a presentation of the isolated extraction device 14, i. e. without the hob assembly 12' on the top side of the extraction device 14, core part of the extraction device 14 is the housing 28 having a standardized dimensioning. This housing part 28 is configured to receive nearly all the extraction device components except, on the one hand, the components accommodated in the cooking hob 12, which are the suction opening 24 including its cover grid 26 and an initial section of the suction duct, and, on the other hand, a fan control module 58, which is also attached to an outer surface of the housing 28 of the extraction device 14, as will be described more in detail further down below, as well.

[0039] As illustrated in Figs. 3 to 6, the housing 28 of the general extraction device 14 is formed as a plastic box or plastic container of prism-shaped nature. Two opposing side walls of the housing 28, which are first 28a and second 28b side walls, are inclined from the vertical axis. The other two opposing and essentially trapezoid third 28c and fourth 28d side walls are vertically oriented in installation alignment. With this configuration, the four side walls 28a, 28b, 28c, 28d form a box, more precisely a container, which is tapered towards its bottom wall 28e. Said box or container is open at the top, but sealed by a bottom wall 60 of the housing 62 of the cooking hob 12 after completed assembling of the combination appliance 10.

[0040] The perspective bottom view according to Fig. 4 shows a bottom side of a fluid collector 64 arranged in a section of the bottom wall 28e, which may be formed like a shell open to the top, i. e. to the interior of the extraction device housing 28, as illustrated in Fig. 7. The fluid collector 64 may be configured to be pulled down

from the bottom wall 28e of the housing 28 for emptying it. Preferably, said pulling down is only possible after a lateral movement of the fluid collector 64 and/or by unlocking a locking mechanism. Other embodiments, not shown in the figures, may include another opening in the bottom wall 28e of the extraction device housing 28 arranged in another section of the bottom wall 28e, which another opening may serve as a service opening for providing service activities. Said another opening allows access to the interior of the extraction device housing 28 and is closable by a closing lid, preferably by a sealed closing lid, in this respect preventing passage of fluid not collected in the fluid collector 64 and/or passage of conveyed air.

[0041] Fig. 6 grants an inside from the top into the arrangement of components inside of the extraction device housing 28. As is visible, the construction of the assembled extraction device 14 is nearly axially symmetrical. An air transportation system including a fan 36 for air conveyance is positioned along a central axis of the extraction device housing 28. The fan 36 is arranged in a vertical orientation, i. e. a rotation axis of a fan wheel (not shown) is horizontally aligned. The fan 36 comprises two intake openings 38, 38' arranged at opposing sides of a fan housing 42, which construction enables a symmetric intake of air from both halves of the interior of the extraction device housing 28. As can be also seen in Fig. 6, a filter assembly 48, which is axially symmetrical similarly to the fan 36 and accommodated in a filter housing 50, with two flat filter elements positioned at opposing sides of the filter carrier 50, is included for a filtration of the conveyed air and for a separation of particles and/or droplets, e. g. grease, odour and/or vapour particles and/or droplets. Said filter assembly 48 and filter carrier 50 are arranged side-by-side with the fan 36. The cooking vapours aspirated through the suction opening 24 enter the filter assembly 48 from the top side, and are deflected by about 90 degrees from vertical to horizontal direction fairly equally to both sides and through the filter elements. After passing the filter elements another deflection by about 90 degrees, but in approximately horizontal direction, takes place, so that the conveyed air is forwarded to the two intake openings 38, 38' for its transportation via the fan housing 42 to exhaust opening 30 positioned at the fourth side wall 28d, which is a rear wall in installation orientation of the combination appliance 10. Although the filter assembly 48 only takes up space of a smaller extension in depth direction of the cooking hob 12, the suction opening 24 extends nearly over the entire cooking hob depth, which means that a portion of the suction opening 24 is arranged above the fan housing 42, however, the cooking vapours aspirated through that portion are immediately guided towards the filter assembly 48, i. e. initially nearly in parallel to the surface of the cooktop 22. Moreover, the filter assembly 48 may be positioned above the previously described fluid collector 64, so that condensed droplets may directly drop down into the fluid collector 64. As indicated by Fig. 8, the fan

housing 42 is particularly fixed to the bottom wall 28e, which may be performed by screws, specifically by penetrating the bottom wall 28e. This type of fixation, however, is only one among a number of different mounting options, even independently from involving the bottom wall 28e in the mounting performance.

[0042] As already indicated above, but which is only a preferred solution, due to its construction, the extraction device housing 28 forms an airtight box or container with only an opening to the top, which is a connection opening that is connected to the suction opening 24, and an exhaust opening 30 at rear wall; i. e. the conveyed air only takes the way from the suction opening 24 to the exhaust opening 30, without any possibility to escape from this way in between.

[0043] Figs. 3 to 7 further illustrate, that both the power board modules 54 and the fan control module 58 are attached to the outer surfaces of housing walls, quasi in a backpack manner. According to the present embodiment, the two power board modules, i. e. first and second power board modules 54, are attached to the first and second side walls 28a, 28b, which are lateral walls of the extraction device housing 28 in installation orientation of the combination appliance 10, and which are said side walls inclined from the vertical. Further, the fan control module 58 is attached to the third side wall 28c, which is a front wall of the extraction device housing 28 in installation orientation. It goes without saying that a different arrangement of the individual electronic modules 54, 58, i. e. a different allocation of each electronic modules 54, 58 to any of the side walls 28a, 28b, 28c may also be selectable. Due to the present arrangement, the fan control module 58 is positioned at an opposing side in relation to the exhaust outlet 30, which is arranged in the fourth side wall 28d, which is the rear wall in the present embodiment.

[0044] The perspective bottom view of Fig. 8 exemplifies that a bottom group of the combination appliance 10, more specifically a bottom group of the extraction device 14, is detachable from the extraction device housing 28, particularly for service operations. Said bottom group is shown in Fig. 8 in a position lifted from the remaining part of the combination appliance 10. Specifically, after detachment of the bottom group, repair work to the extraction fan 36 is enabled. This lifted illustration of the bottom group also provides a view of a frame wall 66 operating as a mounting frame for the detachable fluid collector 64 (integrated in Fig. 8). Said frame wall 66 and the integrated fluid collector 64 are also visible in the cross-sectional view of the combination appliance 10 according to Fig. 7.

[0045] The fluid collector 64 as exemplified in the figures is of a rectangular design and comprises a bottom plate 64a and a circumferential rectangular side wall 64b. For a particularly flush-mounted integration of the fluid collector 64 in a respective opening in the bottom wall 28 of the extraction device housing 28, which opening also corresponds with the frame wall 66, the bottom plate 64a of the fluid collector 64 protrudes outwardly from the side

wall 64b, said protruding sections or areas forming lay-on surfaces.

[0046] The fluid collector 64 further comprises an emptying mechanism 68 correlating with a respective drainage hole 70 in the bottom plate 64a. Said emptying mechanism 68 is configured for an at least partly emptying of the fluid collector 64, allowing a spillage-free detachment of the fluid collector, especially for its complete emptying and/or cleansing.

[0047] The emptying mechanism 68 is further explained with reference to Figs. 9a to 10c forming different exemplary representations thereof. General principle of the emptying mechanism 68, which is applicable to all illustrated exemplary representations, is a drain valve 72 arranged above the drainage hole 70 in the bottom plate 64a. The drain valve 72 comprises a housing part 74, which forms a stationary component of the drain valve 72, and in which a plunger 76, which forms a movable component of the drain valve 72, is arranged and configured to release a flow of collected flowing substances, when the drain valve 72 is in an opened state, or otherwise, to prevent such flow, when the drain valve 72 is in a closed state. Said flow runs through the drain valve 72 from an entrance opening 78 to the drainage hole 70, and the drained flowing substances can be collected in a collecting vessel, such as a bowl or tray, which the user arranges underneath the drainage hole 70. As can be seen in all Figs. 9a to 10c, said entrance opening 78 may in general penetrate the housing part 74 laterally on a low level, e. g. directly above an upper surface of the bottom plate 64a.

[0048] Figs. 9a and 9b represent first and second examples of a first valve concept, which is specified by a vertically compressible plunger 76, which compressibility results from its hollow design and from the flexible material, e. g. silicone, in which the plunger 76 is manufactured. While a head section 80 of the plunger 76 is tied in or clamped inside a cutout 90 on the top of the housing part 74, a body section 82 of the plunger 76 is configured to be compressed or folded by a push up operation acting on a bottom side of a foot section 84, e. g. by a user's finger or by an auxiliary tool with a stem, thus far that the bottom side of the foot section is arranged at a level at least above a lower edge, preferably at least above an upper edge, of the entrance opening 78. In such position of its foot section 84, the plunger 76 gives way to the collected flowing substances for their flow from the interior of the fluid collector 64 to the collecting vessel.

[0049] Referring to the first example of the first valve concept according to Fig. 9a, the illustrated embodiment comprises a body section 82 shaped as a hollow cylinder with a wall designed like bellows similar to those of a concertina, which in general is easily foldable. Moreover, such a design, when compressed and thereby folded, builds up a restoring force with the effect of expanding again up to the initial state as illustrated in Fig. 9a and closing the drain valve after taking away the push up force. In that state, collection of flowing substances in

the fluid collector 64 is possible again.

[0050] The second example of the first valve concept according to Fig. 9 differs from the first example in the structure of the body section 82. Instead of a cylinder wall shaped with bellows, a thin-walled hollow cylinder design made of flexible material, such as silicone or rubber, is selected for the second example, which is surrounded by a cylinder spring 86. When performing a push up operation acting on a bottom side of a foot section 84 in order to open the drain valve 72 by lifting the foot section 84 above the entrance opening 78, the thin-walled hollow cylinder is - to some extent - crumpled up and the cylinder spring 86 is tensioned. After taking away the push up force, the cylinder spring 86 can expand, the thin-walled hollow cylinder of the body section 82 is straightened, and the foot section 84 closes the drainage hole 70.

[0051] Figs. 10a to 10c represent first, second and third examples of a second valve concept, which is specified by a vertically movable plunger 76, which is more rigid in its entirety than the plunger 76 of the examples of the first concept due to a thicker wall of the body section 82, but may also be of a flexible material such as silicone or rubber for providing a sealing effect at the contact surface 88 between the foot section 84 of the plunger 76 and the drainage hole 70. When performing a push up operation acting on a bottom side of a foot section 84 in order to open the drain valve 72 by lifting the foot section 84 of the plunger 76 above the entrance opening 78, the plunger 76 is lifted, preferably vertically lifted, guided alongside the inner surface of the housing part 74, particularly that way that the circumferential surface of the body section 82 slides along said inner surface of the housing part 74. In addition, the outer surface of the body section 82 may slide along an inner surface of a cutout 90 on the top of the housing part 74. The outer surface of the body section 82 may further comprise a slub 92, which may penetrate the cutout 90 during the push up movement of the plunger 76 and may rest on the cutout edge thereafter, as illustrated in Fig. 10b, and in order to prevent a return of the plunger 76 to its initial state, illustrated by Figs. 10a and 10c, representing the closed state of the drain valve 72. That way, the drain valve 72 will stay in an open state until being pressed down from above, e. g. performed after a detachment of the fluid collector 64 from the combination appliance 10 for its completely emptying or cleansing. In alternative to the provision of a slub 92, the examples of the second valve concept may be equipped with a spring, e. g. similar to the cylinder spring 86 as previously described with Fig. 9b, in order to support a return of the plunger 76 to its initial state, illustrated by Figs. 10a and 10c.

[0052] Moreover, the plunger 76 according to the second valve concept is also liftable by pulling it from above, i. e. from the interior of the fluid collector 64. To this end, the head section 80 of the plunger 76 comprises a ball head 94 and a collar 96 for a secure gripping of the plunger 76, e. g. directly by the user's fingers, however, the

collar 96 is also configured to be enclosed by a gripping head of a drainage auxiliary tool, used in particular if the user is not able to reach the ball head 94 by his fingers, when approaching it through the suction opening 24 of the downdraft extraction device 14.

[0053] The three examples of the second valve concept, illustrated by Figs. 10a to 10c, also illustrate three different forms of the housing part 74 and/or its positioning inside the fluid collector 64. Fig. 10a presents a solution for the housing part 74 which is partly merged with the side wall 64b of the fluid collector 64, so that a section of the side wall 64b forms a portion of the housing part 74. According to Fig. 10b, which in contrast to Figs. 10a and 10c shows the plunger 76 in its lifted position, whereas the housing part 74, and consequently the entire emptying mechanism 68, is an element independent from the side wall 64b of the fluid collector 64, but it is positioned in proximity to the side wall 64b. Finally, Fig. 10c shows the emptying mechanism 68 in a position distant from the side wall 64, e. g. in a centre position of the bottom plate 64b of the fluid collector 64.

[0054] With reference to Figs. 11 to 17, two examples for said drainage auxiliary tools will be described. Figs. 11 and 12 illustrate a perspective and a top view of the fluid collector 64 isolated from the bottom wall 28e of the extraction device housing 28. The fluid collector 64 comprises in one of its corner areas the emptying mechanism 68, in particular one of the devices previously described with reference to Figs. 9a to 10c. The cross-sectional view according to Fig. 13, along the line indicated by A - A in Fig. 12, not only enables a holistic view on the positioning of the emptying mechanism 68, in contrast to the cutout representation according to Figs. 9a to 10c, but also indicates an initial phase of an emptying procedure by acting on the emptying mechanism 68 with the help of a first example of said drainage auxiliary tool, the first example being represented by pushing tool 98. In said initial phase, the emptying mechanism 68 is in a closed state. The emptying mechanism 68 used in Fig. 13 complies with the embodiment according to Fig. 10a, but any other embodiment illustrated by Figs. 9a to 10c could be used as an alternative solution.

[0055] The drainage auxiliary tool formed as pushing tool 98, which according to Fig. 13 engages from below with a cavity of the drain valve 72 for starting the emptying procedure, is more clearly shown by and further described with reference to Fig. 14. Essential part of pushing tool 98 is a pushing stem 100, which is centrally arranged in the pushing tool 98 and which has a length allowing the operator of the extraction device 14 to hold the emptying mechanism in an open state during the emptying procedure of the fluid container 64. The diameter of the, in the illustrated embodiment circular, pushing stem 100 is designed in a way that the tip of the pushing stem 100 is capable of engaging the cavity of the drain valve 72. According to Fig. 14, the pushing stem 100 tapers towards its tip, but any other design may be selected, too. When operating with the pushing tool 98, the

drain valve 72 is manually pushed up after the tip of the pushing stem 100 has been brought into engagement with the cavity, wherein the lifting height corresponds with the open state of the emptying mechanism 68, in which the drain valve 72 allows passage of the liquid through the entrance opening (see in particular Fig. 10b).

[0056] During the emptying procedure the liquid to be discharged from the fluid collector 64 flows out through drainage hole 72 of the fluid collector 64. In order to avoid a splashing around of the liquid after passing drainage hole 72, an upper rim 102a of a circumferential wall of a funnel-shaped or bowl-shaped collection body 102, configured for an at least transitionally retention of drained liquid, entirely encloses the drainage hole 72 by touching the bottom surface of the bottom plate 64a of the fluid collector 64 around the drainage hole 72, when the emptying mechanism 68 is in its open state. The circumferential edge of the drainage hole 72 may have a collar or an embossment directed downwards, i. e. at the bottom surface of the bottom plate 64a of the fluid collector 64, which collar or embossment forms a drip edge and prevents a creeping of the discharged liquid over said bottom surface, thereby causing an uncontrolled emptying.

[0057] For a guided emptying of the drained liquid, the bottom of the collection body passes over to a hollow outlet spigot 106, which enables a free outflow of the liquid, e. g. into a collecting bucket placed beneath the drainage hole 72 by the operating person. Alternatively, the outlet spigot 106 may be formed as a connecting branch, configured to be connected with a drainage hose for conducting liquids to a domestic emptying system. The collection body 102 further comprises at its bottom an emptying hole 104 for emptying the collection body 102, i. e. for providing a passage for the liquid to pass over from the interior of the collection body 102 to the interior of the outlet spigot 106.

[0058] A second example of said drainage auxiliary tool is illustrated by Fig. 15 and is formed as a pulling tool 108. In contrast to the pushing tool 98 according to Fig. 14, the pulling tool 108 acts on the emptying mechanism 68 from above, enabling the operating person to capture the drain valve 72, more specifically the ball head 94 of the drain valve 72, also in extraction devices 14, which provides spatial circumstances, which impedes a direct access by the operating person's hand. The pulling tool 108 according to Fig. 15 is a gripping means having an elongated surface 110 shaped like a half pipe in its cross-section. On its first end, which is opposite to the second end, which provides a handle surface for the operating person, a U-shaped slit 112 configured for encompassing the collar 96, i. e. the waisted area below the ball head 94 of the drain valve 72. When engaging with the collar 96 of the drain valve 72, the pulling tool 108 allows a lifting of the drain valve 72 resulting in a transfer of the emptying mechanism 68 from its closed to its open state. This encompassing of the collar by the pulling tool 108 is shown both by the cross-sectional view according to Fig. 16, which illustrates the pulling tool 108

only by its first end, and by the perspective view of the fluid collector 64 according to Fig. 17.

[0059] Even though not explicitly illustrated, the combination appliance 10 according to the first example shown in Figs. 1 and 2 is also configured to include the afore-described concept according to the present invention, particularly the provision of the emptying mechanism 68. In such a case, the extraction device housing 28 may be partly detachable, specifically a part of the preferably partitioned bottom of the extraction device housing 28, more specifically that partition that is arranged below the filter carrier 50. In this detachable part, the emptying mechanism 68 may be arranged.

[0060] Although illustrative embodiments of the present invention have been described herein with reference to the accompanying drawings, it is to be understood that the present invention is not limited to these precise embodiments, and that various other changes and modifications may be affected therein by one skilled in the art without departing from the scope or spirit of the invention. All such changes and modifications are intended to be included within the scope of the invention as defined by the appended claims.

[0061] Moreover, features which are described in the context of separate aspects and embodiments of the invention may be used together and/or be interchangeable. Similarly, features described in the context of a single embodiment may also be provided separately or in any suitable sub-combination.

List of reference numerals

[0062]

10	combination appliance
12	cooking hob
12'	hob assembly
14	downdraft extraction device
16	kitchen cabinet
18	kitchen countertop
20a, 20b	cooking regions
22	cooktop
24	suction opening
26	cover grid
28	extraction device housing
28a	first side wall
28b	second side wall
28c	third side wall
28d	fourth side wall
28e	bottom wall
30	exhaust opening
32	base area
34	outlet grille
36	extraction fan
38, 38'	intake openings
42	fan housing
44	air duct
46 ^{1 to 5}	arrows indicating air flow

48 filter assembly
 50 filter carrier
 54 power boards
 56 control electronics
 58 fan control module
 60 hob bottom wall
 62 hob housing
 64 fluid collector
 64a bottom plate
 64b side wall
 66 frame wall
 68 emptying mechanism
 70 drainage hole
 72 drain valve
 74 housing part
 76 plunger
 78 entrance opening
 80 head section
 82 body section
 84 foot section
 86 cylinder spring
 88 contact surface
 90 cutout
 92 slub
 94 ball head
 96 collar
 98 pushing tool
 100 pushing stem
 102 collection body
 104 emptying hole
 106 outlet spigot
 108 pulling tool
 110 elongated surface
 112 slit

Claims

1. A container (64) for collection of flowing substances, in particular for collection of liquids,

the container (64) particularly being configured for an arrangement at or a connection, preferably a detachable connection, with a household appliance (10),

wherein the container (64) comprises a bottom area (64a) for gathering the collected flowing substances and at least one, particularly circumferential, lateral elevation (64b), preferably a side wall,

and wherein a drainage opening (70) is arranged in the bottom area (64a) and/or the lateral elevation (64b), preferably at or next to a lowest section of the container (64), which drainage opening (70)

- is configured to enable an at least partial emptying of the container (64), and

- is preferably closable by a closing means (72), in particular by a drain valve.

2. The container (64) according to claim 1, wherein the closing means (72) or a part of the closing means (72) comprises at least a first state or position for sealing the drainage opening (70) and a second state or position allowing the at least partial emptying of the container (64).
3. The container (64) according to claim 1 or 2, wherein the closing means (72) is operable manually and/or spring loaded and/or by magnetic activation and/or electronically and/or motor-driven.
4. The container (64) according to anyone of the preceding claims, wherein the closing means (72) is accessible, in particular for a manual operation, from in inner side and/or an outer side, in particular from a top side and/or a bottom side of the bottom area (64a), of the container (64).
5. The container (64) according to anyone of the preceding claims, wherein the closing means (72) comprises a handle means (94, 96) or section and/or a touching area (84) for a manual operation, in particular a waisted area (96), the manual operation particularly including at least one of
- a lifting movement,
 - a pressing down movement,
 - a tilting movement,
 - a rotational movement,
 - a screwing movement.
6. The container (64) according to anyone of the preceding claims, wherein the handle means (94, 96) or section, in particular the waisted area (96), is accessible by an auxiliary tool and/or an engagement element, the engagement element preferably being arranged at least partly in the container (64).
7. The container (64) according to anyone of the preceding claims, wherein the closing means (72) comprises at least a first component (74) and a second component (76), which second component (76) is displaceable in relation to the first component (74) and is preferably formed like a plunger.
8. The container (64) according to anyone of the preceding claims, wherein the closing means (72) is self-closing, in particular based on gravity and/or depending on the intensity of the stream of a drained liquid.

9. The container (64) according to any one of the claims 1 to 7,
wherein the closing means (72), in particular the second component (76), comprises a locking means, in particular a slub (92) or knob, configured to prevent a resetting, in particular a self-closing, of the closing means (72), the resetting particularly being caused by gravity. 5
10. The container (64) according to anyone of the preceding claims,
wherein the closing means (72) is operable, in particular manually operable, from below, preferably by a push up movement, by a part of the human body and/or by an activation means, in particular a drainage auxiliary tool. 10 15
11. The container (64) according to anyone of the preceding claims,
wherein the first component (74) of the closing means (72) comprises a drain hole (78), which is preferably arranged at or close to a lowest level of the closing means (72), more preferably arranged at a lower zone of a side wall of the first component (74), wherein the drain hole (78) 20 25
- prevents draining of the container (64) in a first state or position of the closing means (72) or of a part of the closing means (72), and
 - allows draining of the container (64) in a second state or position of the closing means (72) or of a part of the closing means (72). 30
12. The container (64) according to anyone of the preceding claims,
wherein the closing means (72), in particular at least the second component (76) of the closing means (72), is made of plastics or silicon or rubber. 35
13. A drainage auxiliary tool (98, 108) configured to support a draining of the container (64), which container (64) is configured or designed according to any one of the preceding claims, by supporting a manual operation of the closing means (72), the drainage auxiliary tool (98, 108) comprising an activation means configured for activating the draining of the container (64) by means of an action on the closing means (72), the drainage auxiliary tool (98, 108) or the activation means in particular being or comprising 40 45 50
- a stem (100) for pushing against, particularly engaging with, a handle means (94, 96) or section of the closing means (72), and preferably further comprising 55
- a. a, particularly funnel-shaped, collection body (102) for an at least transitionally retention of drained liquid, preferably including an emptying hole (104) for emptying the collection body (102), and/or
 - b. a connecting branch (106) configured to be connected with a drainage hose for conducting liquids to an emptying system,
- or
- a lifting tool, particularly with a fork-shaped gripper device, configured to engage with a handle means (94, 96) or section and/or a touching area (84) of the closing means (72) of the container (64) for a manual operation, specifically with the waisted area (96) according to claim 5 or 6.
14. A household appliance (10) comprising or being configured to be equipped with a container (64) according to any one of the claims 1 to 12, the household appliance (10) particularly comprising receiving means (66) for an accommodation of the container (64) and/or first attachment means for a fastening of the container (64), which receiving means (66) fit with the structure of the container (64) and/or which attachment means are compatible with second attachment means arranged at or allocated to the container (64).
15. The household appliance (10) according to claim 14, further comprising an extraction device (14) with a suction opening (24), wherein the closing means (72) of the container (64), in particular the second component (76) of the closing means (72), is accessible through the suction opening (24), in particular for a manual operation of the closing means (72).

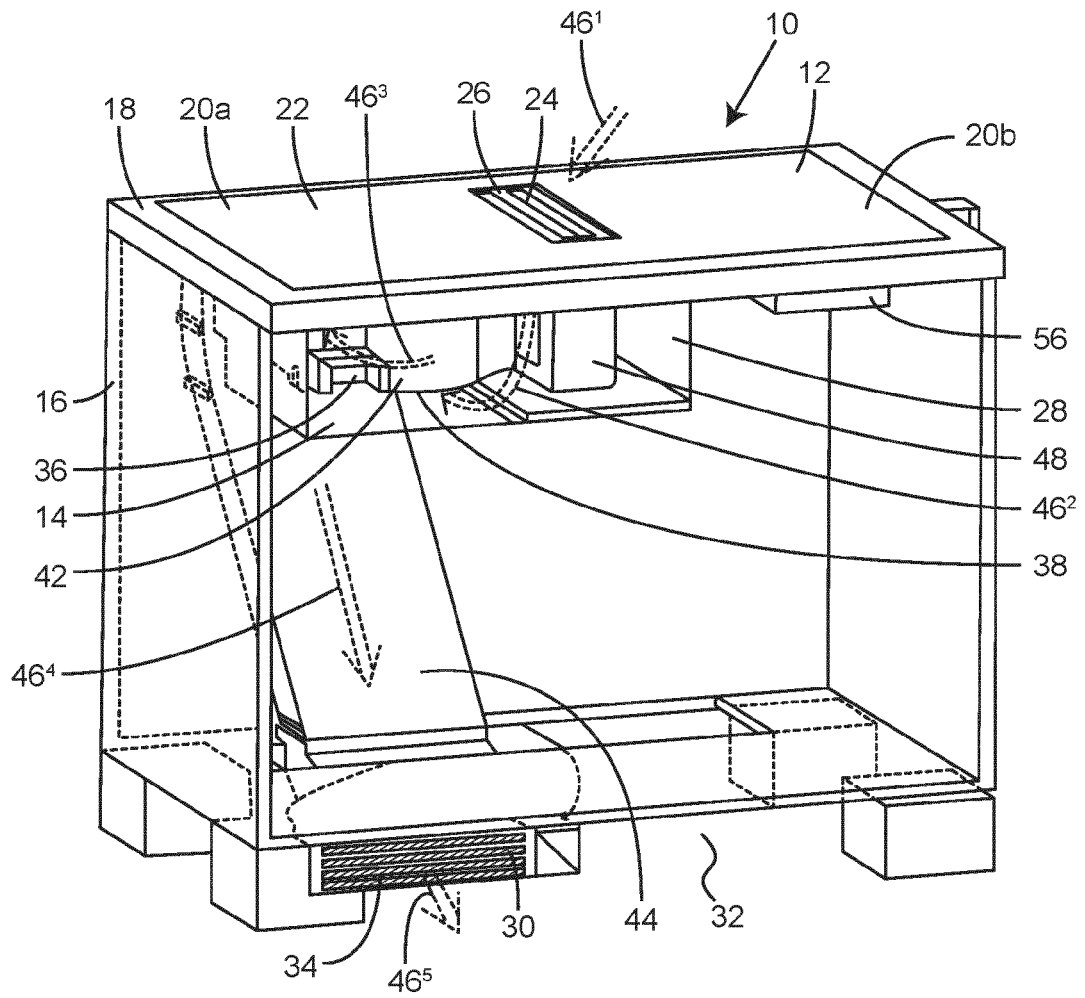


FIG. 1

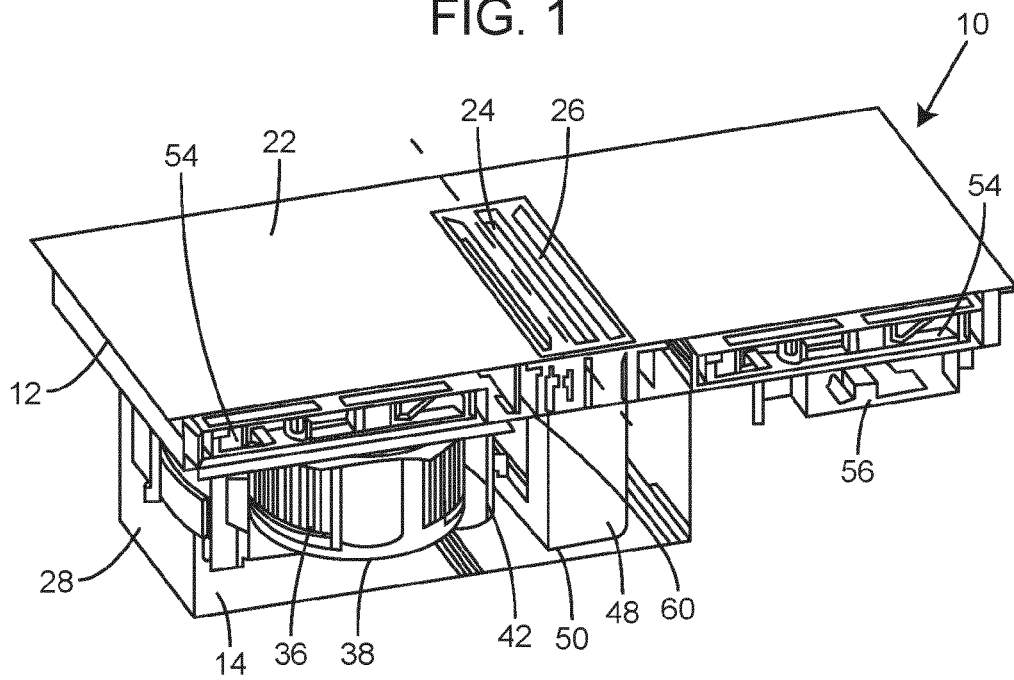


FIG. 2

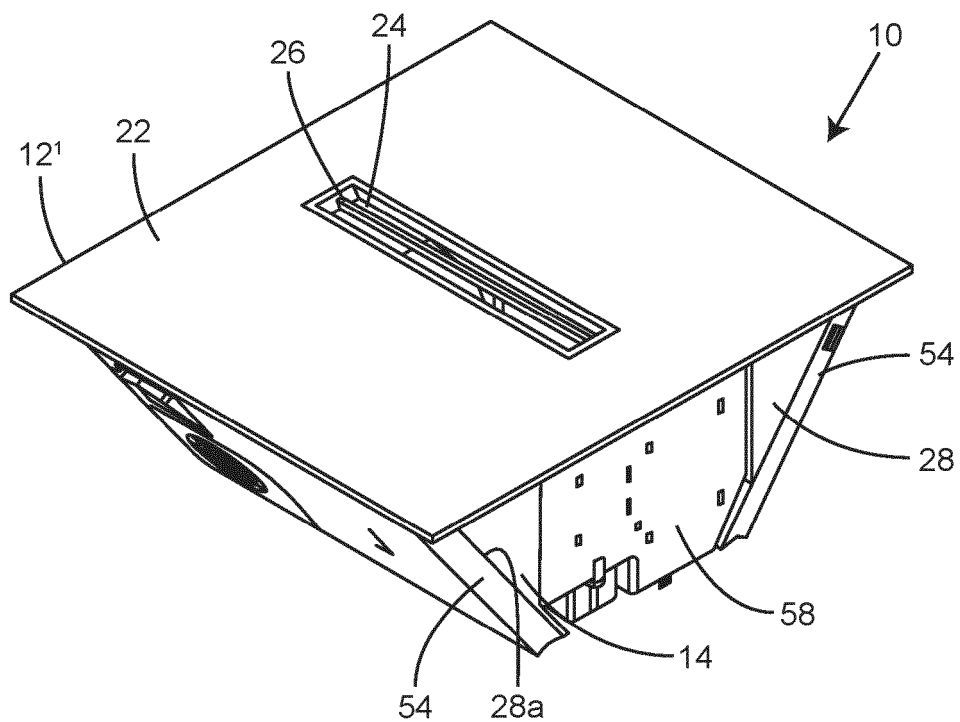


FIG. 3

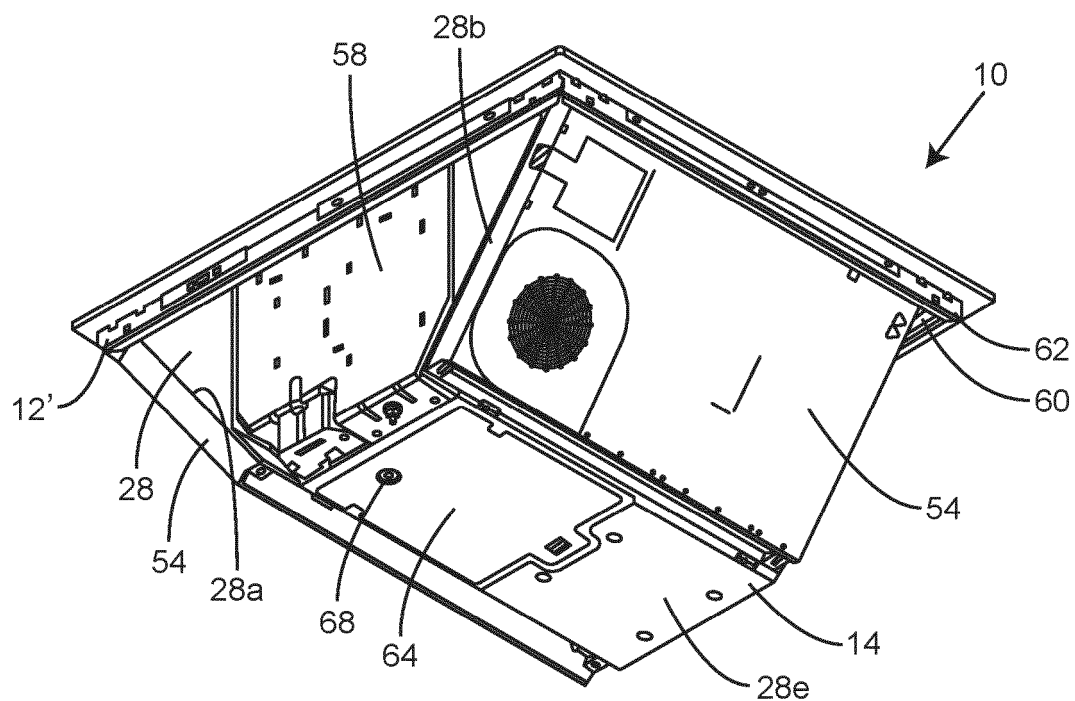


FIG. 4

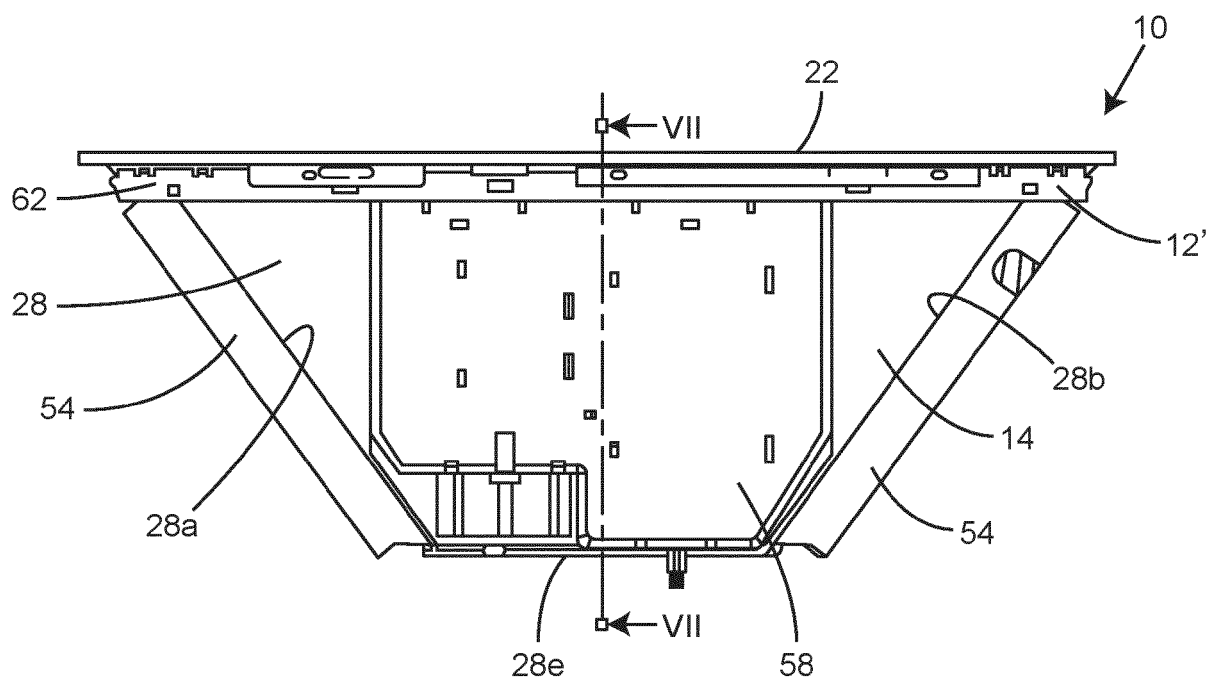


FIG. 5

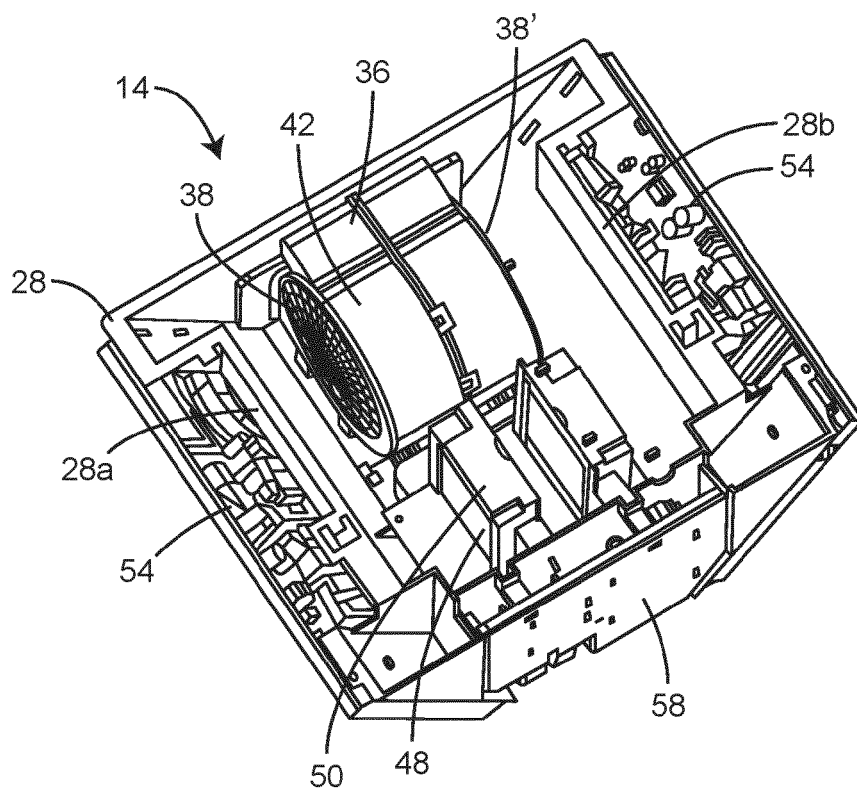


FIG. 6

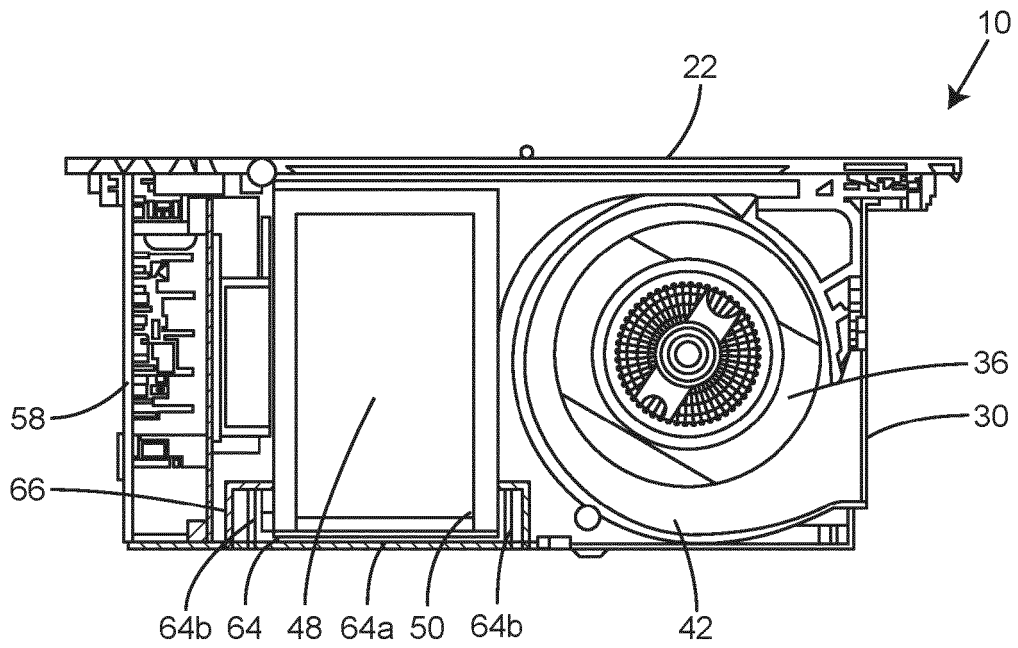


FIG. 7

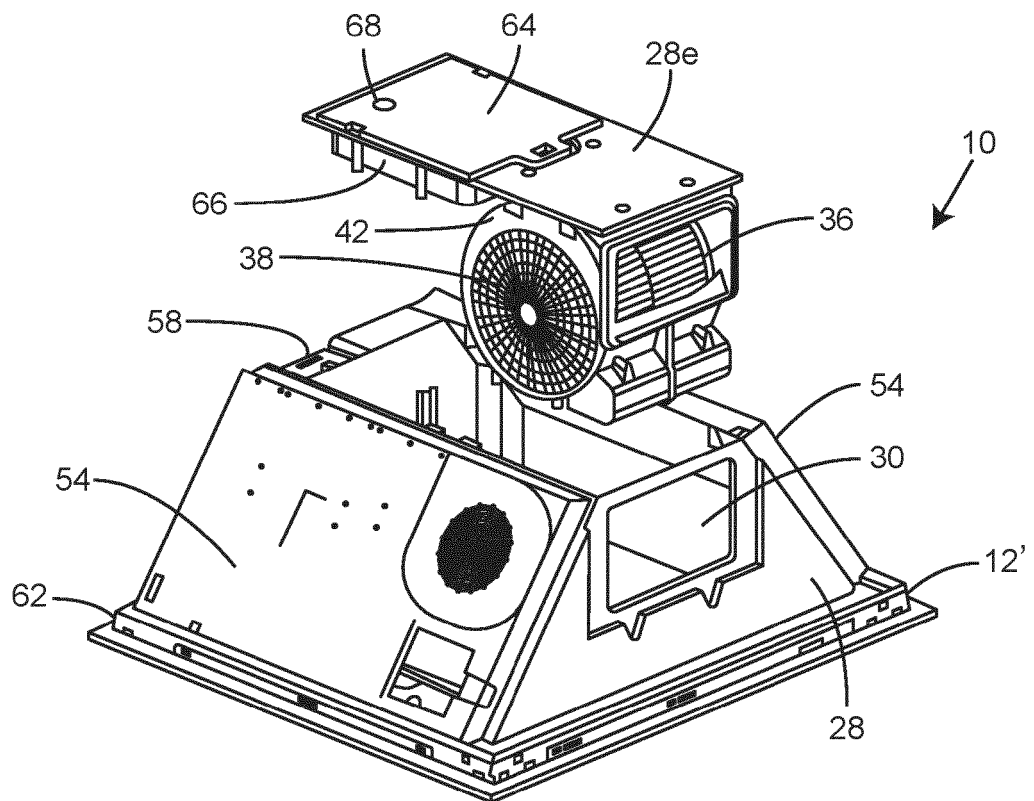


FIG. 8

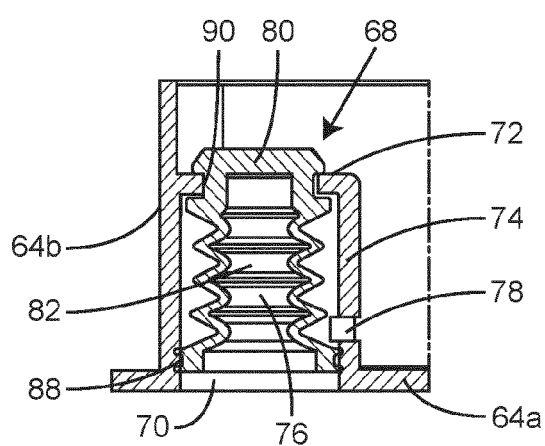


FIG. 9a

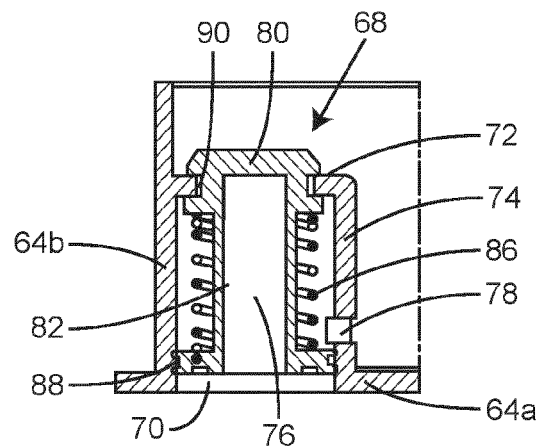


FIG. 9b

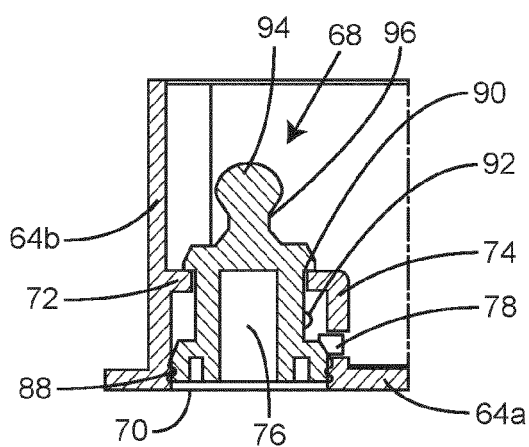


FIG. 10a

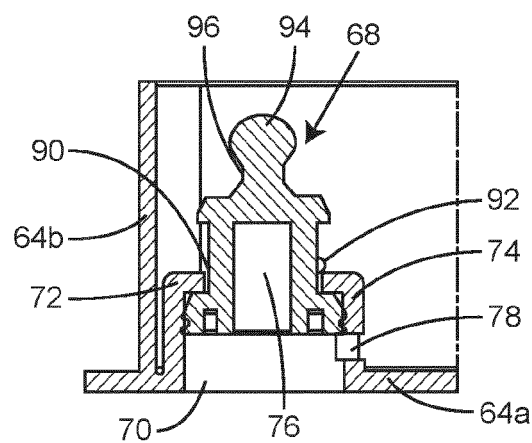


FIG. 10b

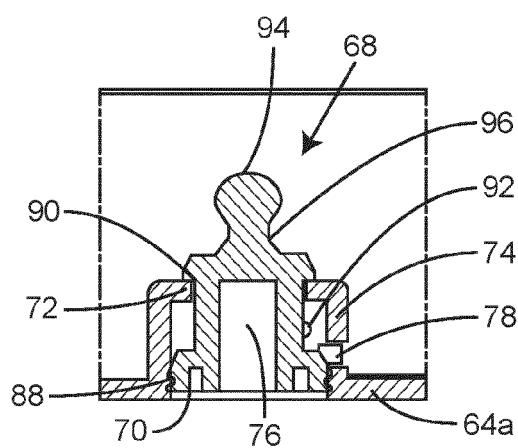


FIG. 10c

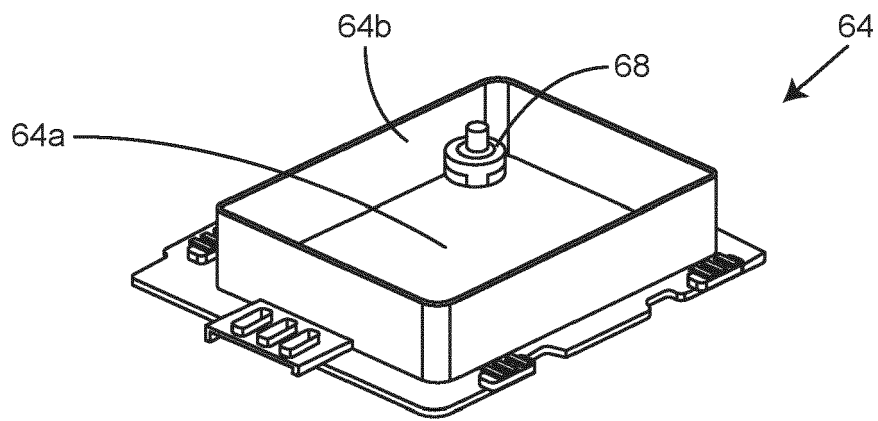


FIG. 11

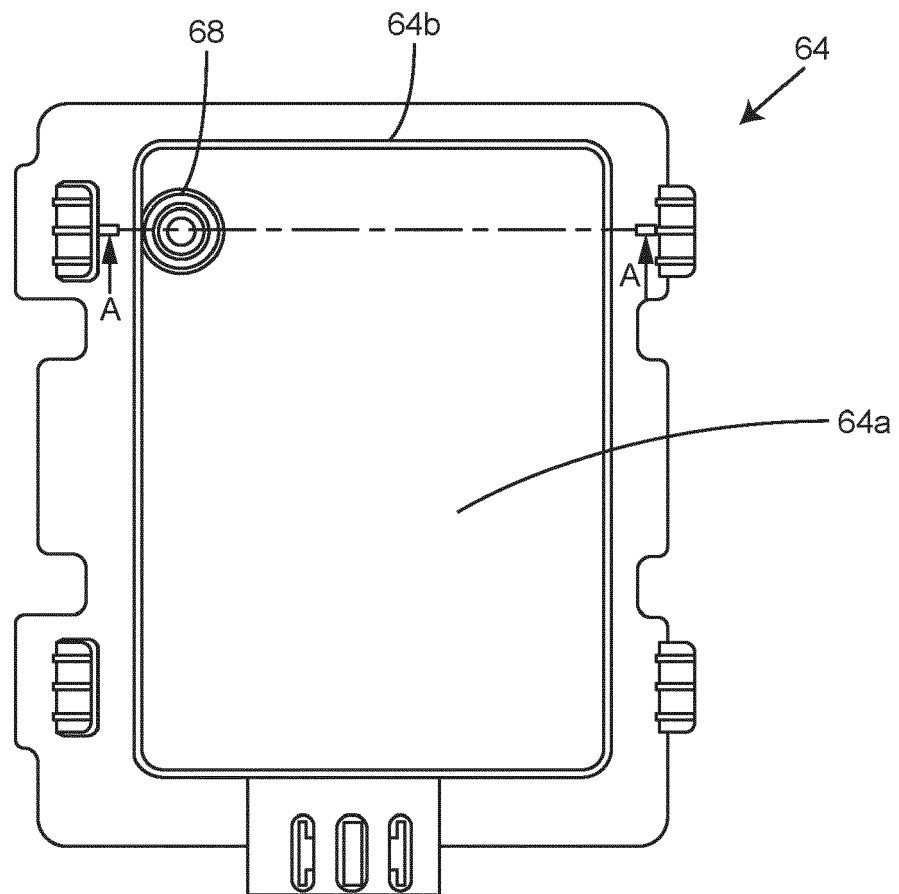


FIG. 12

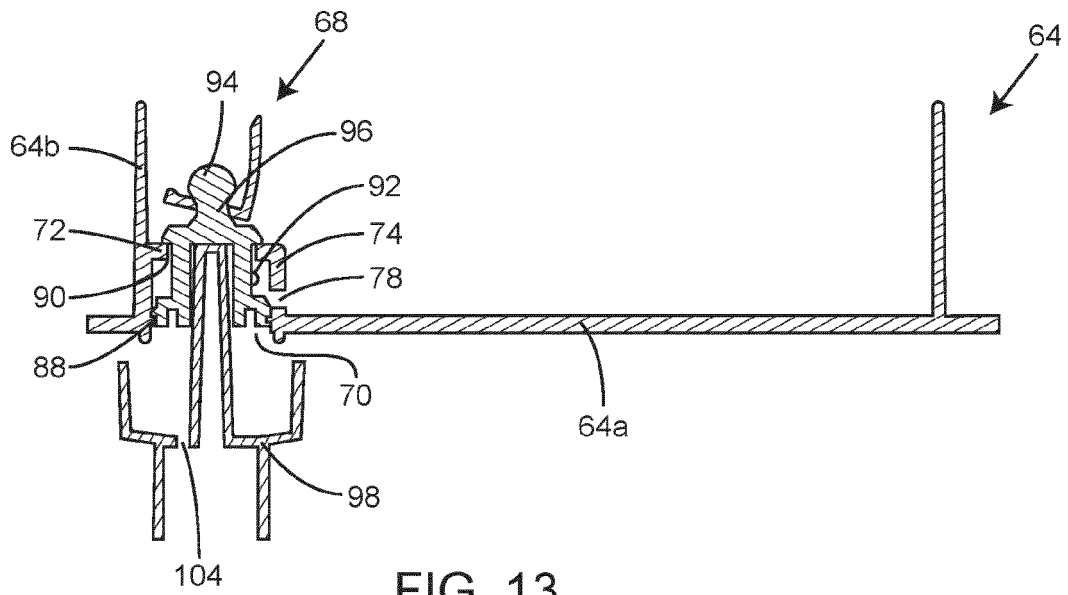


FIG. 13

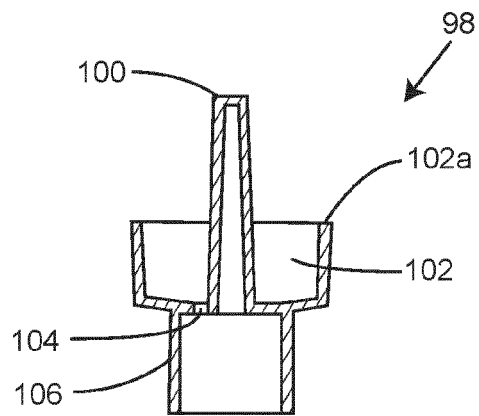


FIG. 14

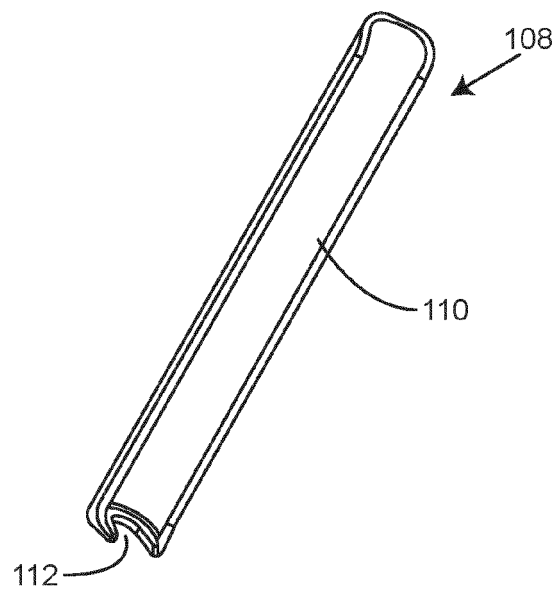


FIG. 15

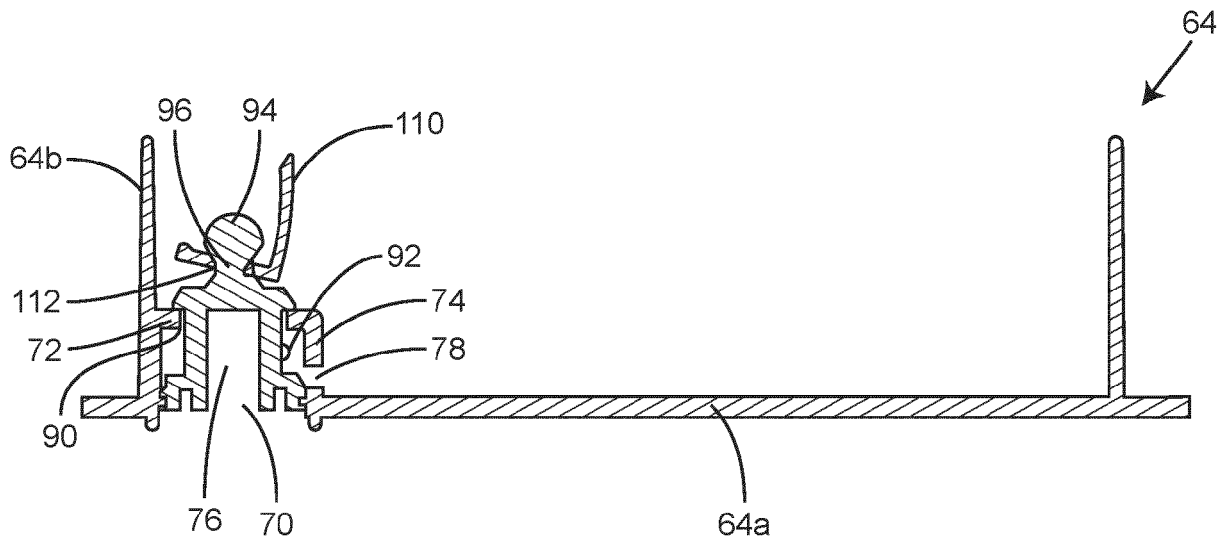


FIG. 16

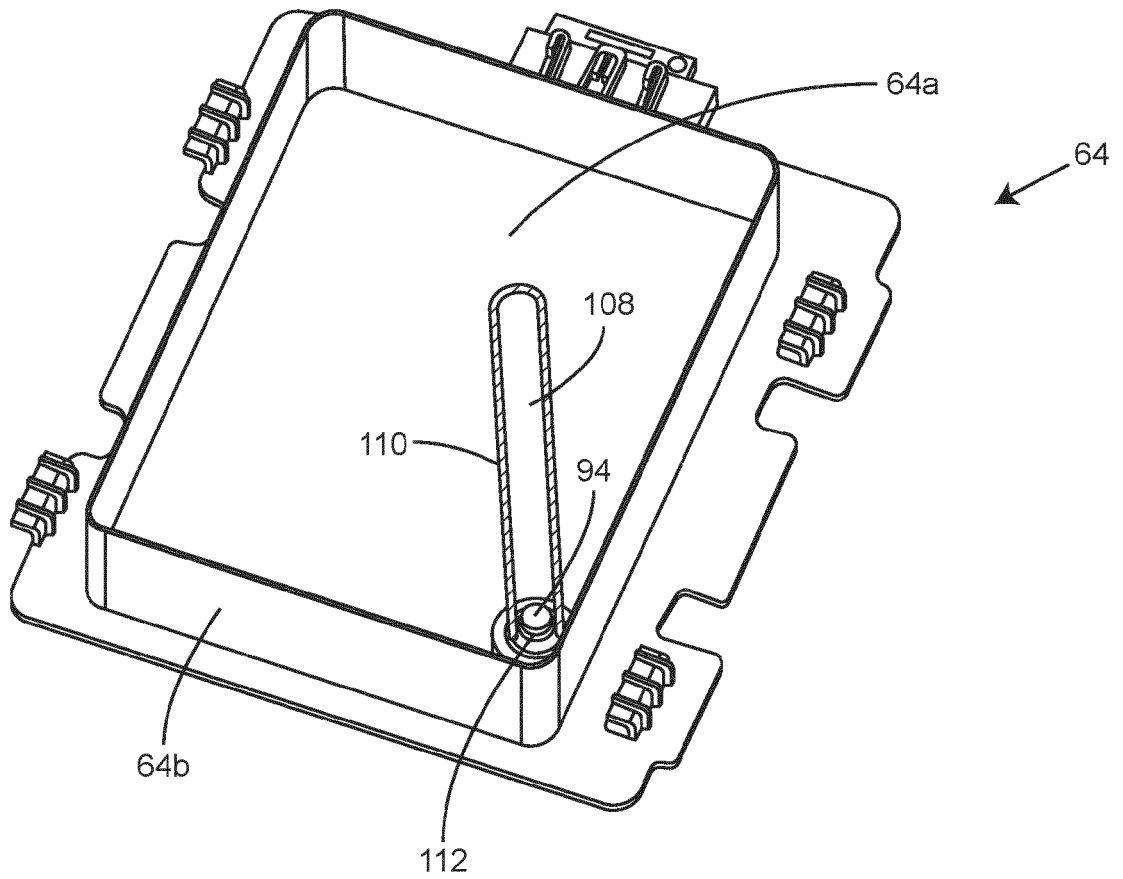


FIG. 17



PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of
subsequent proceedings, as the European search report

EP 22 21 0916

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 3 789 681 A1 (BSH HAUSGERAETE GMBH [DE]) 10 March 2021 (2021-03-10) * paragraphs [0045], [0051], [0052], [0055]; figures 1-14 *	1-15	INV. F24C15/14 F24C15/20
X	DE 10 2020 210578 A1 (BSH HAUSGERAETE GMBH [DE]) 11 March 2021 (2021-03-11) * paragraphs [0042] - [0044]; figures 1-9 *	1-7, 9, 10, 12-15	
X	DE 10 2016 123418 A1 (MIELE & CIE [DE]) 7 June 2018 (2018-06-07) * paragraphs [0033], [0035], [0038]; figures 1-3 *	1, 13	
X	US 7 421 942 B2 (ALTO SHAAM INC [US]) 9 September 2008 (2008-09-09) * column 4, lines 49-54; figure 2 *	1, 13	
X	US 3 941 043 A (CEROLA JOSEPH J ET AL) 2 March 1976 (1976-03-02) * column 2, lines 4-10; figures 1-3 *	1, 13	TECHNICAL FIELDS SEARCHED (IPC) F24C

INCOMPLETE SEARCH

The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.

Claims searched completely :

Claims searched incompletely :

Claims not searched :

Reason for the limitation of the search:

see sheet C

2

EPO FORM 1503 03.82 (P04E07)

Place of search	Date of completion of the search	Examiner
The Hague	5 July 2023	Fest, Gilles
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document		



**INCOMPLETE SEARCH
SHEET C**

Application Number

EP 22 21 0916

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Claim(s) completely searchable:

-

Claim(s) searched incompletely:

1-15

Reason for the limitation of the search:

See point 4 of Form 1703.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 22 21 0916

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

05-07-2023

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 3789681 A1	10-03-2021	NONE	
DE 102020210578 A1	11-03-2021	NONE	
DE 102016123418 A1	07-06-2018	NONE	
US 7421942 B2	09-09-2008	EP 1627186 A1	22-02-2006
		US 2005235980 A1	27-10-2005
		US 2008264271 A1	30-10-2008
		WO 2004094912 A1	04-11-2004
US 3941043 A	02-03-1976	AU 8589575 A	28-04-1977
		BE 834796 A	16-02-1976
		CA 1008121 A	05-04-1977
		DE 2548203 A1	13-05-1976
		FR 2289144 A1	28-05-1976
		GB 1471815 A	27-04-1977
		IT 1048018 B	20-11-1980
		JP S5167762 A	11-06-1976
		JP S5858089 B2	23-12-1983
		NL 7512366 A	04-05-1976
		US 3941043 A	02-03-1976

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 3951270 A1 [0003]