(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 2 574 696 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
03.04.2013 Bulletin 2013/14

(51) Int Cl.:
D06F 58/20 *(2006.01)*

(21) Application number: **11183125.1**

(22) Date of filing: **28.09.2011**

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

(71) Applicant: **Electrolux Home Products Corporation N.V.**
1130 Brussel (BE)

(72) Inventors:
- **Dal Ben, Diego**
  33080 Porcia (PN) (IT)
- **Santarossa, Marco**
  33080 Porcia (PN) (IT)

(74) Representative: **Nardoni, Andrea et al**
Electrolux Italia S.p.A.
Corso Lino Zanussi, 30
33080 Porcia (PN) (IT)

(54) **Laundry dryer comprising a condensate storing container**

(57) The invention relates to a laundry dryer comprising a condensate storing container, and a method of draining condensate from the storing container, the condensate storing container (2) having a container main body (28) for storing condensate formed in the laundry dryer producing condensate, the container (2) comprising a coupling device arranged at an opening (4) of the container main body and adapted to couple to a mating coupling device of the laundry dryer, wherein the coupling device comprises a valve (6) arranged at the container opening for opening and closing the container opening (4), wherein the valve (6) comprises a valve body (10) having a first sealing surface and valve element (8) having a second sealing surface, wherein the valve element (8) is received in the valve body (10) and is biased by a spring element such that the second sealing surface is biased against the first sealing surface in the closed valve state, wherein the valve element (8) is adapted to be actuated against the biasing force of the spring element when coupling the coupling device and the mating coupling device of the laundry dryer, and wherein at least a portion of the valve element (8) has a hollow profile shape comprising passages through the profile wall for passing the condensate in the open valve state, wherein the condensate storing container (2) has exactly and only one opening (4) between the exterior and the interior of the container (2) for passing the condensate through the coupling device in order to drain the condensate from the condensate storing container (2).

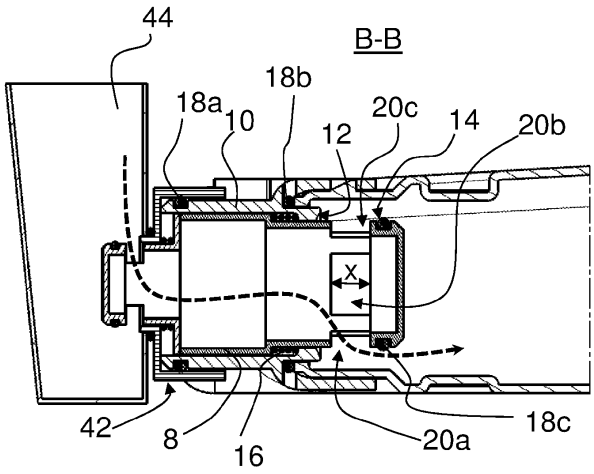


Fig. 5a

EP 2 574 696 A1

Description

[0001] The invention relates to a laundry dryer comprising a condensate storage container.

[0002] DE 42 38 546 A1 discloses a laundry dryer comprising an extractable condensate storage container located at a lower portion of the dryer. The storage container has an inlet opening comprising a valve which is connected to a sump container of the dryer to receive condensate during a drying operation. To receive and keep more water in the storage container, the inlet of the sump container is connected to a portion of a process air channel being under high pressure, such that the high pressure pushes more water into the storage container. The container further comprises at an upper portion an air vent opening to relief air when collecting condensate. EP 1 914 340 B1 discloses a laundry dryer comprising an extractable condensate storing container. The storing container comprises a safety valve to connect a terminal portion of a draining circuit of the dryer to the storing container. When the storing container is removed from the dryer the valve is in a closed state and when the container is inserted the valve is opened by the insert movement. The safety valve prevents accidental spillage of the stored liquid when the container is not inserted in its seat.

[0003] It is an object of the invention to provide a laundry dryer comprising an improved condensate storage container.

[0004] According to the invention, a laundry dryer comprises a condensate storing container, wherein the condensate storing container has a container main body for storing condensate formed in the laundry dryer, i.e. a condenser dryer. The container comprises a coupling device arranged at an opening of the container main body which is adapted to couple to a mating coupling device of the laundry dryer. The coupling device of the container comprises a valve arranged at the container opening for opening and closing the container opening. The valve comprises a valve body having a first sealing surface and a valve element having a second sealing surface. The valve element is received in the valve body and is biased by a spring element such that the second sealing surface is biased against the first sealing surface when the valve is in the closed valve state. The valve element is adapted to be actuated against the biasing force of the spring element when coupling the coupling device and the mating coupling device of the laundry dryer.

[0005] Preferably at least a portion of the valve element has a hollow profile shape, for example at least a portion of the valve element is formed as a hollow cylinder or as a hollow profile having e.g. a square, rectangular, elliptic or circular cross section. The valve element comprises passages through the profile wall for passing or let pass the condensate in the open valve state. The condensate storing container has exactly and only one opening between the exterior and the interior of the container for passing the condensate through the coupling device in order to drain the condensate from the condensate storing container. Preferably the one opening is adapted to drain the condensate out of and fill the condensate into the condensate storing container. I.e. only one opening is provided in the container main body through which the container is filled or collects condensate and is discharged or emptied. In particular it is not necessary to provide a cover for an additional outlet or discharge opening to prevent spillage of condensate when the container is removed from the laundry dryer. Thus the invention provides a laundry dryer having an improved condensate storage container which is less complex in use and in fabrication, i.e. production time and costs are reduced.

[0006] According to a preferred embodiment the cross section area of the axial passage through the profile shape portion of the valve element is the same or is approximately the same as the sum area of the areas of all condensate passages through the profile wall, or the difference between the cross section area of the axial passage through the profile shape portion of the valve element and the sum area of the areas of all condensate passages through the profile wall is within a range of +/- 5%, 10%, 20%, 30% or 40%. Thereby a maximum free flow of water through the valve in particular during discharging the container is provided, i.e. the water flow through the valve is not or is substantially not obstructed or blocked when flowing from the container through the condensate passages into the (axial passage of the) valve. Thus the storing container can be discharged in minimum time.

[0007] According to an embodiment the profile shape portion of the valve element has at least 3, 4, 5, 6 or more condensate passages through the profile wall. By providing more passages an easier counter flow of air and water is provided when the container is emptied, thus the discharging time of the storing container is further reduced.

[0008] Preferably at least the container main body of the storing container is formed by blow molding, i.e. the storage container can be fabricated time- and cost-efficient.

[0009] According to an embodiment the deflection movement path length, stroke length or actuation length of the valve element when moving from the closed to the open valve state is at least 7 mm, 8 mm, 10 mm, 12 mm or 15 mm. In particular the valve element or an actuation element coupled to the valve element for actuating the valve element is protruding from a stationary surrounding of the valve or container, which is rigidly connected or coupled to the main body of the container, at least 7 mm, 8 mm, 10 mm, 12 mm or 15 mm. I.e. when a user opens the valve, he pushes the valve element into the stationary part of the valve or container. By providing the above stroke length a user can easily and conveniently open the valve, e.g. manually by a finger or by abutting and pushing the valve element against a surface like an inner surface of a sink, for discharging the container.

[0010] Preferably the stroke and/or actuation length is

equal to or is essentially equal to the (maximum) axial length of the at least one condensate passage. Thus by actuating the valve, i.e. by pushing the valve element along the valve axis about the actuation length into the stationary part of the valve or container, the axial length of the at least one condensate passage, i.e. the length in axial direction of the valve or the moveable valve element, is completely open or exposed for discharging condensate from the container. Thus a maximum cross-section of the passage(s) is provided such that the container is dischargeable in minimum time.

[0011] Preferred the valve body comprises a body pipe section having an inner surface parallel to the actuation path or to the direction of the actuation movement of the valve element when being moved from the closed to the open valve state and wherein the valve element comprises a pipe section having an outer surface mating to the inner surface of the body pipe section and sliding on the inner surface during valve element actuation, wherein in the closed and the maximum open valve state the inner surface and outer surface overlap an alignment region or alignment length parallel to the actuation path. Thus the inner surface and the outer surface overlap in the closed valve state and also in the open valve state. In particular when moving the valve element between the closed and the open valve state the inner surface and the outer surface overlap permanently, such that a soft guiding of the valve element is provided when moving between the closed and open state of the valve. In particular it is prevented that the valve element or pipe section is tilted or tilts during a stroke, such that leakage due to tilting of the valve element is prevented and a smooth and easy opening of the valve is provided.

[0012] Preferably the minimum alignment length of overlap between the inner surface and outer surface is at least 3 mm, 4 mm, 5 mm, 6 mm or 7 mm. The minimum alignment length provides that the moveable valve element is always reliably and smoothly guided in the stationary valve body or body pipe section.

[0013] Preferred a grip section is formed on the container main body, i.e. the grip section is formed integrally with the main body. E.g. the container or main body is formed by blow molding with the grip section being part of the mold. In particular no separate grip or front panel has to be attached to the container main body, whereby the assembly time is reduced and thereby the production costs.

[0014] Preferably the one opening of the container main body, in particular the coupling device comprising the valve, is arranged at a side portion or edge of the container main body. Preferred the grip section is formed on an edge region of the main body opposite to an edge region where the valve is arranged at the container main body. E.g. when the container is inserted in its operating position into the laundry dryer, the opening is located in a vertical or substantially vertical side portion or an upper edge of the container. Preferably the actuation path or direction between the closed and open valve state is parallel to an inserting direction or movement of the container into the laundry dryer. In particular by gripping the container at the grip section and sliding or pushing the container (horizontally or substantially horizontally) into the dryer the valve is actuated from the closed to the open state.

[0015] Preferred the grip section comprises one, two, three or more recesses in the container main body with respect to the outer main contour of the container main body. Thereby a user can securely and safely grip the container to extract the container from the dryer and discharge the stored water.

[0016] According to another independent embodiment of the invention, a laundry dryer is provided comprising a condensate storing container, the condensate storing container having a container main body for storing condensate formed in the laundry dryer producing condensate, the container comprising a coupling device arranged at an opening of the container main body and adapted to couple to a mating coupling device of the laundry dryer, wherein the coupling device comprises a valve arranged at the container opening for opening and closing the container opening, wherein the valve comprises a valve body having a first sealing surface and valve element having a second sealing surface, wherein the valve body is received in the valve body and is biased by a spring element such that the second sealing surface is biased against the first sealing surface in the closed valve state, wherein the valve element is adapted to be actuated against the biasing force of the spring element when coupling the coupling device and the mating coupling device of the laundry dryer, and wherein at least a portion of the valve element has a hollow profile shape comprising passages through the profile wall for passing the condensate in the open valve state. The cross section area of the axial passage through the profile shape portion of the valve element is the same or is approximately the same as the sum area of the areas of all condensate passages through the profile wall, or the difference between the cross section area of the axial passage through the profile shape portion of the valve element and the sum area of the areas of all condensate passages through the profile wall is within a range of +/- 5%, 10%, 20%, 30% or 40%. Thereby a maximum free flow of water through the valve in particular during discharging the container is provided, i.e. the water flow through the valve is not or is substantially not obstructed or blocked when flowing from the container through the condensate passages into the (axial passage of the) valve. Thus the storing container can be discharged in minimum time. All features for the first embodiment of the invention as described above, below and in the appended claims are also applicable individually or in any combination to this another independent embodiment without restrictions.

[0017] Preferably a laundry dryer comprising a condensate storing container having any of and any combination of the above described features is drained from (stored) condensate according to the following exempla-

ry method: Pulling the storing container from the or out of the laundry dryer. Discharging the storing container by orienting the container such that the valve is or is approximately pointing downwards and actuating the valve element manually by pressing the valve element by a user's finger towards the open valve state. Alternatively the container is discharged by abutting the valve element or an actuating element for actuating the valve element protruding from the valve body against a stationary element at a water draining sewage device or installation, e.g. a bottom of a sink.

[0018] With respect to the method of the invention, full reference is made to the above description of the laundry dryer and the described operation modes and advantages thereof as well as to the below detailed description. Each of the above described features, each of the following features of the preferred embodiment and each arbitrary combination thereof can be combined for the laundry dryer and/or the method. Moreover it is obvious that the condensate storing container adapted to be used in a laundry treatment apparatus, like a laundry dryer, provides the advantage of the invention as such.

[0019] Reference is made in detail to a preferred embodiment of the invention, an example of which is illustrated in the accompanying figures, which show:

Fig. 1 a perspective front view of a laundry dryer,

Fig. 2 a perspective top view of a condensate storing container,

Fig. 3 a perspective view of a detail of the storing container of Fig. 2,

Fig. 3 a a perspective sectional view of the detail of Fig. 3,

Fig. 4 a top view of the storing container of Fig. 2 before coupling the storing container to a coupling device of a laundry dryer,

Fig. 4a a cross-sectional side view of Fig. 4,

Fig. 5 a top view of the storing container of Fig. 2 after coupling the storing container to a coupling device of a laundry dryer,

Fig. 5a a cross-sectional side view of Fig. 5,

Fig. 6 a cross-sectional side view of the storing container of Fig. 2 in a closed valve state,

Fig. 7 a cross-sectional side view of the storing container of Fig. 2 in an open valve state,

Fig. 8 a perspective cross-sectional view of the storing container of Fig. 2, and

Fig. 9 a perspective bottom view of the laundry dryer of Fig. 1.

[0020] Fig. 1 shows a perspective view of a laundry dryer 1 comprising a condensate storing container 2, i.e. a condenser dryer. The storing container 2 collects and stores condensate, i.e. water, extracted from laundry within the dryer 1 during a drying operation. The storing container is located at a bottom or lower portion of the dryer 1 and is extractable for discharging stored condensate from the container 2. In particular, when the dryer 1 is in its operating position, the container 2 is extractable from the dryer 1 in a horizontal or substantially horizontal direction or movement, i.e. in a drawer-like manner.

[0021] Fig. 2 shows a perspective view of a condensate storing container 2. The storing container 2 comprises a main body 28 having an inner volume to collect or store fluid like condensed water. The container 2 comprises a single, i.e. only one, opening 4 at which a valve 6 is arranged. The valve 6 is in a closed state when the container 2 is extracted from the dryer 1 and is in an opened state when the container 2 is (completely) inserted in the dryer 1 in its operating position. Thus the container 2 is filled with condensate and the condensate is discharged from the container 2 via or through the valve 6 and the the single opening 4, respectively. Two locking hooks 40a-b are arranged next to or at the valve 6 or opening 4 to releasable couple the container 2, i.e. the valve 6, to a mating coupling device 42 (Fig. 4) of a drain pipe or duct (44) (Fig. 4) of the dryer 1 when the container 2 is inserted. The locking hooks 40a-b provide a secure connection of the container 2 to the laundry dryer 1 when the container 2 is inserted while at the same time the connection is easily releasable by a user pulling at the container, e.g. with a short jerk. To provide a secure grip for a user when extracting and discharging the container 2, the container comprises a grip section 26 at a side portion of the container 2 facing the outside of the dryer 1 when the container 2 is inserted. The container main body 28 comprises several pictograms 30 which indicate that the condensate stored in the container 2 is suitable for watering plants, ironing and batteries and is not suitable for drinking. The main body 28 is formed in one-piece, e.g. by blow molding to provide a cost-efficient production of the storage container 2.

[0022] Fig. 3 shows a perspective view of a detail of the storing container 2 of Fig. 2 with the valve 6 in a closed state and Fig. 3a shows a perspective sectional view of the detail of Fig. 3. The valve 6 comprises a (stationary) valve body 10 which is connected or fixed to the container main body 28, wherein in this embodiment the locking hooks 40a-b are formed integrally with the valve body 10. Within the valve body 10, in particular in a body pipe section 22 of the valve body 10, a moveable valve element 8 is guided. The valve element 8 comprises an element pipe section 24 which is guided by the valve body 10, i.e. the body pipe section 22. In particular an outer surface of the element pipe section 24 is guided on or

slides along an inner surface of the body pipe section 22, e.g. when the valve element 8 is pushed into the valve body 10 during inserting the container 2 into the dryer 1. The valve element 8 comprises a hollow profile portion, in particular a hollow profile end portion which faces into the container 2 or into the container main body 28. The hollow profile portion comprises four passages 20a-c (only three visible in Fig. 3) through which the container 2 is filled and emptied, i.e. through which the condensate flows when the container 2 is inserted in the dryer 1 and when the container 2 is discharged after extracting it from the dryer 1.

[0023] The valve 6 comprises several gaskets 18a-c in form of O-rings. Gasket 18c is arranged on the moveable valve element 8 and provides a tight sealing between a first sealing surface 12 of the the valve body 10 and a second sealing surface 14 of the valve element 8. A spring element 16 (Fig. 4a) provides that the valve element 8 and the valve body 10, i.e. the respective sealing surfaces 12, 14, are pressed tightly together when the container 2 is extracted from the dryer 1, such that the valve is in the closed state and stored condensate cannot be spilled accidentally.

[0024] Fig. 4 shows a top view of the storing container of Fig. 2 before coupling the storing container 2 to a coupling device 42 attached to the draining duct 44 of the laundry dryer 1. Fig. 4a shows a cross-sectional side view of Fig. 4 along the line A-A. The spring element 16 pushes the valve element 8, i.e. the second sealing surface 14, against the first sealing surface 12 of the valve body 10 such that the valve 6 is in the closed state. The (open) end of the moveable valve element 8 facing the outside of the container 2 has a maximum outlet diameter d. When actuating the valve 6, the valve element 8 is pushed along the valve axis into the (stationary) part of the valve 6, i.e. the valve body 10 (Figs. 5, 5a). An actuation length of the valve element 8, i.e. the length the valve element 8 has to be moved from the closed valve state to the (completely) open valve state, is in the range of 5 mm to 15 mm. In particular the valve 6 is (completely) open when the complete cross-section of all passages 20a-c is exposed to the inner volume of the container 2, i.e. the container main body 28.

[0025] Fig. 5 a top view of the storing container 2 of Fig 2 after coupling the container 2 to the coupling device 42 of the laundry dryer 1. Fig. 5a shows a cross-sectional side view of Fig. 5 along the line B-B. The valve 6 is actuated, i.e. the valve element 8 is pushed into the valve body 10 such that the passages 20 a-c are exposed to the interior of the main body 28, i.e. the valve is in the open state. In particular the actuation length of the valve element 8 is selected such that at the end of the actuation movement the passages 20a-c are fully exposed in their maximum axial length x (Fig. 7).

[0026] In particular the sum of the cross-sections of all passages 20a-c is equal to or approximately equal to the cross-section of the maximum axial opening of the valve element 8, in particular the outlet opening of the valve element 8 having the diameter d. Thus a free flow of water through the valve 6 during discharging the container 2 is provided, i.e. the water flow through the valve 6 is not or is essentially not constricted. By providing several passages 20a-c through the valve element profile section the counterflow of air during discharging the container 2 is facilitated, whereby the discharging time for the container 2 is reduced.

[0027] Fig. 6 shows a cross-sectional side view of the valve 6 of the container 2 of Fig. 2 in a closed state and Fig. 7 shows a cross-sectional side view of the valve 6 in an open state during discharging. Fig. 7 shows that the projecting length of the valve element 8 which protrudes from the (stationary) valve body 10 in the closed valve state corresponds to the (minimum) actuation length (i.e. the minimum length or distance the valve element 8 is moved between the closed and opened valve state, i.e. to fully uncover or open the cross-section of all passages 20a-c to the inner volume of the container). The (minimum) actuation length in turn corresponds to the maximum axial length x of the passages 20a-c. In other words the valve body 10 or the outer edge of the valve body 10 forms a mechanical stop when the valve 6 reaches the (completely) open valve state, such that an incorrect handling of the valve 6 during discharging is prevented. Thus by actuating the valve 6 for discharging stored condensate (Fig. 8) the passages 20a-c are completely open to the inner volume of the container 2 and the container 2 is discharged in minimum time.

[0028] Fig. 8 shows a perspective cross-sectional view of the storing container 2 of Fig. 2 when discharging stored condensate. After removing or extracting the container 2 from the dryer 1, the valve 6 is in the closed state (Fig. 6). To discharge the container 2, e.g. in a sink 46, the container 2 is oriented such that the valve 6 faces or faces approximately downwards. The valve element 8 is brought into contact with the (bottom of the) sink 44 and pushed downwards such that the valve element 8 is actuated, i.e. pushed into the valve body 10 (Fig. 7). As long as a user pushes the container 2 downwards against the biasing force of the spring element 16 the valve is in an open state and stored condensate is discharged.

[0029] Thereby it is advantageous that a user does not come into contact with the stored water and can extract and discharge the container 2 with only one hand as no cap or cover has to be removed to drain water from the container 2. Alternatively the container 2 is dischargeable by a user pushing the valve element 8 manually into the valve body 10, e.g. with a finger.

[0030] Fig. 9 shows a perspective view of the laundry dryer of Fig. 1 from below. The container 2 is inserted in the corresponding recess at a bottom portion of the dryer 1. As shown in the magnified detail, the valve 6 is connected to the draining duct 44, i.e. the mating coupling device 42, of the dryer 1 at a back portion of the dryer 1.

Reference Numeral List:

[0031]

1	condenser dryer
2	container body
4	opening
6	valve
8	movable valve element
10	valve body
12	first sealing surface
14	second sealing surface
16	spring element
18a-c	gasket
20a-c	passage
22	body pipe section
24	element pipe section
26	grip section
28	container main body
30	pictogram
40a-b	locking hook
42	coupling device
44	draining duct
46	sink

x	axial passage length
d	outlet diameter

Claims

1. Laundry dryer comprising a condensate storing container, the condensate storing container (2) having a container main body (28) for storing condensate formed in the laundry dryer (1) producing condensate, the container (2) comprising a coupling device arranged at an opening (4) of the container main body (28) and adapted to couple to a mating coupling device (42) of the laundry dryer (1),
wherein the coupling device comprises a valve (6) arranged at the container opening for opening and closing the container opening (4),
wherein the valve (6) comprises a valve body (10) having a first sealing surface (12) and valve element (8) having a second sealing surface (14),
wherein the valve element (8) is received in the valve body (10) and is biased by a spring element (16) such that the second sealing surface (14) is biased against the first sealing surface (12) in the closed valve state,
wherein the valve element (8) is adapted to be actuated against the biasing force of the spring element (16) when coupling the coupling device and the mating coupling device (42) of the laundry dryer, and
wherein at least a portion of the valve element (8) has a hollow profile shape comprising passages (20a-c) through the profile wall for passing the condensate in the open valve state,
characterized in that
the condensate storing container (2) has exactly and only one opening (4) between the exterior and the interior of the container (2) for passing the condensate through the coupling device in order to drain the condensate from the condensate storing container (2).

2. Laundry dryer according to claim 1, wherein the profile shape portion of the valve element (8) has at least 3, 4, 5, 6 or more condensate passages (20a-c) through the profile wall.

3. Laundry dryer according to claim 1 or 2,
wherein the cross section area of the axial passage through the profile shape portion of the valve element (8) is the same or is approximately the same as the sum area of the areas of all condensate passages (20a-c) through the profile wall, or
wherein the difference between the cross section area of the axial passage through the profile shape portion of the valve element (8) and the sum area of the areas of all condensate passages (20a-c) through the profile wall is within a range of +/- 5%, 10%, 20%, 30% or 40%.

4. Laundry dryer according to claim 1, 2 or 3, wherein at least the container main body (28) of the storing container (2) is formed by blow molding.

5. Laundry dryer according to any of the previous claims, wherein the deflection movement path length or stroke length of the valve element (8) when moving from the closed to the open valve state is at least 7 mm, 8 mm, 10 mm, 12 mm or 15 mm.

6. Laundry dryer according to any of the previous claims, wherein the valve element (8) or an actuation element coupled to the valve element (8) for actuating the valve element (8) is protruding from a stationary surrounding of the valve (6) or container (2), which is rigidly connected or coupled to the main body (28) of the container, at least 7 mm, 8 mm, 10 mm, 12 mm or 15 mm.

7. Laundry dryer according to any of the previous claims, wherein the stroke and/or actuation length is equal to or is essentially equal to the (maximum) axial length (x) of the at least one condensate passage (20a-c).

8. Laundry dryer according to any of the previous claims, wherein the valve body (10) comprises a body pipe section (22) having an inner surface parallel to the actuation path of the valve element (8) when being moved from the closed to the open valve state and wherein the valve element (8) comprises a pipe section (24) having an outer surface mating

to the inner surface of the body pipe section (22) and sliding on the inner surface during valve element actuation, wherein in the closed and the maximum open valve state the inner surface and outer surface overlap an alignment length parallel to the actuation path.

9. Laundry dryer according to any of the previous claims, wherein the minimum alignment length of overlap between the inner surface and outer surface is at least 3 mm, 4 mm, 5 mm, 6 mm or 7 mm.

10. Laundry dryer according to any of the previous claims, wherein a grip section (26) is formed on the container main body (28).

11. Laundry dryer according to any of the previous claims, wherein the grip section (26) is formed on an edge region of the main body (28) opposite to an edge region where the valve (6) is arranged at the container main body (28).

12. Laundry dryer according to any of the previous claims, wherein the grip section (26) comprises one, two, three or more recesses in the container main body (28) with respect to the outer main contour of the container main body (28).

13. Laundry dryer according to any of the previous claims, wherein at least one pictogram (30) is formed on the outer surface of the container main body (28).

14. Laundry dryer according to any of the previous claims, wherein the at least one pictogram (30) comprises one or more of: an indication that the condensate water can be used for ironing, an indication that the condensate water can be used as flower water, an indication that the condensate water may not be used as drinking water, and an indication that the water may be used as decalcified or battery water.

15. Method of draining condensate from a condensate storing container of a laundry dryer according to any of the previous claims, comprising the steps:

pulling the condensate storing container (2) containing condensate water out of the laundry dryer (1), and

discharging the condensate storing container (2) by orienting the container such that the valve (6) is or is approximately pointing downwards and manually actuating the valve element (8) by pressing the valve element (8) by a user's finger towards the open valve state or by abutting the valve element (8) or an actuating element for actuating the valve element (8) protruding from the valve body (10) against a stationary element at a water draining sewage device or installation (46).

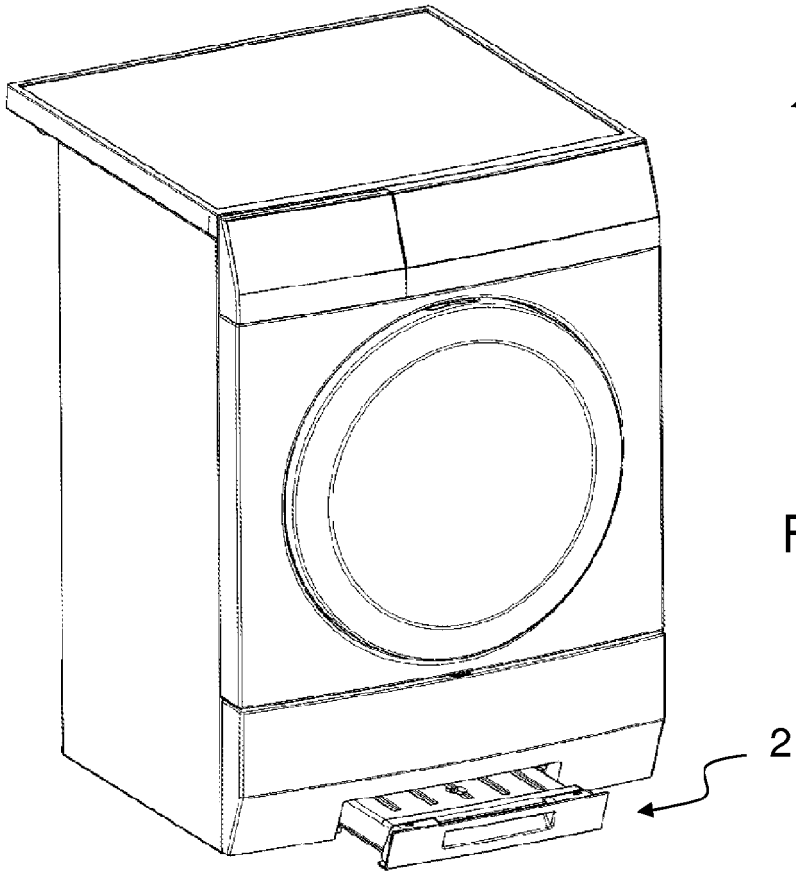


Fig. 1

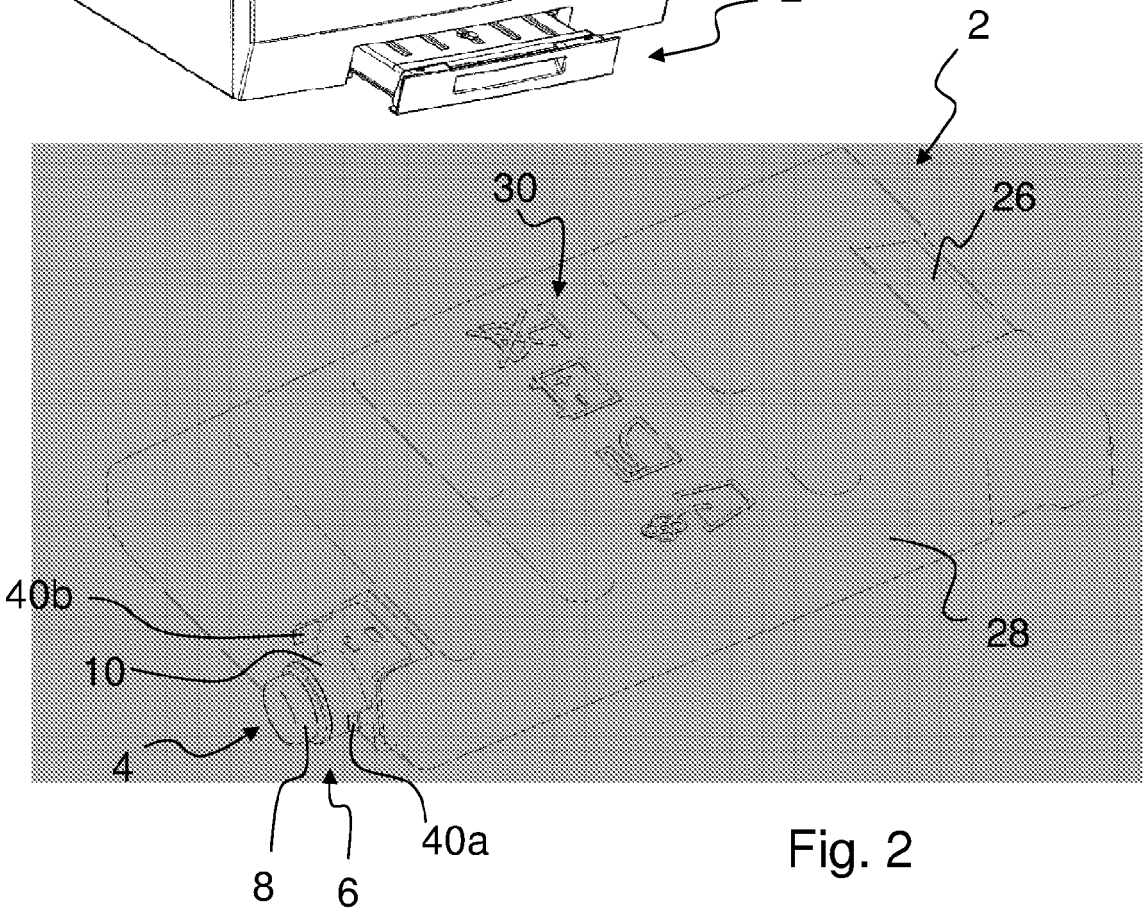
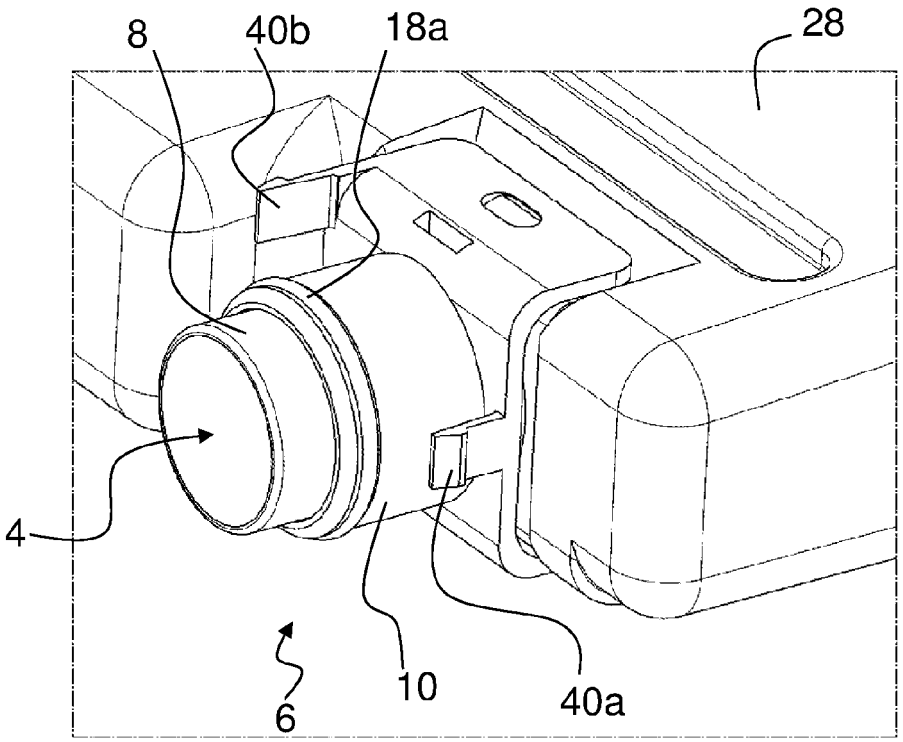


Fig. 2

Fig. 3


8
40b
18a
28
4
6
10
40a

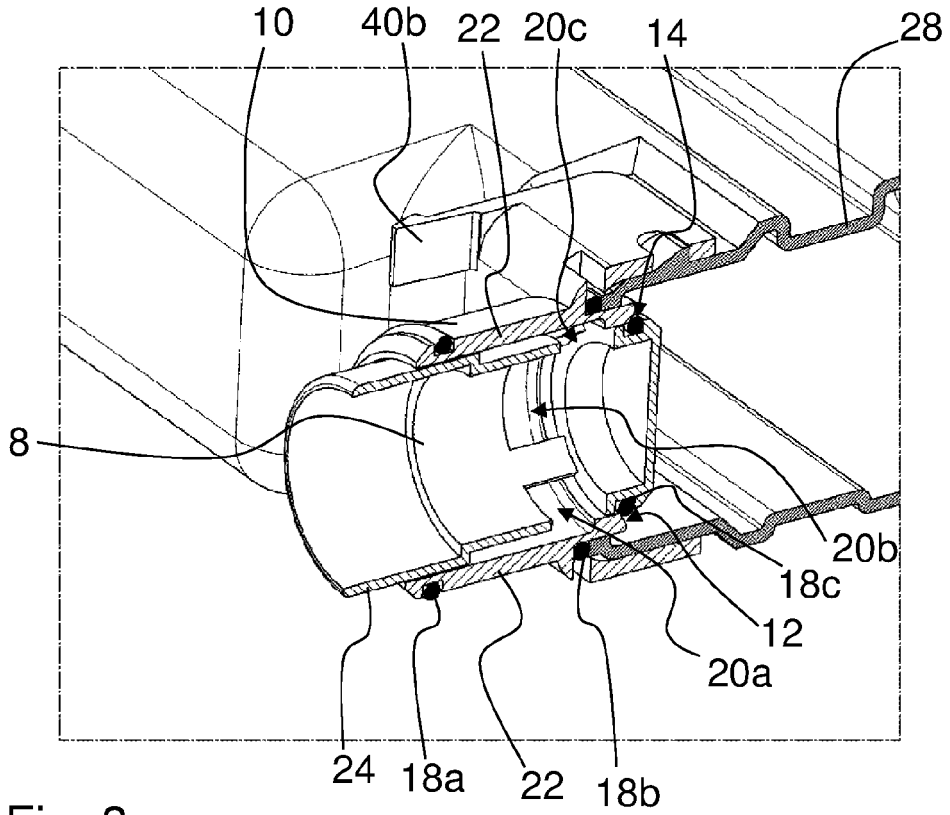
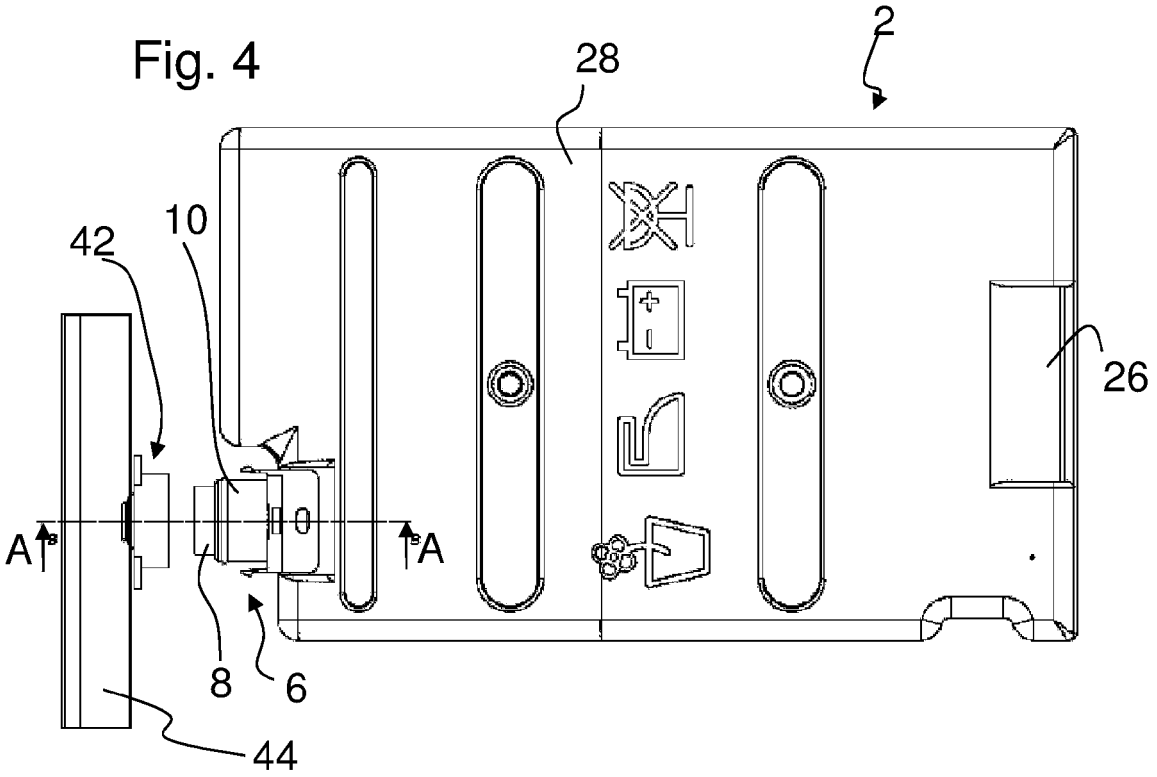

10
40b
22
20c
14
28
8
20b
18c
12
20a
24
18a
22
18b

Fig. 3a

Fig. 4



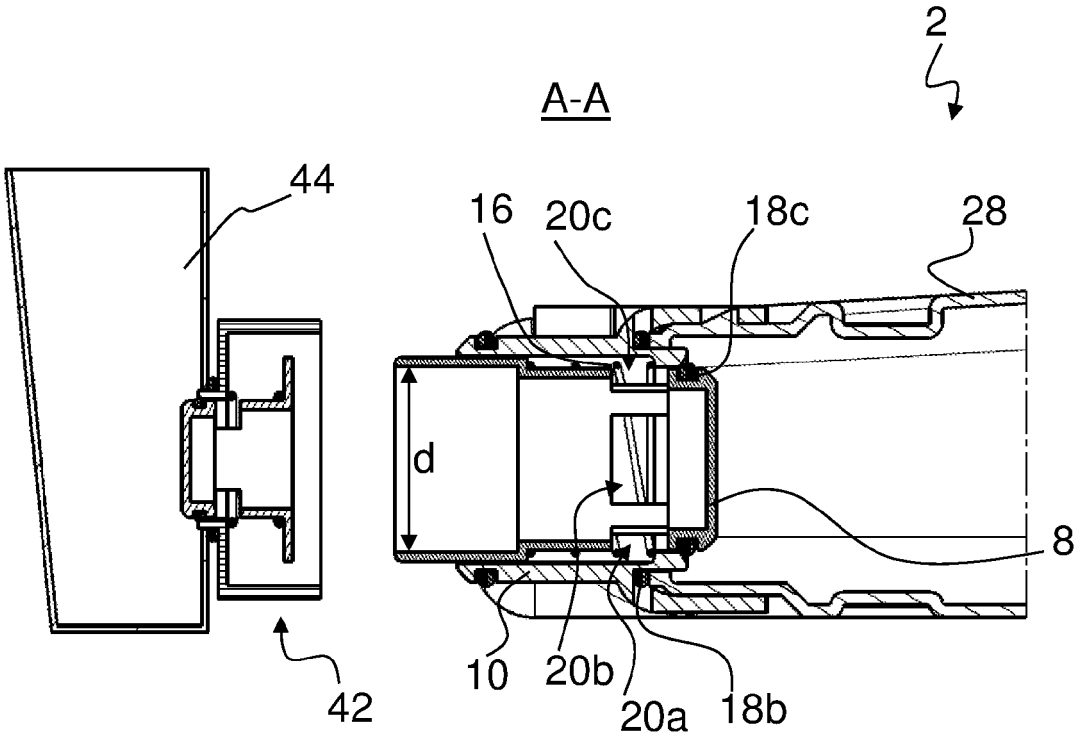
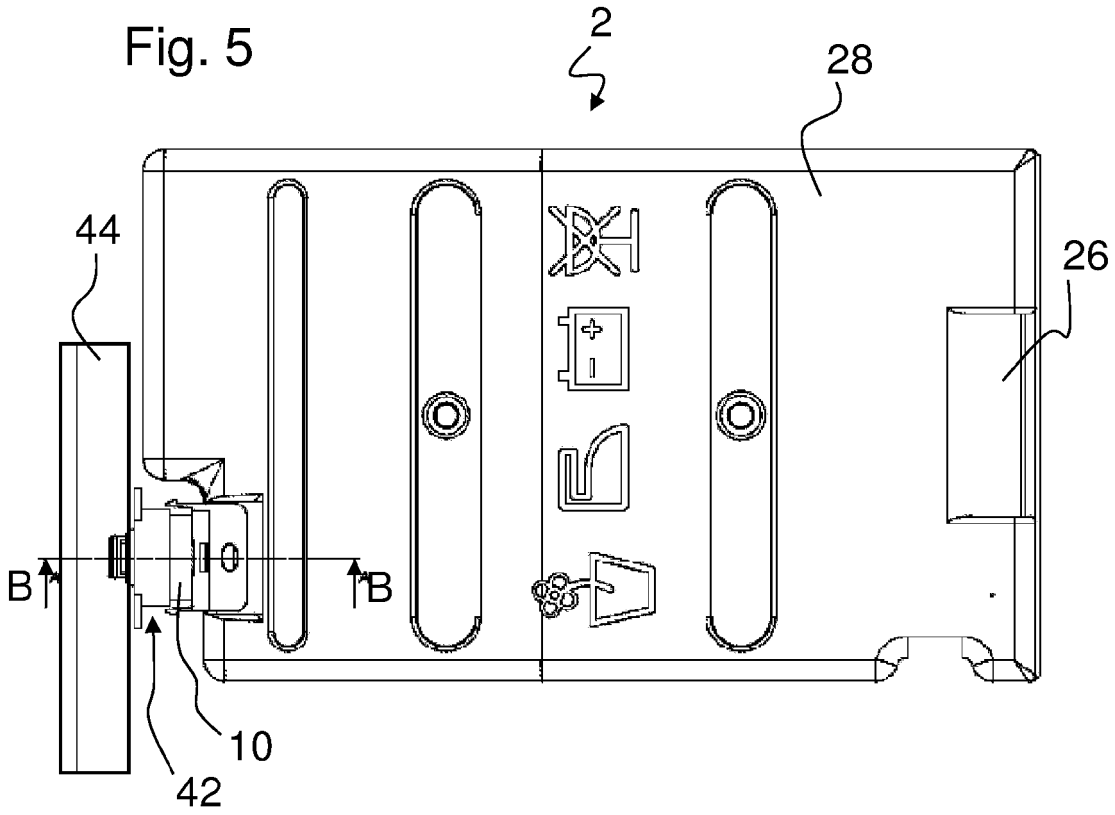


Fig. 4a

Fig. 5



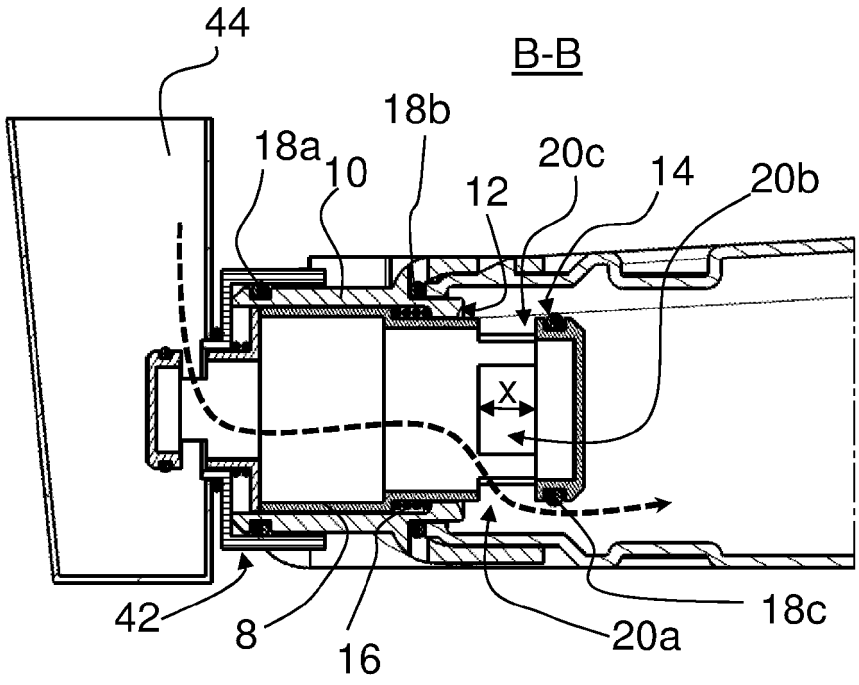
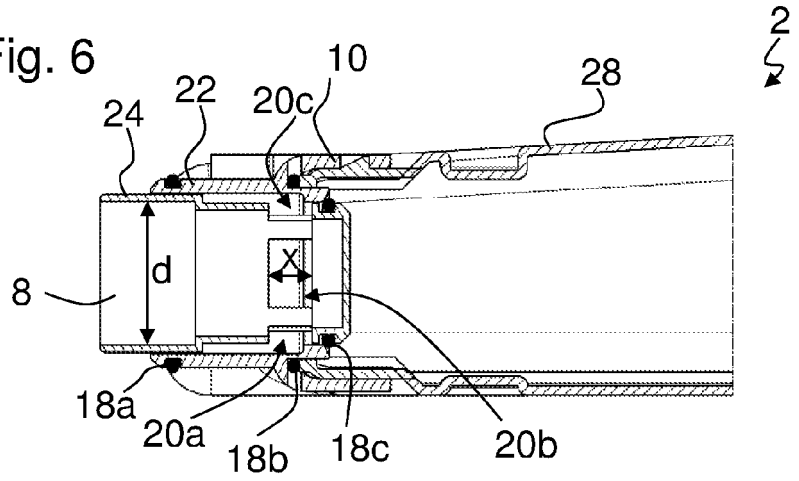


Fig. 5a

Fig. 6



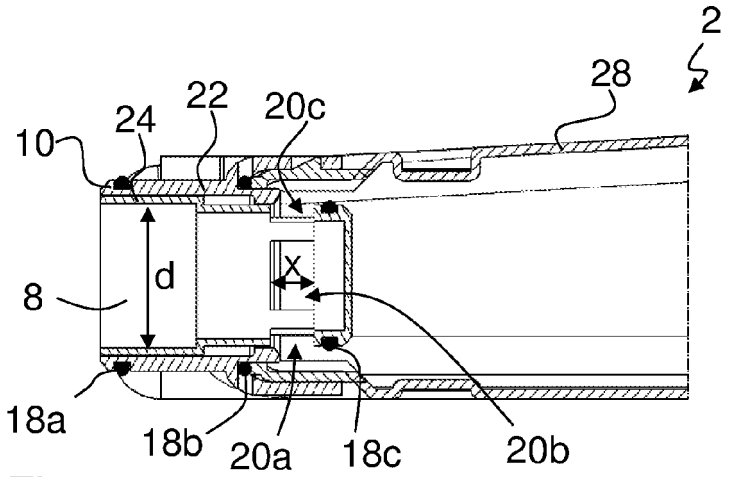


Fig. 7

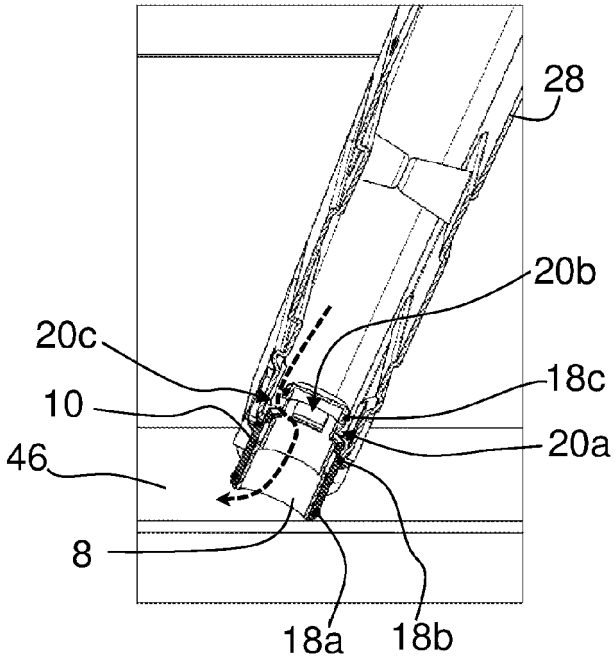


Fig. 8

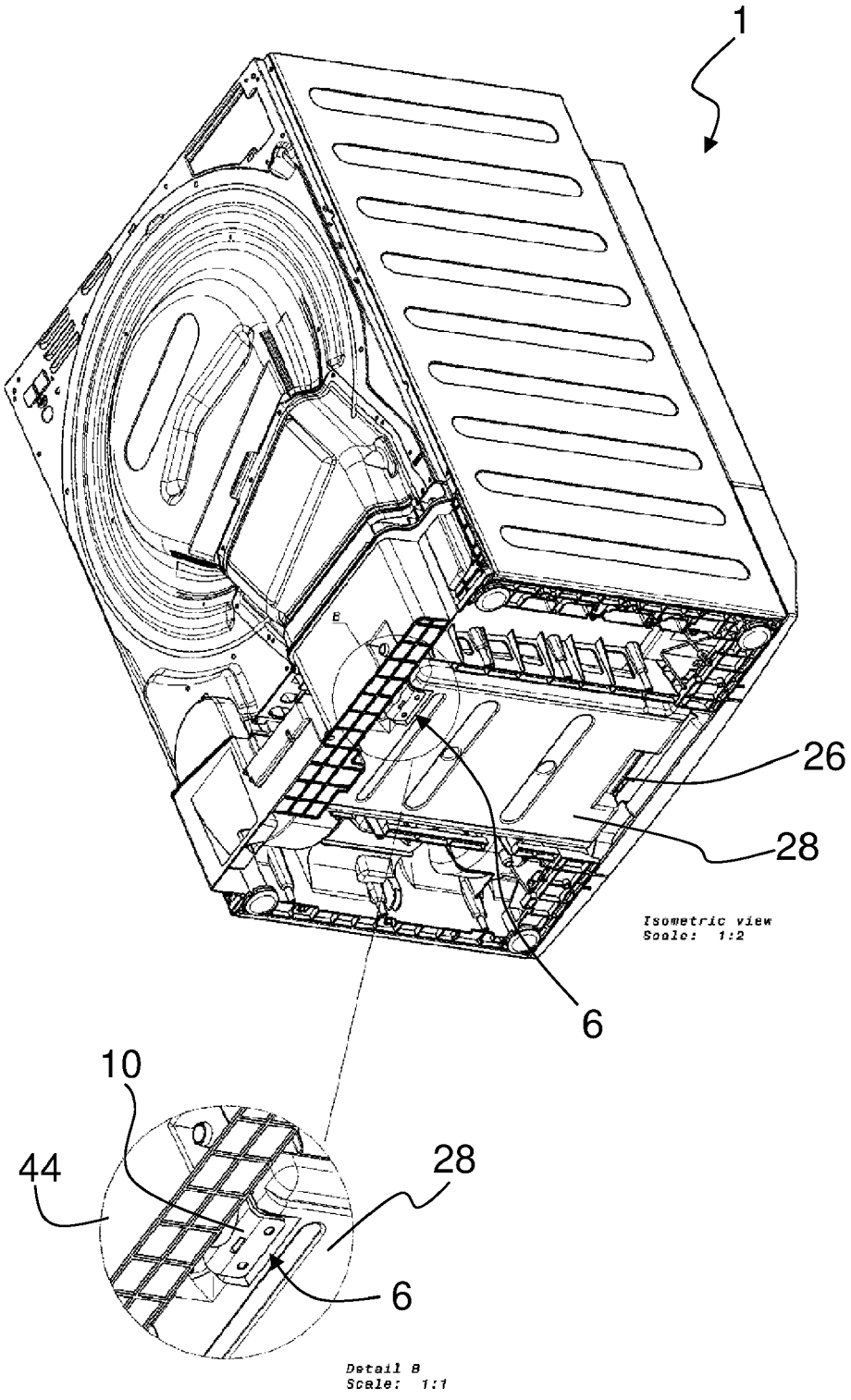


Fig. 9

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 11 18 3125

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,D Y	EP 1 914 340 B1 (CANDY SPA [IT]) 24 November 2010 (2010-11-24) * paragraph [0001] - paragraph [0011]; figures 1-3 *	1,2 15	INV. D06F58/20
A	EP 0 767 268 A1 (CANDY SPA [IT]) 9 April 1997 (1997-04-09) * column 3, line 35 - column 7, line 10; figures 1,2,4,5 *	1-15	
A	DE 297 01 441 U1 (AEG HAUSGERAETE GMBH [DE]) 28 May 1998 (1998-05-28) * page 2 - page 4; figures 1-3 *	1-15	
A	GB 2 105 452 A (BAUKNECHT GMBH G [DE]) 23 March 1983 (1983-03-23) * page 1, line 54 - page 2, line 62; figures 1,2 *	1-15	
Y A	DE 195 05 607 C1 (MIELE & CIE [DE]) 5 June 1996 (1996-06-05) * column 1, line 18 - column 2, line 3 * * column 2, line 33 - column 3, line 13 * * claims 1-5; figures 1-3 *	15 1-14	TECHNICAL FIELDS SEARCHED (IPC) D06F
A	"Gebrauchsanweisung Kondenstrockner T 277 C", Miele & Cie. KG [DE] , 13 July 2003 (2003-07-13), page 1,21,48, XP002679972, Retrieved from the Internet: URL:http://www.miele.de/de/haushalt/service/ks/gebrauchsanweisungen.aspx [retrieved on 2012-07-16] * page 21 *	15	

-/--

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 July 2012	Weinberg, Ekkehard

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

EPO FORM 1503 03.82 (P04C01)

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 11 18 3125

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 33 03 991 A1 (MIELE & CIE [DE]) 9 August 1984 (1984-08-09) * page 3, line 9 - page 4, line 4 * * figures 1-2 * -----	1-15	

TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	17 July 2012	Weinberg, Ekkehard

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

EPO FORM 1503 03.82 (P04C01)

Europäisches Patentamt
European Patent Office
Office européen des brevets

Application Number
EP 11 18 3125

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

Europäisches Patentamt
European Patent Office
Office européen des brevets

LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 11 18 3125

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-14

Laundry dryer comprising a condensate storing container having a single valved opening, the valve having an axial passage area approximately equal to the sum of all condensate passage areas.

---

2. claim: 15

Method of draining condensate from a condensate storing container comprising inverting the container and pressing the valve element in order to open the valve and release stored condensate.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 11 18 3125

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.

17-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1914340 B1	24-11-2010	NONE	
EP 0767268 A1	09-04-1997	EP 0767268 A1	09-04-1997
		IT MI950657 U1	28-03-1997
DE 29701441 U1	28-05-1998	NONE	
GB 2105452 A	23-03-1983	CH 655963 A5	30-05-1986
		DE 8123353 U1	09-12-1982
		GB 2105452 A	23-03-1983
		IT 1153140 B	14-01-1987
		NL 8203042 A	01-03-1983
		SE 449878 B	25-05-1987
		SE 8204535 A	02-08-1982
		YU 168582 A	30-06-1986
DE 19505607 C1	05-06-1996	NONE	
DE 3303991 A1	09-08-1984	NONE	

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- DE 4238546 A1 **[0002]**
- EP 1914340 B1 **[0002]**