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(54) **Rotary-drum laundry dryer**

(57) The present invention relates to a rotary-drum laundry dryer comprising a revolving drum (3) adapted to receive laundry to be dried, a hot-air generator (6) structured to circulate an airflow (f) through said revolving drum (3), and a lower supporting base or socle (9) which is structured for resting on the floor and for housing at least part of the hot-air generator (6). The hot-air generator (6) comprises an air recirculating conduit (12) allowing said airflow (f) to flow through the revolving drum (3) and through at least one heat exchanger (15) located along said air recirculating conduit (12) for condensing moisture inside the airflow (f). A segment (12c) of the air recirculating conduit (12) extends across the lower supporting base or socle (9), and is structured so as to house

said at least one heat exchanger (15); said lower supporting base or socle (9) is furthermore provided with one or more pass-through openings (19a) through which corresponding elongated members (19) stick out of said segment (12c) of the air recirculating conduit (12). The laundry dryer of the present invention is characterized by further comprising one or more lids (9c) configured for respectively covering at least a portion of one or more of said pass-through openings (19a), said one or more lids (9c) being integrated with said lower supporting base or socle (9).

In this way, the structure of the laundry dryer is simplified with a consequent cost reduction in the manufacturing process.

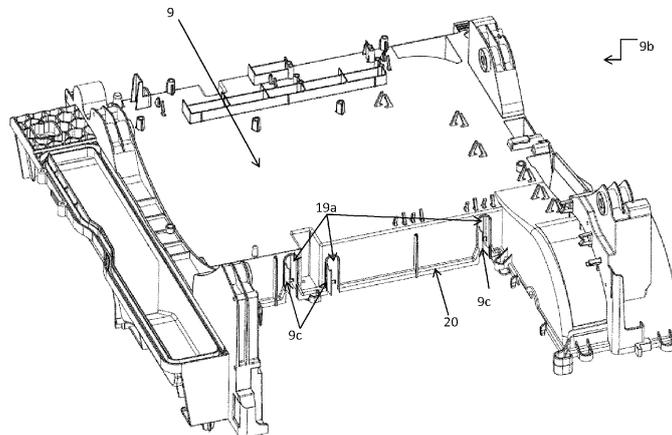


Figure 5

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Description

[0001] The present invention relates to a rotary-drum laundry dryer.

[0002] In particular, the present invention relates to a rotary-drum home laundry dryer, to which the following description refers purely by way of example without implying any loss of generality.

[0003] Rotary-drum home laundry dryers of known type comprise: a substantially parallelepiped-shaped outer box-like casing structured for resting on the floor; a substantially cylindrical revolving drum structured for housing the laundry to be dried, and which is housed in an axially rotating manner inside the casing to rotate about its horizontally-oriented longitudinal axis, directly facing a laundry loading/unloading opening formed in the front wall of the casing; a porthole door hinged to the front wall of the casing to rotate to and from a closing position in which the door rests completely against the front wall of the casing to close the laundry loading/ unloading opening and airtight seal the revolving drum; and an electric motor assembly structured for driving into rotation the revolving drum about its longitudinal axis inside the casing.

[0004] Home laundry dryers of the above type are also provided with an open-circuit or closed-circuit, hot-air generator which is structured to circulate inside the revolving drum a stream of hot air having a low moisture content, and which flows through the revolving drum and over the laundry inside the drum to dry the laundry; and with an electronic control unit which controls both the motor assembly and the hot-air generator to perform one of the user-selectable drying cycles stored in the same control unit.

[0005] In today's high-end rotary-drum home laundry dryers, the hot-air generator is usually a closed-circuit, heat-pump type, hot-air generator that comprises: an air recirculating conduit having its two ends fluidly connected to the revolving drum, on opposite sides of the latter; a fan located along the air recirculating conduit to produce, inside the latter, an airflow which flows through the revolving drum; and finally a heat-pump assembly having its two heat exchangers located one after the other, along the air recirculating conduit.

[0006] EP 2 034 084 discloses a heat-pump type, rotary-drum home laundry dryer having a closed-circuit, heat-pump type, hot-air generator of the type referred above.

[0007] Since the two air/refrigerant heat exchangers of the heat-pump type, hot-air generator are housed inside the air recirculating conduit, one downstream the other, whereas the refrigerant compressing device and the refrigerant expansion device of the heat-pump type, hot-air generator are located outside the air recirculating conduit, several pass-through openings are formed on the lateral wall of the air recirculating conduit to allow the passage of a number of connecting pipes that channel the refrigerant to and from the air/refrigerant heat ex-

changers. Unluckily, these passthrough openings cause significant leaks of drying process air.

[0008] In a co-pending application filed by the same Applicant of the present application, a laundry dryer is disclosed which comprises an auxiliary cover which is structured for being associated onto a lower supporting base, in a region adjacent to at least one of pass-through openings, to at least partly cover/close the gap formed between the edge of the lower supporting base delimiting the pass-through opening and the at least one elongated member that sticks out of the lower supporting base through the pass-through opening.

[0009] However, this solution has the disadvantage that the structure is rendered even more complex due to the presence of such auxiliary cover, with problems related to the cover moulding, installation and removal of it whenever is needed, wear, maintenance and relative costs.

[0010] Aim of the present invention is thus to simplify the structure of today's laundry dryers, so to simplify the assembly of the laundry dryer and to improve efficiency of the closed-circuit, heat-pump type, hot-air generator.

[0011] A further aim of the present invention is to significantly reduce the leaks of drying process air.

SUMMARY OF THE INVENTION

[0012] In compliance with the above aims, according to the present invention there is provided a rotary-drum laundry dryer comprising a revolving drum adapted to receive laundry to be dried, a hot-air generator structured to circulate an airflow through said revolving drum, and a lower supporting base or socle which is structured for resting on the floor and for housing at least part of the hot-air generator. The hot-air generator comprises an air recirculating conduit allowing said airflow to flow through the revolving drum and through at least one heat exchanger located along said air recirculating conduit for condensing moisture inside the airflow. A segment of the air recirculating conduit extends across the lower supporting base or socle, and is structured so as to house said at least one heat exchanger; said lower supporting base or socle is furthermore provided with one or more pass-through openings through which corresponding elongated members stick out of said segment of the air recirculating conduit. The laundry dryer of the present invention is characterized by further comprising one or more lids configured for respectively covering at least a portion of one or more of said pass-through openings, said one or more lids being integrated with said lower supporting base or socle.

[0013] By this way, the structure of the laundry dryer is simplified with a consequent cost reduction in the manufacturing process.

[0014] In the present invention the term "integrated" means a member-piece solidly associated to said lower supporting base or socle so as to form a single unitary piece therewith. By this way, said one or more lids being

"integrated" with said lower supporting base or socle form a single piece with it, non-detachable from it.

[0015] In a first embodiment of the present invention, at least one single lid of said one or more lids is configured for covering more than one of said pass-through openings. In an alternative embodiment of the present invention, each of said one or more lids is configured for respectively covering each one of said one or more of said pass-through openings.

[0016] Furthermore and preferably, though not necessarily, each of said one or more lids is movable from a first position in which it covers said at least a portion of one or more of said pass-through openings to a second position in which it uncovers said one or more pass-through openings.

[0017] Furthermore and preferably, though not necessarily, each of said one or more lids is integrated with said lower supporting base or socle through a hinge member.

[0018] Furthermore and preferably, though not necessarily, the hinge member is formed as an interconnecting layer interposed between said one or more lids and the lower supporting base or socle, the interconnecting layer having a lower thickness compared to the thickness of the one or more lids and/or the lower supporting base or socle.

[0019] Furthermore and preferably, though not necessarily, each of said one or more lids is structured for covering a gap formed between the edge of the lower supporting base or socle delimiting said one or more lids and the at least one elongated member.

[0020] Furthermore and preferably, though not necessarily, the lower supporting base or socle comprises a lower half-shell which is structured for resting on the floor, and at least one upper half-shell which is structured/shaped for being stacked up on top of, and rigidly coupled to, said lower half-shell, so to form at least a portion of said segment of the air recirculating conduit.

[0021] Furthermore and preferably, though not necessarily, a rotational axis of the hinge member is substantially parallel to a coupling direction of the lower and upper half-shells.

[0022] Furthermore and preferably, though not necessarily, each of said one or more lids is placed between the joining line of the lower and upper half-shells and one or more of said elongated members.

[0023] Furthermore and preferably, though not necessarily, said one or more lids and/or the lower supporting base or socle are made of a polymeric material via an injection molding process.

[0024] Furthermore and preferably, though not necessarily, the pass-through openings of the lower supporting base or socle consist in one or more pass-through slots or recesses made on the lower half-shell and/or on the at least one upper half-shell, along a coupling edge between said half-shells.

[0025] Furthermore and preferably, though not necessarily the hot-air generator is a heat-pump type, hot-air

generator which comprises:

- a first air/refrigerant heat exchanger which is located inside said segment of the air recirculating conduit, and is structured for cooling down the airflow arriving from the revolving drum to condense and restrain the surplus moisture in the airflow;
- a second air/refrigerant heat exchanger which is located inside said segment of the air recirculating conduit, downstream of the first air/refrigerant heat exchanger, and which is structured for heating the airflow arriving from the first air/refrigerant heat exchanger and directed back to the revolving drum;
- a refrigerant compressing device which is interposed between the refrigerant-outlet of the first air/refrigerant heat exchanger and the refrigerant-inlet of the second air/refrigerant heat exchanger, and which is structured for compressing the gaseous-state refrigerant directed towards the second air/refrigerant heat exchanger; and
- a refrigerant expansion device which is interposed between the refrigerant-outlet of the second air/refrigerant heat exchanger and the refrigerant-inlet of the first air/refrigerant heat exchanger, and it is structured so as to cause an expansion of the refrigerant directed towards the first air/refrigerant heat exchanger.

[0026] Furthermore and preferably, though not necessarily, said heat-pump type, hot-air generator furthermore comprises a number of connecting pipes that connect the first heat exchanger, the second heat exchanger, the refrigerant compressing device and the refrigerant expansion device to one another; and that at least one of said elongated member consists in one of said connecting pipes.

[0027] Furthermore and preferably, though not necessarily, at least one of said elongated member consists in an electric wire or similar that sticks out of the lower supporting base or socle through a pass-through opening.

[0028] Furthermore and preferably, though not necessarily, at least one of said elongated member consists in a sensor, probe and/or other oblong element that extend in pass-through manner across a corresponding pass-through opening.

[0029] Furthermore and preferably, though not necessarily, said drum is supported by a plurality of rollers.

[0030] A non-limiting embodiment of the present invention will now be described by way of example with reference to the accompanying drawings, in which:

- Figure 1 shows in perspective view a rotary-drum home laundry dryer realized in accordance with the teachings of the present invention;

- Figure 2 shows in perspective view the lower side part of the Figure 1 laundry-dryer;
- Figure 3 shows in perspective view the supporting base or socle of the Figure 1 laundry-dryer;
- Figure 4 shows in perspective view the upper half-shell and the lower half-shell of the supporting base or socle of the Figure 3;
- Figure 5 is an enlarged view of the upper half-shell of the Figure 4 of the supporting base or socle of the Figure 1 laundry-dryer wherein the one or more lids are in the open position;
- Figure 6 is an enlarged view of the upper half-shell of the Figure 4 of the supporting base or socle of the Figure 1 laundry-dryer wherein the one or more lids are in the closed position;
- Figure 7 is an enlarged view of the one or more lids in the open position of Figure 5; and
- Figure 8 is an enlarged view of the one or more lids in the closed position of Figure 6.

[0031] With reference to Figures 1 and 2, number 1 indicates as a whole a preferably household, rotary-drum laundry dryer which comprises:

- a preferably, though not necessarily, parallelepiped-shaped outer boxlike casing 2 structured for resting on the floor;
- a substantially cylindrical, revolving drum 3 structured for housing the laundry to be dried, and which is fixed in axially rotating manner inside the boxlike casing 2, directly facing a laundry loading/unloading through opening formed in the front wall of casing 2; and
- a porthole door 4 hinged to the front wall of casing 2 to rotate about a preferably, though not necessarily, vertically-oriented reference axis, to and from a closing position in which the door 4 rests completely against the front wall to close the laundry loading/unloading opening and substantially airtight seal the revolving drum 3.

[0032] Inside the boxlike casing 2, the rotary-drum laundry dryer 1 additionally comprises an electric motor 5 which is mechanically connected to the revolving drum 3 for driving into rotation the drum 3 about its longitudinal axis; a closed circuit, hot-air generator 6 which is structured to circulate through the revolving drum 3 a stream of hot air having a low moisture level, and which flows over and dries the laundry located inside drum 3; and finally an electronic control unit (not shown in the Figures)

which controls both the electric motor 5 and the hot-air generator 6 to perform one of the user-selectable drying cycles preferably, though not necessarily, stored in the same control unit.

[0033] With reference to Figures 1 and 2, the boxlike casing 2 preferably comprises a substantially parallelepiped-shaped lower supporting base or socle 9 which is structured for resting on the floor and for housing at least part of the hot-air generator 6; and a substantially parallelepiped-shaped upper boxlike cabinet 10 which is rigidly fixed to the lower supporting base or socle 9 and it is structured so as to house the revolving drum 3.

[0034] In the example shown, the revolving drum 3 preferably extends inside the boxlike cabinet 10 coaxial to a substantially horizontally-oriented longitudinal reference axis L, and rests on a number of substantially horizontally oriented, front and rear idle supporting rollers 11 which are located in pairs substantially at the two axial ends of the revolving drum 3, and are fixed in free revolving manner to the casing 2 so as to allow the revolving drum 3 to freely rotate about its reference axis L inside the boxlike cabinet 10.

[0035] With reference to Figure 2, the front and rear idle supporting rollers 11 are preferably fixed in free revolving manner directly on top of the lower supporting base or socle 9.

[0036] The laundry loading/unloading opening of casing 2 is therefore realized in the front wall of the upper boxlike cabinet 10, and the porthole door 4 is hinged to the front wall of the aforesaid upper boxlike cabinet 10.

[0037] With reference to Figures 2, 3 and 4, the hot-air generator 6 is of a heat-pump type, wherein the heat-pump assembly 14 comprises:

- a first air/refrigerant heat exchanger 15 which is located along the air recirculating conduit 12 and is structured for cooling down the airflow f arriving from revolving drum 3 to condense and restrain the surplus moisture in the airflow f;
- a second air/refrigerant heat exchanger 16 which is located along the air recirculating conduit 12, downstream of heat exchanger 15, and which is structured for heating the airflow f arriving from heat exchanger 15 and directed back to revolving drum 3, so that the airflow f re-entering into revolving drum 3 is heated to a temperature higher than or equal to that of the air flowing out of revolving drum 3;
- an electrically-powered refrigerant compressing device 17 which is interposed between the refrigerant-outlet of heat exchanger 15 and the refrigerant-inlet of heat exchanger 16, and which is structured for compressing the gaseous-state refrigerant directed towards heat exchanger 16 so that refrigerant pressure and temperature are much higher at the refrigerant-inlet of heat exchanger 16 than at the refrigerant-outlet of heat exchanger 15; and

- an expansion valve or similar passive/operated refrigerant expansion device 18 (for example a capillary tube, a thermostatic valve or an electrically-controlled expansion valve) which is interposed between the refrigerant-outlet of heat exchanger 16 and the refrigerant-inlet of heat exchanger 15, and it is structured so as to cause an expansion of the refrigerant directed towards the first air/refrigerant heat exchanger 15, so that refrigerant pressure and temperature are much higher at the refrigerant-outlet of heat exchanger 16 than at the refrigerant-inlet of heat exchanger 15.

[0038] The heat-pump assembly 14 is further provided with a number of connecting pipes 23 which connect the two heat exchangers 15 and 16, the refrigerant compressing device 17 and the refrigerant expansion device 18 to one another, so as to allow the refrigerant to continuously flow in closed loop from the refrigerant compressing device 17 in sequence to the second air/refrigerant heat exchanger 16, to the refrigerant expansion device 18, to the first air/refrigerant heat exchanger 15, and finally return back to the refrigerant compressing device 17.

[0039] The air/refrigerant heat exchanger 15 is conventionally referred to as the "evaporator" or "gas-heater" of the heat-pump assembly 14, and it is structured so that the airflow *f* arriving from revolving drum 3 and the low-pressure and low temperature refrigerant directed to the suction of the refrigerant compressing device 17 can flow through it simultaneously, allowing the refrigerant having a temperature lower than that of the airflow *f*, to absorb heat from the airflow *f*, thus causing condensation of the surplus moisture in the airflow *f* arriving from revolving drum 3.

[0040] The air/refrigerant heat exchanger 16, in turn, is conventionally referred to as the "condenser" or "gas-cooler" of the heat-pump assembly 14, and it is structured so that the airflow *f* directed back into revolving drum 3 and the high-pressure and high-temperature refrigerant arriving from the delivery of the refrigerant compressing device 17 can flow through it simultaneously, allowing the refrigerant having a temperature greater than that of the airflow *f* to release heat to the airflow *f*, thus heating the airflow *f* directed back into the revolving drum 3.

[0041] With reference to Figures 3 and 4, in the example shown, a central/intermediate segment 12c of the air recirculating conduit 12 extends in pass-through manner across the lower supporting base or socle 9, and the evaporator 15 and condenser 16 of the heat-pump assembly 14 are fitted/recessed, one downstream the other along the flowing direction of the airflow *f*, into the central/intermediate segment 12c of the air recirculating conduit 12. The central/intermediate segment 12c is therefore shaped/dimensioned so as to house both the evaporator 15 and the condenser 16 of the heat-pump assembly 14.

[0042] In the example shown, the central/intermediate segment 12c of the air recirculating conduit 12 preferably

extends inside the lower supporting base or socle 9 substantially horizontally.

[0043] Instead the refrigerant compressing device 17 and the refrigerant expansion device 18 of the heat-pump assembly 14 are preferably fixed/recessed on the lower supporting base or socle 9, beside the central/intermediate segment 12c of the air recirculating conduit 12.

[0044] With reference to Figures 1, 2 and 4, a centrifugal fan 13 of hot-air generator 6, in turn, is preferably located outside of the lower supporting base or socle 9, preferably at one of the two end-openings of the central/intermediate segment 12c of air recirculating conduit 12, so to directly communicate with, i.e. be flowingly/fluidly connected to, both the central segment 12c of the air recirculating conduit 12 and the inside of revolving drum 3.

[0045] In the example shown, the centrifugal fan 13 is preferably located on the back of the lower supporting base or socle 9, at the exit end-opening or outlet of the central/intermediate segment 12c of the air recirculating conduit 12, i.e. downstream of both evaporator 15 and condenser 16 of the heat-pump assembly 14.

[0046] In addition to the above, with reference to Figure 4, the lower supporting base or socle 9 of outer casing 2 is preferably formed/composed by a lower half-shell 9a which is structured for resting on the floor, and by an upper half-shell 9b which in turn is structured for being stacked up on top of, and rigidly coupled to, the lower half-shell 9a, so to preferably directly support the upper boxlike cabinet 10 and preferably also the front and rear idle rollers 11 that support in free revolving manner the revolving drum 3.

[0047] The lower half-shell 9a and the upper half-shell 9b are furthermore shaped so as to form, when coupled to one another, substantially the whole central/intermediate segment 12c of the air recirculating conduit 12 which houses, one downstream the other along the flowing direction of the airflow *f*, both the evaporator 15 and the condenser 16 of the heat-pump assembly 14.

[0048] In the example shown, the lower half-shell 9a and the upper half-shell 9b are preferably structured/shaped so as to firmly accommodate in between themselves the evaporator 15 and the condenser 16 of the heat-pump assembly 14 when coupled to one another to form/compose the lower supporting base or socle 9 of outer casing 2.

[0049] In other words, the lower half-shell 9a and upper half-shell 9b are shaped so as to form the two halves of the central segment 12c of the air recirculating conduit 12, and are structured for being substantially airtight coupled to one another, so as to compose/form the whole central segment 12c of the air recirculating conduit 12, and contemporaneously directly accommodate in between themselves the evaporator 15 and the condenser 16.

[0050] In the example shown, the lower half-shell 9a and the upper half-shell 9b are both preferably, though not necessarily, made of plastic material preferably by means of an injection molding process.

[0051] With reference to Figures 4, 5 and 6, the lower supporting base or socle 9 is furthermore provided with one or more pass-through openings 19a through which corresponding elongated members 19 stick out of the segment 12c of the air recirculating conduit 12.

[0052] With reference to Figures 4, 5 and 7, the pass-through openings 19a of the lower supporting base or socle 9 consist in one or more transversal pass-through slots or recesses 19a which are suitably dimensioned for being engaged in pass-through manner by the connecting pipes 23 of heat-pump assembly 14 that connect the evaporator 15 and the condenser 16 of the heat-pump assembly 14 to the refrigerant compressing device 17 and the refrigerant expansion device 18. The pass-through slots or recesses 19a are made on the lower half-shell 9a and/or on the upper half-shell 9b, along a coupling edge 20 between the lower and upper half-shells 9a, 9b. Each pass-through slots or recesses 19a extends in a transversal direction relative to the path of the coupling edge 20.

[0053] In the example shown, at least one of the elongated member 19 consists in one of said connecting pipes 23; in particular at least one of the elongated member 19 may consists in an electric wire or similar that sticks out of the lower supporting base or socle 9 through a pass-through opening 19a. In particular, at least one of the elongated member 19 may consists in a sensor, probe and/or other oblong element that extend in pass-through manner across a corresponding pass-through opening 19a.

[0054] With reference to Figures 5, 6, 7 and 8 the laundry dryer 1 is additionally provided with some lids or covers 9c, each of them being configured for respectively covering at least a portion of the pass-through openings 19a, the lids 9c being integrated with the lower supporting base or socle 9. That means that each lid 9c is a member-piece solidly associated to the lower supporting base or socle 9 so as to form a single unitary piece therewith, not detachable from it. The lids or covers 9c are structured for being associated on the lower supporting base or socle 9, immediately above at least one of the aforesaid pass-through openings 19a.

[0055] Each lid 9c is movable from a first position in which it covers at least a portion of one or more of the pass-through openings 19a (Figure 5 and Figure 7 which is an enlarged view of Figure 5) to a second position in which it uncovers the one or more pass-through openings 19a (Figure 6 and Figure 8 which is an enlarged view of Figure 6).

[0056] In the example shown, the lids 9c are integrated with the lower supporting base or socle 9 through a hinge member 22 (Figure 7). Preferably, the hinge member 22 is formed as an interconnecting layer 21 interposed between each of the lids 9c and the lower supporting base or socle 9, the interconnecting layer 21 having a lower thickness compared to the thickness of the lids 9c and/or the lower supporting base or socle 9.

[0057] In the example shown, a rotational axis of the

hinge member 22 is substantially parallel to a coupling direction of the lower and upper half-shells 9a, 9b.

[0058] In the example shown, each of the lids 9c is placed between the coupling edge 20 of the lower and upper half-shells 9a, 9b and the elongated members 19.

[0059] In other words, each of the lids 9c is structured for covering a gap formed between the edge of the lower supporting base or socle 9 delimiting the lids 9c and the elongated members 19. The lid or cover 9c serves to prevent/minimize the air leakages through the gaps formed between the edge of the lower supporting base or socle 9 delimiting the pass-through opening 19a and the at least one connecting pipe 23 that sticks out from the same pass-through opening 19a.

[0060] In the example shown, the lids 9c and/or the lower supporting base or socle 9 are made of a polymeric material via an injection molding process.

[0061] In the example shown, the electric motor 5 is preferably fixed/recessed on the lower supporting base or socle 9 so that its drive shaft (not show in the Figures) sticks out from the back of the lower supporting base or socle 9, at the end-opening of the central segment 12c of the air recirculating conduit 12; and the centrifugal fan 13, which is preferably located on the back of the lower supporting base or socle 9, is mechanically connected to the electric motor 5 through its drive shaft.

[0062] The evaporator 15 and the condenser 16 are located, one downstream the other, inside the first portion of the central segment 12c of the air recirculating conduit 12; whereas the refrigerant compressing device 17 and the electric motor 5 are preferably fixed/recessed on the lower supporting base or socle 9, aligned one after the other in a direction locally substantially parallel to the longitudinal axis L of revolving drum 3, beside the first portion of the central segment 12c of the air recirculating conduit 12, so that the drive shaft of electric motor 5 sticks out from the back of the lower supporting base or socle 9, at the end of the second portion of the central segment 12c of the air recirculating conduit 12.

[0063] In the example shown, electric motor 5 and refrigerant compressing device 17 are preferably fixed/recessed directly onto the lower half-shell 9a, beside the first portion of the central segment 12c of the air recirculating conduit 12.

[0064] As regards the pass-through slots or recesses 19a, they are made on the flank of the upper half-shell 9b that is directly faced to the refrigerant compressing device 17 and the electric motor 5.

[0065] General operation of the rotary-drum home laundry drier 1 is clearly inferable from the above description, with no further explanation required.

[0066] Clearly, changes may be made to the rotary-drum laundry drier 1 as described herein without, however, departing from the scope of the present invention.

[0067] For example, in an alternative embodiment the closed-circuit, hot-air generator 6 may consist of a forced-air, hot-air generator in which the cooling of the airflow f arriving from the revolving drum 3 is performed via a cold

airflow arriving from the outside of casing 2.

[0068] Additionally one or more pass-through openings 19a are realized on the lower supporting base or socle 9 to allow the passage of electric wires that, for example, power a heating device or transmit signals from a sensor or probe in contact with an airflow path to the electronic control unit.

[0069] In another embodiment not shown in the Figures, one single cover 9c may be configured for respectively covering at least a portion of more than one pass-through openings 19a.

Claims

1. Rotary-drum laundry dryer (1) comprising a revolving drum (3) adapted to receive laundry to be dried, a hot-air generator (6) structured to circulate an airflow (f) through said revolving drum (3), and a lower supporting base or socle (9) which is structured for resting on the floor and for housing at least part of the hot-air generator (6);
the hot-air generator (6) comprising: an air recirculating conduit (12) allowing said airflow (f) to flow through the revolving drum (3) and through at least one heat exchanger (15) located along said air recirculating conduit (12) for condensing moisture inside the airflow (f);
a segment (12c) of the air recirculating conduit (12) extending across the lower supporting base or socle (9), and being structured so as to house said at least one heat exchanger (15); said lower supporting base or socle (9) being furthermore provided with one or more pass-through openings (19a) through which corresponding elongated members (19) stick out of said segment (12c) of the air recirculating conduit (12);
the laundry dryer (1) **being characterized by further** comprising one or more lids (9c) configured for respectively covering at least a portion of one or more of said pass-through openings (19a), said one or more lids (9c) being integrated with said lower supporting base or socle (9).
2. Rotary-drum laundry dryer according to Claim 1, **characterized in that** each of said one or more lids (9c) is movable from a first position in which it covers said at least a portion of one or more of said pass-through openings (19a) to a second position in which it uncovers said one or more pass-through openings (19a).
3. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** each of said one or more lids (9c) is integrated with said lower supporting base or socle (9) through a hinge member (22).
4. Rotary-drum laundry dryer according to claim 3, **characterized in that** the hinge member (22) is formed as an interconnecting layer (21) interposed between said one or more lids (9c) and the lower supporting base or socle (9), the interconnecting layer (21) having a lower thickness compared to the thickness of the one or more lids (9c) and/or the lower supporting base or socle (9).
5. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** each of said one or more lids (9c) is structured for covering a gap formed between an edge (20) of the lower supporting base or socle (9) delimiting said one or more lids (9c) and the at least one elongated member (19).
6. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** the lower supporting base or socle (9) comprises a lower half-shell (9a) which is structured for resting on the floor, and at least one upper half-shell (9b) which is structured/shaped for being stacked up on top of, and rigidly coupled to, said lower half-shell (9a), so to form at least a portion of said segment (12c) of the air recirculating conduit (12).
7. Rotary-drum laundry dryer according Claim 6 when dependant from claim 3 or 4, **characterized in that** a rotational axis of said hinge member (22) is substantially parallel to a coupling direction of said lower and upper half-shells (9a, 9b).
8. Rotary-drum laundry dryer according Claim 6 or 7 **characterized in that** each of said one or more lids (9c) is placed between the coupling edge (20) of the lower and upper half-shells (9a, 9b) and one or more of said elongated members (19).
9. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** said one or more lids (9c) and/or the lower supporting base or socle (9) are made of a polymeric material via an injection molding process.
10. Rotary-drum laundry dryer according to any claim 6 to 9, **characterized in that** the pass-through openings (19a) of the lower supporting base or socle (9) consist in one or more pass-through slots or recesses (19a) made on the lower half-shell (9a) and/or on the at least one upper half-shell (9b), along a coupling edge (20) between said half-shells (9a, 9b).
11. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** the hot-air generator (6) is a heat-pump type, hot-air generator (6) which comprises:

- a first air/refrigerant heat exchanger (15) which is located inside said segment (12c) of the air recirculating conduit (12), and is structured for cooling down the airflow (f) arriving from the revolving drum (3) to condense and restrain the surplus moisture in the airflow (f); 5
 - a second air/refrigerant heat exchanger (16) which is located inside said segment (12c) of the air recirculating conduit (12), downstream of the first air/refrigerant heat exchanger (15), and which is structured for heating the airflow (f) arriving from the first air/refrigerant heat exchanger (15) and directed back to the revolving drum (3); 10
 - a refrigerant compressing device (17) which is interposed between the refrigerant-outlet of the first air/refrigerant heat exchanger (15) and the refrigerant-inlet of the second air/refrigerant heat exchanger (16), and which is structured for compressing the gaseous-state refrigerant directed towards the second air/refrigerant heat exchanger (16); and 15
 - a refrigerant expansion device (18) which is interposed between the refrigerant-outlet of the second air/refrigerant heat exchanger (16) and the refrigerant-inlet of the first air/refrigerant heat exchanger (15), and it is structured so as to cause an expansion of the refrigerant directed towards the first air/refrigerant heat exchanger (15). 20
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12. Rotary-drum laundry dryer according to Claim 11, **characterized in that** said heat-pump type, hot-air generator (6) furthermore comprises a number of connecting pipes (23) that connect the first heat exchanger (15), the second heat exchanger (16), the refrigerant compressing device (17) and the refrigerant expansion device (18) to one another; and that at least one of said elongated member (19) consists in one of said connecting pipes (23). 35
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13. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** at least one of said elongated member (19) consists in an electric wire or similar that sticks out of the lower supporting base or socle (9) through a pass-through opening (19a). 45
14. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** at least one of said elongated member (19) consists in a sensor, probe and/or other oblong element that extend in pass-through manner across a corresponding pass-through opening (19a). 50
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15. Rotary-drum laundry dryer according to any one of the foregoing claims, **characterized in that** said drum (3) is supported by a plurality of rollers (11).

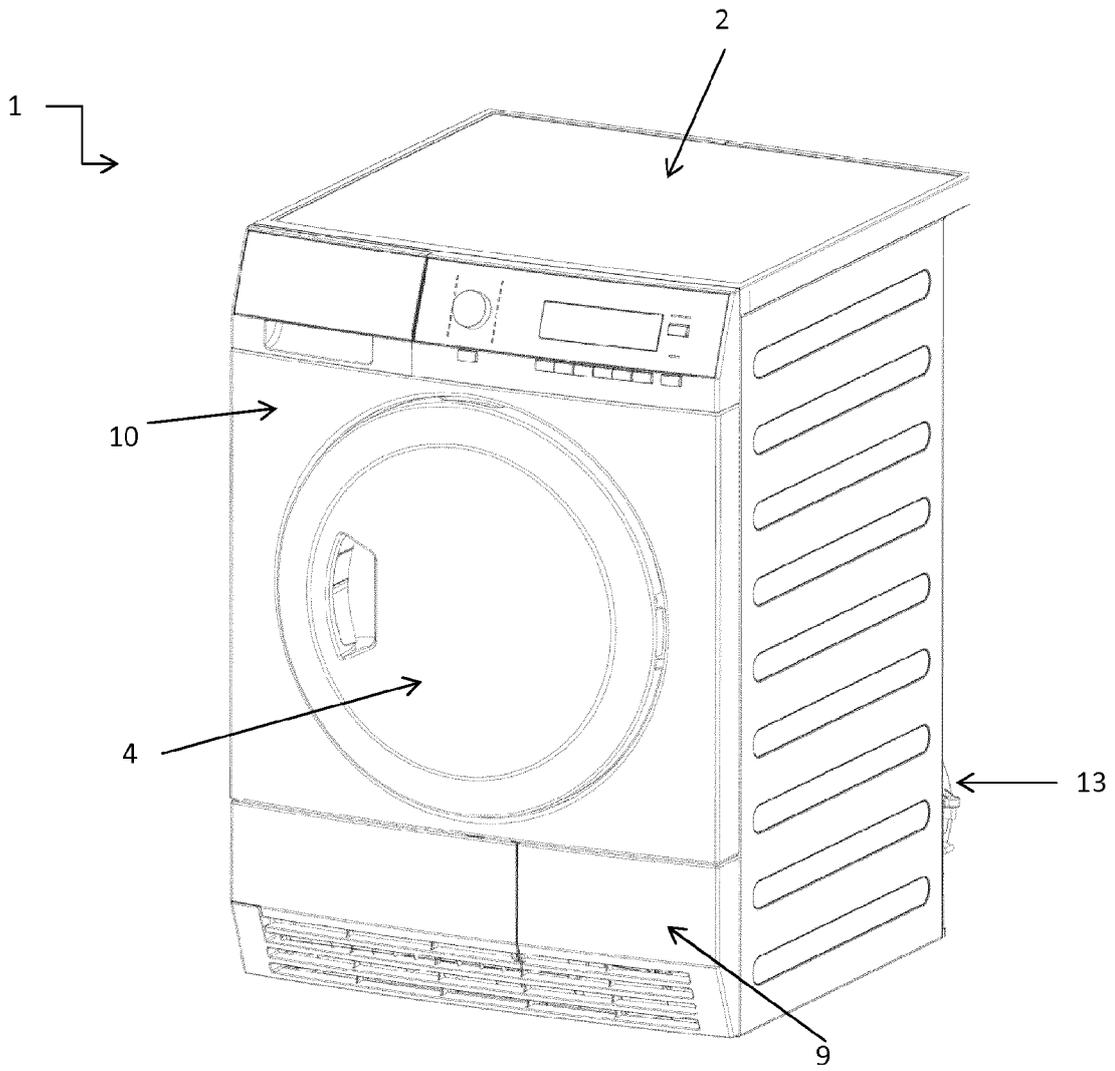


Figure 1

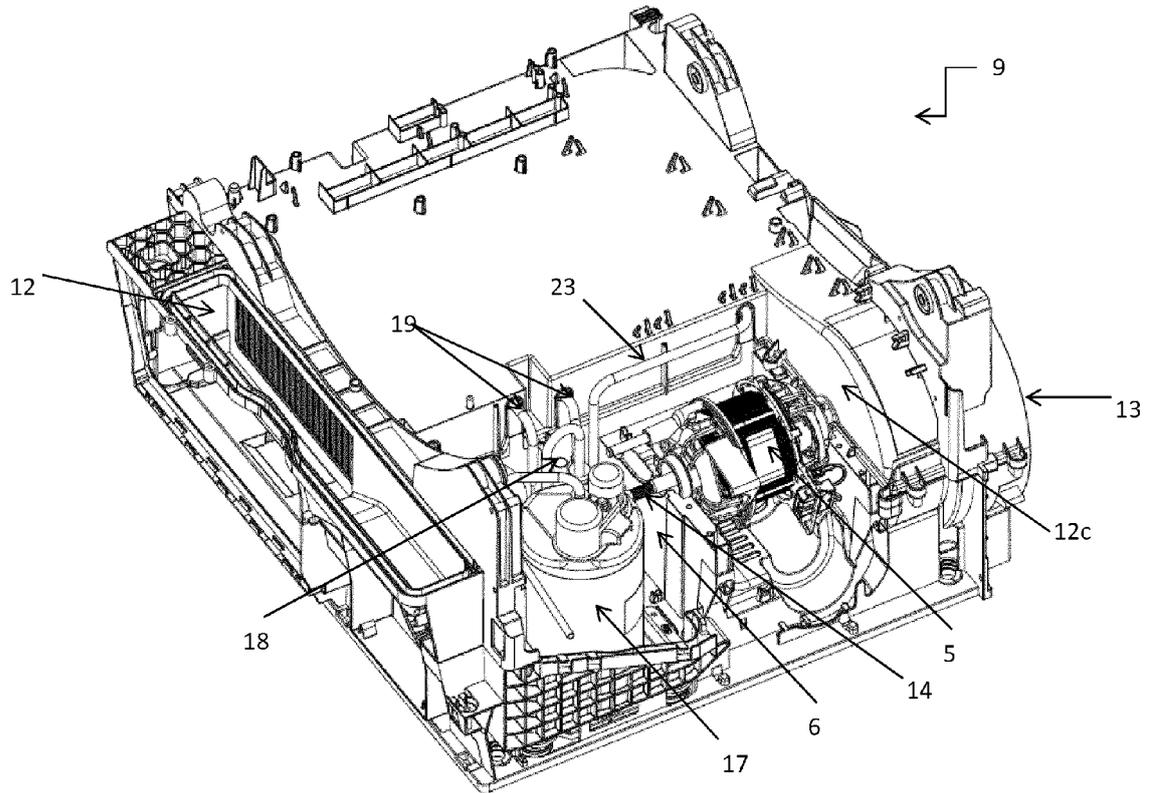


Figure 3

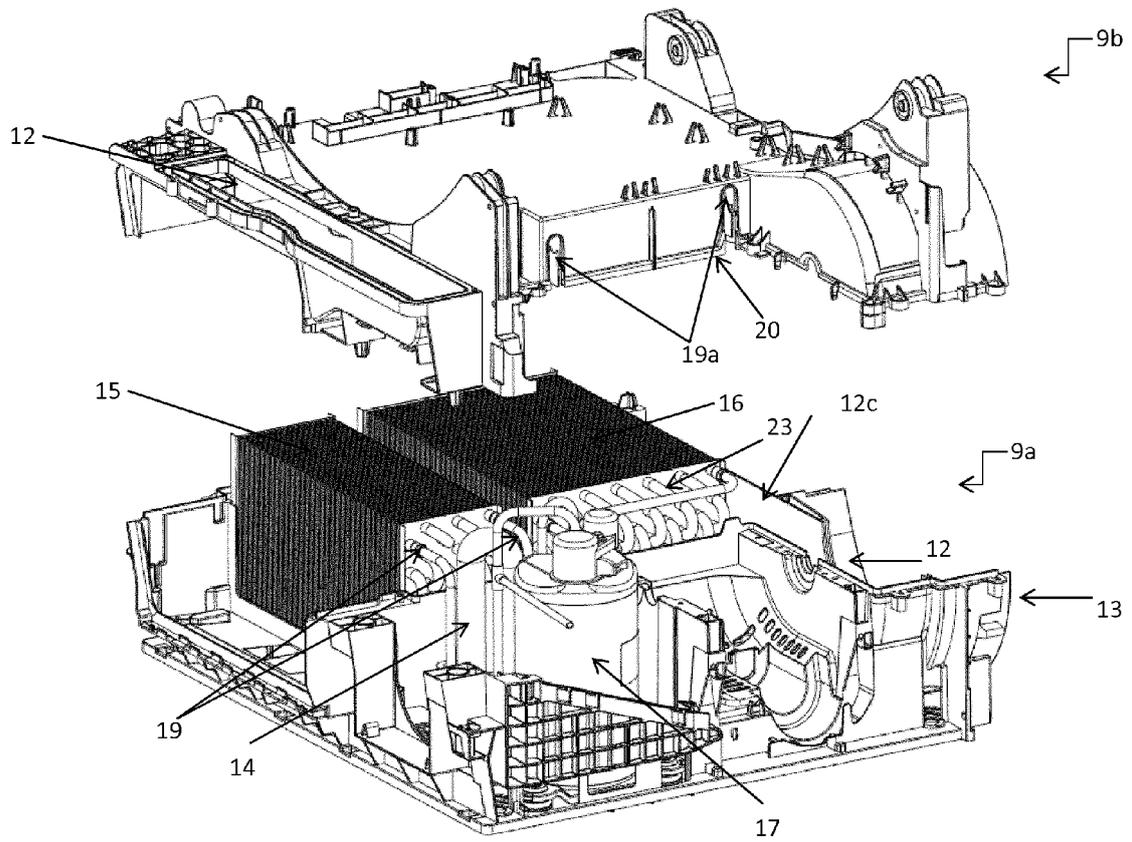


Figure 4

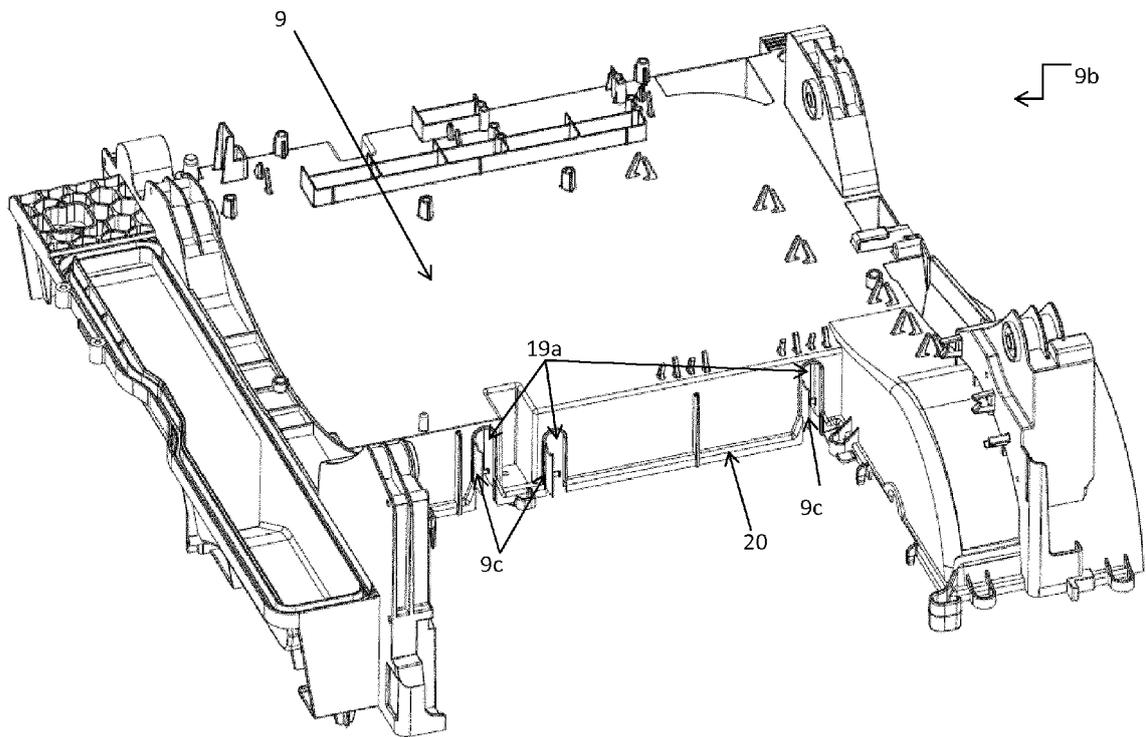


Figure 5

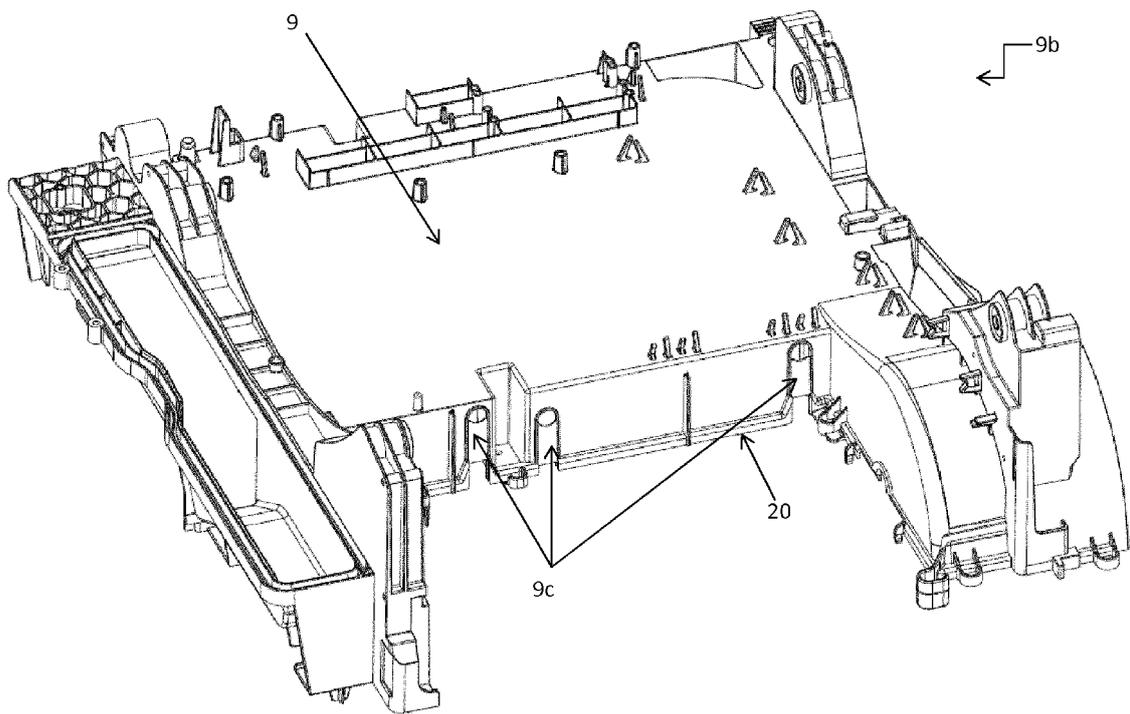


Figure 6

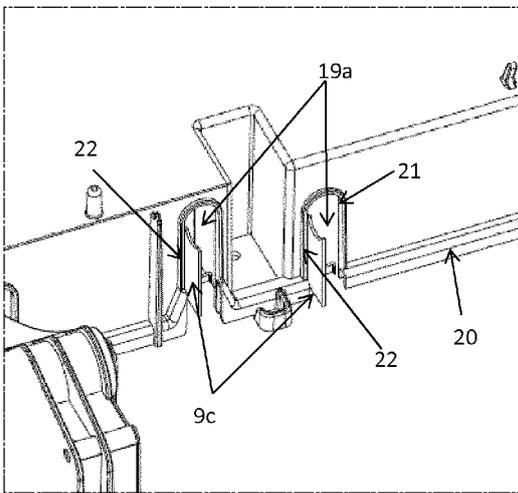


Figure 7

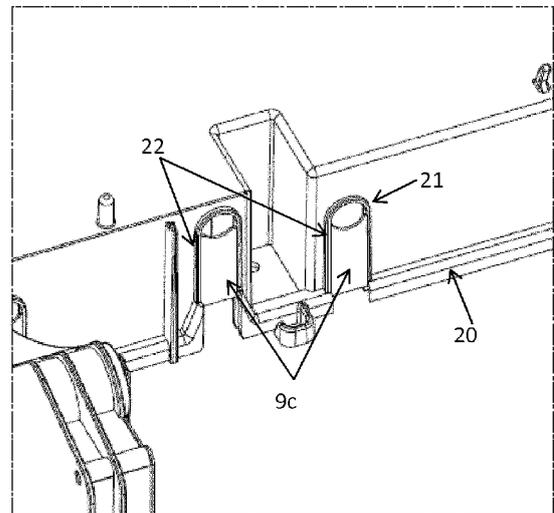


Figure 8

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

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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
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05-03-2013

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REFERENCES CITED IN THE DESCRIPTION

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