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(54) **CONDENSER FOR DRYING DEVICE, AND DRYING DEVICE**

(57) A condenser for a drying device, and a drying device. A water stop structure (5) is provided on a side wall of a hollow chamber of the condenser to break up a cooling water flow into spray; moreover, a first arc-shaped structure (11), a second arc-shaped structure (12), and a flow distribution structure (13) are provided on a front side wall; a left side wall (14) and a right side wall (15) of the hollow chamber are both configured to be arc-shaped; air entering from an air inlet (3) is divided into a first airflow (7) and a second airflow (8), which then rotationally rise. The travel paths of the first airflow (7) and the second airflow (8) in the body of the condenser become longer, and thus, the cooling effect can be improved; the two airflows rising rotationally carry the cooling spray formed by breakup to form "cyclone"-like spray in the condenser, by controlling the amount of cooling water, vortex-like spray having a certain liquid level is formed in the condenser, and when the airflows pass here, lint is trapped in the spray; the bottom of the condenser is flushed in real time by means of the continuously moving spray, and thus, the lint filtering effect can be improved.

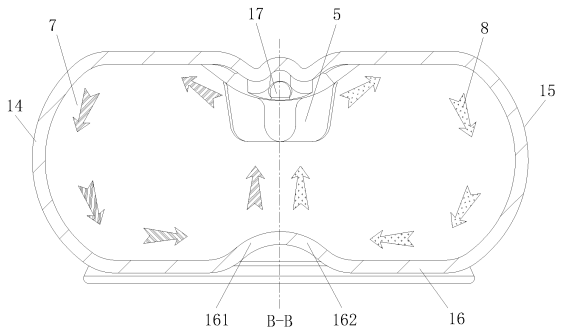

FIG. 6

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Description

FIELD

[0001] The present disclosure belongs to the technical field of drying devices, and specifically provides a condenser for a drying device, and a drying device.

BACKGROUND

[0002] A drying device refers to a machine that can use hot air to dry clothing. The drying device mainly includes a washing-drying integrated machine, a drying machine or a dryer, etc.

[0003] Taking the washing-drying integrated machine as an example, it is an intelligent device on which rinsing, spinning and drying functions are integrated at the same time. Due to its special advantages such as high cost-effectiveness, strong spatial inclusiveness, and time-saving and labor-saving due to washing-drying integration, the washing-drying integrated machine is very popular with users in the home appliance market.

[0004] Currently, the self-cleaning problem of lint in the washing-drying integrated machine is still a major difficulty faced by the industry. Due to the constant mutual friction of clothing in a drum, lint, fluff and the like will be generated. These lint-like impurities will continuously circulate with airflow in the system, resulting in the phenomenon of attaching to and blocking various components such as a drying module. Over time, a drying time of the machine will be prolonged, thus causing secondary pollution to the clothing, affecting the service life of the entire machine, and lowering the user experience in use.

[0005] In the prior art, a filter screen is often arranged midway in a circulating air path to block clothing lint generated during drying. However, due to the limited structural area at the position where the filter screen is arranged, a blocking effect of the filter screen on the lint is poor.

[0006] Accordingly, there is a need for a new technical solution in the art to solve the above problem.

SUMMARY

[0007] In order to solve the above problem in the prior art, that is, to solve the problem of poor filtering effect of the filtering devices of existing drying devices on the lint, the present disclosure provides a condenser for a drying device; the condenser includes a body, in which a hollow chamber is formed; a water blocking structure is arranged on an inner wall of the hollow chamber to break up a cooling water flow flowing into the hollow chamber; a first arc-shaped structure, a second arc-shaped structure, and a splitting structure located between the first arc-shaped structure and the second arc-shaped structure are also arranged on a front sidewall of the hollow chamber; an air inlet is formed on a rear sidewall of the hollow chamber; a left sidewall of the hollow chamber is configured into an arc shape, and two ends of the left sidewall are smoothly connected with the first arc-shaped structure and the rear sidewall respectively; a right sidewall of the hollow chamber is configured into an arc shape, and two ends of the right sidewall are smoothly connected with the second arc-shaped structure and the rear sidewall respectively; the splitting structure is opposite to the air inlet, and the splitting structure is arranged to be capable of splitting a gas entering from the air inlet into a first airflow and a second airflow, and enable the first airflow and the second airflow to respectively enter the first arc-shaped structure and the second arc-shaped structure substantially in a tangential direction of the first arc-shaped structure and a tangential direction of the second arc-shaped structure respectively, thus enabling the first airflow to rotationally rise along the first arc-shaped structure, the left sidewall, and a left part of the rear sidewall, and enabling the second airflow to rotationally rise along the second arc-shaped structure, the right sidewall, and a right part of the rear sidewall.

[0008] In a preferred technical solution of the condenser described above, the water blocking structure is arranged close to the splitting structure.

[0009] In a preferred technical solution of the condenser described above, a water guide channel is arranged on the front sidewall, and a bottom end of the water guide channel is connected with the water blocking structure.

[0010] In a preferred technical solution of the condenser described above, the water blocking structure is arranged on the front sidewall and has a triangular shape, and a centerline of the water blocking structure coincides with a centerline of the splitting structure so that the cooling water is evenly broken up.

[0011] In a preferred technical solution of the condenser described above, the water blocking structure is a water blocking protrusion formed on the front sidewall.

[0012] In a preferred technical solution of the condenser described above, a first arc-shaped guide structure and a second arc-shaped guide structure are arranged on the rear sidewall, so that the first airflow and the second airflow can flow smoothly toward the first arc-shaped structure and the second arc-shaped structure respectively.

[0013] In a preferred technical solution of the condenser described above, the splitting structure is symmetrically arranged left and right, and a centerline of the splitting structure coincides with a centerline of the air inlet so that the first airflow and the second airflow have substantially the same volume.

[0014] In a preferred technical solution of the condenser described above, the splitting structure includes a first arc-shaped splitting part and a second arc-shaped splitting part; one end of the first arc-shaped splitting part is smoothly connected with the first arc-shaped structure, the other end of the first arc-shaped splitting part is smoothly connected with one end of the second arc-shaped splitting part, and the other end of the second arc-shaped splitting part is smoothly connected with the

second arc-shaped structure.

[0015] In a preferred technical solution of the condenser described above, a baffle is arranged at the air inlet to reduce an air inflow area of the air inlet.

[0016] In another aspect, the present disclosure also provides a drying device, which includes the condenser described above.

[0017] It can be understood by those skilled in the art that in the preferred technical solutions of the present disclosure, a water blocking structure is arranged on the sidewall of the hollow chamber of the condenser to break up the cooling water flow into water sprays. The water sprays not only can flush the sidewall of the hollow chamber at the same time when a drying program is executed, but also can dissolve the lint carried in the circulating airflow in the water sprays. In addition, a first arc-shaped structure, a second arc-shaped structure and a splitting structure are arranged on the front sidewall, and the left sidewall and the right sidewall of the hollow chamber are each configured into an arc shape. The gas entering from the air inlet is split into a first airflow and a second airflow by the splitting structure, and the first airflow and the second airflow can rotationally rise. Through such an arrangement, a travel of the first airflow and the second airflow in the body of the condenser is lengthened, so that the cooling effect can be improved. Moreover, the two rotationally rising airflows, in which the broken-up cooling water sprays are carried, form "whirlwind"-like water sprays in the condenser. By controlling the volume of cooling water, vortex-like water sprays with a certain liquid level are formed in the condenser. When the airflows pass through this position, the lint dissolves in the water sprays. Meanwhile, at the air inlet where the accumulation of lint is most likely to occur, the constantly fluctuating water sprays flush the bottom of the condenser in real time, which can improve a filtering effect on the lint.

[0018] Further, the water blocking structure is arranged close to the splitting structure. Through such an arrangement, the cooling water can immediately meet two streams of spiral airflow after being broken up, which can achieve better lint filtering and condensation effects.

[0019] Further, the water blocking structure is also arranged on the front sidewall of the hollow chamber, and the water blocking structure is triangular, with the centerline of the water blocking structure coinciding with the centerline of the splitting structure, so that the cooling water is evenly broken up. Through such an arrangement, the two streams of spiral airflow can carry substantially the same volume of cooling water sprays for rising, so that dehumidifying and filtering are more uniform, further improving the filtering effect on the lint and the condensation effect on the airflows.

[0020] Further, the splitting structure is symmetrically arranged left and right, and the centerline of the splitting structure coincides with the centerline of the air inlet. Through such an arrangement, the first airflow and the second airflow can have substantially the same volume. In this way, when the first airflow and the second airflow meet at a position close to the rear sidewall, they will not scatter each other; instead, they can flow in parallel toward the front sidewall under interaction, and then respectively enter the first arc-shaped structure and the second arc-shaped structure arranged on the front sidewall.

[0021] Further, a first arc-shaped guide structure and a second arc-shaped guide structure are arranged on the rear sidewall, so that the first airflow and the second airflow can flow smoothly toward the first arc-shaped structure and the second arc-shaped structure respectively. Through such an arrangement, under the guidance of the first arc-shaped guide structure and the second arc-shaped guide structure, it is possible to avoid direct head-on collision between the first airflow and the second airflow. When the first airflow and the second airflow meet, a movement trend of the first airflow and a movement trend of the second airflow are both toward the front sidewall. Therefore, after the first airflow and the second airflow meet, they can interact with each other, so that the first airflow moves toward the first arc-shaped structure, and the second airflow moves toward the second arc-shaped structure.

[0022] In addition, the drying device further provided by the present disclosure on the basis of the above technical solutions, due to the adoption of the above condenser, has the technical effects of the above condenser. As compared with the existing drying devices, the drying device of the present disclosure can better filter the lint and has a higher drying efficiency.

BRIEF DESCRIPTION OF DRAWINGS

[0023] Preferred embodiments of the present disclosure will be described below with reference to the accompanying drawings and in connection with a dryer; in the drawings:

FIG. 1 is a first schematic perspective view of the condenser of the present disclosure;

FIG. 2 is a second schematic perspective view of the condenser of the present disclosure;

FIG. 3 is a front view of the condenser of the present disclosure;

FIG. 4 is a cross-sectional view of a first embodiment taken along line A-A in FIG. 3;

FIG. 5 is a cross-sectional view of a second embodiment taken along line A-A in FIG. 3;

FIG. 6 is a cross-sectional view taken along line B-B in FIG. 3;

FIG. 7 is a cross-sectional view taken along line C-C in FIG. 3;

FIG. 8 is a side view of the condenser of the present disclosure; and

FIG. 9 is a cross-sectional view taken along line D-D in FIG. 8.

List of reference signs:

[0024] 1: body; 2: air outlet; 3: air inlet; 4: water inlet; 5: water blocking structure; 6: baffle; 7: first airflow; 8: second airflow; 11: first arc-shaped structure; 12: second arc-shaped structure; 13: splitting structure; 14: left sidewall; 15: right sidewall; 16: rear sidewall; 17: water guide channel; 131: first arc-shaped splitting part; 132: second arc-shaped splitting part; 161: first arc-shaped guide structure; 162: second arc-shaped guide structure.

DETAILED DESCRIPTION

[0025] Preferred embodiments of the present disclosure will be described below with reference to the accompanying drawings. It should be understood by those skilled in the art that these following embodiments are only used to explain the technical principle of the present disclosure, and are not intended to limit the scope of protection of the present disclosure. For example, although the following embodiments are described in connection with a washing-drying integrated machine, the present disclosure is also applicable to other drying devices, such as a drying machine or a dryer, etc. Such adjustments and changes to the application object do not deviate from the principle and scope of the present disclosure, and should all be defined within the scope of protection of the present disclosure.

[0026] It should be noted that in the description of the present disclosure, terms indicating directional or positional relationships, such as "upper", "lower", "left", "right", "front", "rear", "top", "bottom", "inner", "outer" and the like, are based on the directional or positional relationships shown in the accompanying drawings. They are only used for ease of description, and do not indicate or imply that the device or element must have a specific orientation, or be constructed or operated in a specific orientation; therefore, they should not be considered as limitations to the present disclosure. In addition, terms "first" and "second" are merely used for descriptive purpose, and should not be understood as indicating or implying relative importance.

[0027] In addition, it should also be noted that in the description of the present disclosure, unless otherwise clearly specified and defined, terms "install", "connect" and "connection" should be understood in a broad sense; for example, the connection may be a fixed connection, or may also be a detachable connection, or an integral connection; it may be a mechanical connection, or an electrical connection; it may be a direct connection, or an indirect connection implemented through an intermediate medium, or it may be internal communication between two elements. For those skilled in the art, the specific meaning of the above terms in the present disclosure can be interpreted according to specific situations.

[0028] In view of the problem of poor filtering effect of the filtering devices of existing washing-drying integrated machines on the lint pointed out in the "BACKGROUND", the present disclosure provides a condenser for a washing-drying integrated machine, and a washing-drying integrated machine, aiming to filter the lint through the condenser.

[0029] The washing-drying integrated machine of the present disclosure includes a cabinet, in which a drum, a condenser, a fan, a heater and an air pipe are arranged; the heater is installed in the air pipe, one end of the air pipe is communicated with the drum, the other end of the air pipe is communicated with an air outlet of the fan, and the fan is installed between the condenser and the air pipe.

[0030] When the washing-drying integrated machine executes a drying program, under the action of the fan, air can circulate between the drum, the condenser and the heater; under the action of the heater, dry air is heated into dry hot air, which then enters the drum along the air pipe to exchange heat with wet clothing and take away moisture in the clothing, forming relatively humid hot air, which then enters the condenser; due to the condensation effect of the condenser, the moisture in the relatively humid hot air is condensed into water, and the condensed air becomes relatively dry cold air, which then enters the air pipe and is heated by the heater to become dry hot air before entering the next cycle. This cycle is repeated again and again until the drying program is completed.

[0031] Hereinafter, a detailed description will first be given to the structure of the condenser of the present disclosure with reference to FIGS. 1 and 2. FIG. 1 is a first schematic perspective view of the condenser of the present disclosure, and FIG. 2 is a second schematic perspective view of the condenser of the present disclosure.

[0032] As shown in FIGS. 1 and 2, the condenser of the present disclosure includes a body 1 and a cooling water pipe (not shown). An upper part of the body 1 is provided with an air outlet 2, a lower part of the body 1 is provided with an air inlet 3, and an interior of the body 1 is formed with a hollow chamber. The top of the hollow chamber is communicated with the air outlet 2, and the bottom of the hollow chamber is communicated with the air inlet 3.

[0033] With continued reference to FIGS. 1 and 2, the upper part of the body 1 of the condenser is also provided with a water inlet 4, which is communicated with the hollow chamber, and a water outlet end of the cooling water pipe is communicated with the water inlet 4. The water inlet 4 can be arranged in a middle position of the body 1, or on left and right sides of the body 1.

[0034] When the washing-drying integrated machine executes the drying program, cooling water can be provided to the interior of the hollow chamber of the con-

denser through the cooling water pipe. The humid hot air discharged from the drum enters the hollow chamber from the air inlet 3 and exchanges heat with the cooling water in the hollow chamber. The moisture in the humid hot air is condensed into water, and the condensed air becomes relatively dry cold air, which is then discharged through the air outlet 2. The cooling water and the condensed water are discharged from the air inlet 3 at the lower part.

[0035] Next, referring to FIGS. 3 to 9, a detailed description will be given to the main structures arranged in the hollow chamber. FIG. 3 is a front view of the condenser of the present disclosure, FIG. 4 is a cross-sectional view of a first embodiment taken along line A-A in FIG. 3, FIG. 5 is a cross-sectional view of a second embodiment taken along line A-A in FIG. 3, FIG. 6 is a cross-sectional view taken along line B-B in FIG. 3, FIG. 7 is a cross-sectional view taken along line C-C in FIG. 3, FIG. 8 is a side view of the condenser of the present disclosure, and FIG. 9 is a cross-sectional view taken along line D-D in FIG. 8.

[0036] As shown in FIGS. 6 to 9, a water blocking structure 5 is arranged on the sidewall of the hollow chamber. When the cooling water flowing into the hollow chamber reaches the water blocking structure 5, it is broken into water sprays. The water sprays not only can flush the sidewall of the hollow chamber at the same time when the drying program is executed, but also can dissolve the lint carried in the circulating airflow in the water sprays. Then, the lint flows out with the condensed water from the air inlet 3 and is finally discharged from the machine through a drainage pipe.

[0037] Through such an arrangement, in addition to achieving condensation, the condenser can also filter the lint, reduce continuous circulation of the lint in the drying system, "purify" the airflow carrying the lint, reduce the phenomenon of the lint attaching to various components such as a drying module, and reduce the phenomenon of the lint blocking a drying air duct.

[0038] The water blocking structure 5 may be a water blocking rib, a water blocking lump, or a water blocking plate, etc. Such adjustments and changes to the specific structural form of the water blocking structure 5 do not deviate from the principle and scope of the present disclosure, and should all be defined within the scope of protection of the present disclosure.

[0039] With continued reference to FIGS. 3 to 6, a first arc-shaped structure 11, a second arc-shaped structure 12, and a splitting structure 13 located between the first arc-shaped structure 11 and the second arc-shaped structure 12 are arranged on a front sidewall of the hollow chamber. A left sidewall 14 and a right sidewall 15 of the hollow chamber are both configured into an arc shape, two ends of the left sidewall 14 are smoothly connected with the first arc-shaped structure 11 and a left end of a rear sidewall 16 respectively, and two ends of the right sidewall 15 are smoothly connected with the second arc-shaped structure 12 and a right end of the rear sidewall 16 respectively.

[0040] With continued reference to FIGS. 3 to 6, the air inlet 3 is arranged on the rear sidewall 16 of the hollow chamber, and the splitting structure 13 is opposite to the air inlet 3. Through such an arrangement, the gas entering from the air inlet 3 can just hit the splitting structure 13. The splitting structure 13 can split the airflow into two streams of airflow, denoted as a first airflow 7 and a second airflow 8. The first airflow 7 can enter the first arc-shaped structure 11 substantially in a tangential direction of the first arc-shaped structure 11. Under the pushing of subsequent airflow, the first airflow 7 can rotate counterclockwise and rise along the first arc-shaped structure 11, the left sidewall 14, and a left part of the rear sidewall 16. The second airflow 8 can enter the second arc-shaped structure 12 substantially in a tangential direction of the second arc-shaped structure 12. Under the pushing of subsequent airflow, the second airflow 8 can rotate clockwise and rise along the second arc-shaped structure 12, the right sidewall 15, and a right part of the rear sidewall 16.

[0041] It can be understood that the hollow chamber includes two gas channels. The first arc-shaped structure 11, the left sidewall 14 and the left part of the rear sidewall 16 form the first gas channel. The second arc-shaped structure 12, the right sidewall 15 and the right part of the rear sidewall 16 form the second gas channel. After entering the hollow chamber from the air inlet 3, the gas is split into the first airflow 7 and the second airflow 8 by the splitting structure 13. The first airflow 7 can rotationally rise along an inner wall of the first gas channel, and the second airflow 8 can rotationally rise along an inner wall of the second gas channel.

[0042] In the condenser of the present disclosure, the splitting structure 13 is innovatively provided on the front sidewall of the hollow chamber. The splitting structure 13 splits the gas entering from the air inlet 3 into the first airflow 7 and the second airflow 8, so that the first airflow 7 and the second airflow 8 rotationally rise respectively. By causing the first airflow 7 and the second airflow 8 to rotationally rise, the travel of the first airflow 7 and the second airflow 8 in the body 1 of the condenser becomes longer, thus improving the cooling effect.

[0043] Moreover, the two rotationally rising airflows, in which the broken-up cooling water sprays are carried, form "whirlwind"-like water sprays in the condenser. By controlling the volume of cooling water, vortex-like water sprays with a certain liquid level are formed in the condenser. When the airflows pass through this position, the lint dissolves in the water sprays. Meanwhile, at the air inlet 3 where the accumulation of lint is most likely to occur, the constantly fluctuating water sprays flush the bottom of the condenser in real time, which can improve a filtering effect on the lint. After the program runs stably, the volumes of cooling water flowing in and out of the condenser reach dynamic equilibrium.

[0044] Preferably, as shown in FIGS. 7 to 9, the water blocking structure 5 is arranged close to the splitting

structure 13. By arranging the water blocking structure 5 close to the splitting structure 13, the cooling water can immediately meet two streams of spiral airflow after being broken up, which can achieve better lint filtering and condensation effects.

[0045] In addition, through such an arrangement, the water blocking structure 5 can also be kept away from the air outlet 2, thus preventing the water sprays from being splashed to the fan from the air outlet 2, and also preventing the water sprays from being carried by the airflows into the drum to cause low drying efficiency.

[0046] Continued reference is made to FIGS. 4 and 5, both of which are cross-sectional views taken along line A-A in FIG. 3. FIGS. 4 and 5 show two splitting structures 13 with different shapes, and these two splitting structures 13 are both preferred embodiments of the present disclosure.

[0047] It should be noted that although the specific shapes of the splitting structure 13 shown in FIG. 4 and the splitting structure 13 shown in FIG. 5 are different, both the splitting structure 13 in FIG. 4 and the splitting structure 13 in FIG. 5 are symmetrically arranged left and right, and centerlines thereof coincide with a centerline of the air inlet 3. Through such an arrangement, the first airflow 7 and the second airflow 8 can have substantially the same volume. In this way, when the first airflow 7 and the second airflow 8 meet at a position close to the rear sidewall 16, they will not scatter each other; instead, they can flow together in parallel toward the front sidewall under interaction, and then respectively enter the first arc-shaped structure 11 and the second arc-shaped structure 12 arranged on the front sidewall.

[0048] It can be seen from FIG. 4 that the splitting structure 13 shown in FIG. 4 includes a first arc-shaped splitting part 131 and a second arc-shaped splitting part 132. A left end of the first arc-shaped splitting part 131 is smoothly connected with the first arc-shaped structure 11, a right end of the first arc-shaped splitting part 131 is smoothly connected with a left end of the second arc-shaped splitting part 132, and a right end of the second arc-shaped splitting part 132 is smoothly connected with the second arc-shaped structure 12. The gas entering from the air inlet 3 hits the splitting structure 13 and is split into the first airflow 7 and the second airflow 8. The first airflow 7 flows toward the first arc-shaped structure 11 along the first arc-shaped splitting part 131, and the second airflow 8 flows toward the second arc-shaped structure 12 along the second arc-shaped splitting part 132.

[0049] It can be seen from FIG. 5 that the splitting structure 13 in FIG. 5 is a structure composed of the right end part of the first arc-shaped structure 11 and the left end part of the second arc-shaped structure 12. The gas entering from the air inlet 3 hits the splitting structure 13 and is split into the first airflow 7 and the second airflow 8. The first airflow 7 directly flows into the first arc-shaped structure 11, and the second airflow 8 directly flows into the second arc-shaped structure 12.

[0050] With continued reference to FIG. 6, a first arc-shaped guide structure 161 and a second arc-shaped guide structure 162 are arranged on the rear sidewall 16 of the hollow chamber. Under the guidance of the first arc-shaped guide structure 161, the first airflow 7 can smoothly flow toward the first arc-shaped structure 11. Similarly, under the guidance of the second arc-shaped guide structure 162, the second airflow 8 can also smoothly flow toward the second arc-shaped structure 12.

[0051] Through such an arrangement, under the guidance of the first arc-shaped guide structure 161 and the second arc-shaped guide structure 162, it is possible to avoid direct head-on collision between the first airflow 7 and the second airflow 8. When the first airflow 7 and the second airflow 8 meet, a movement trend of the first airflow 7 and a movement trend of the second airflow 8 are both toward the front sidewall. Therefore, after the first airflow 7 and the second airflow 8 meet, they can interact with each other, so that the first airflow 7 can smoothly move toward the first arc-shaped structure 11, and the second airflow 8 can smoothly move toward the second arc-shaped structure 12.

[0052] It should be noted that in order to ensure that the first airflow 7 and the second airflow 8 can each rotationally rise independently, a middle partition may be provided in the hollow chamber. A front side of the middle partition is smoothly connected with the first arc-shaped structure 11 and the second arc-shaped structure 12 respectively, and a rear side of the middle partition is smoothly connected with the left part and the right part of the rear sidewall 16 respectively. By providing the middle partition, the hollow chamber can be divided into two chambers. The first airflow 7 can rotationally rise along an inner wall of the chamber on the left side, and the second airflow 8 can rotationally rise along an inner wall of the chamber on the right side.

[0053] With continued reference to FIGS. 6 to 9, a water guide channel 17 is also arranged on the front sidewall of the hollow chamber. A top end of the water guide channel 17 is connected with the water inlet 4, and a bottom end of the water guide channel 17 is connected with the water blocking structure 5. When the washing-drying integrated machine executes the drying program, cooling water is supplied into the hollow chamber through the cooling water pipe. After entering the water guide channel 17, the cooling water flows downward along the water guide channel 17. When the cooling water flows to the water blocking structure 5, it is broken up into water sprays.

[0054] Preferably, as shown in FIGS. 6 to 9, the water blocking structure 5 is also arranged on the front sidewall of the hollow chamber, and the water blocking structure 5 is triangular. The top end of the water blocking structure 5 is aligned with the bottom end of the water guide channel 17, and the centerline of the water blocking structure 5 coincides with the centerline of the splitting structure 13 so that the cooling water is evenly broken up.

[0055] Through such an arrangement, the two streams of spiral airflow can carry substantially the same volume of cooling water sprays for rising, so that dehumidifying and filtering are more uniform, further improving the filtering effect on the lint and the condensation effect on the airflows. The water blocking structure 5 is preferably a water blocking protrusion formed on the front sidewall.

[0056] Preferably, as shown in FIGS. 1 and 3, baffles 6 are provided at the air inlet 3 to reduce an air inflow area of the air inlet 3. Exemplarily, the number of the baffles 6 is two, and the two baffles 6 are located on left and right sides of the air inlet 3 respectively.

[0057] By providing the baffles 6, the air inflow area of the air inlet 3 is reduced. As the airflows pass through this position, the cross section of flow channel rapidly narrows, and the speed of airflows increases, providing greater momentum for the two spirally rising airflows, and thereby increasing a spirally rising height of the airflows.

[0058] Hitherto, the technical solutions of the present disclosure have been described in connection with the preferred embodiments shown in the accompanying drawings, but it is easily understood by those skilled in the art that the scope of protection of the present disclosure is obviously not limited to these specific embodiments. Without departing from the principles of the present disclosure, those skilled in the art can make equivalent changes or replacements to relevant technical features, and all the technical solutions after these changes or replacements will fall within the scope of protection of the present disclosure.

Claims

1. A condenser for a drying device, the condenser comprising a body, in which a hollow chamber is formed, wherein:

   a water blocking structure is arranged on a sidewall of the hollow chamber to break up a cooling water flow flowing into the hollow chamber;
   a first arc-shaped structure, a second arc-shaped structure, and a splitting structure located between the first arc-shaped structure and the second arc-shaped structure are also arranged on a front sidewall of the hollow chamber;
   an air inlet is formed on a rear sidewall of the hollow chamber;
   a left sidewall of the hollow chamber is configured into an arc shape, and two ends of the left sidewall are smoothly connected with the first arc-shaped structure and the rear sidewall respectively;
   a right sidewall of the hollow chamber is configured into an arc shape, and two ends of the right sidewall are smoothly connected with the second arc-shaped structure and the rear sidewall respectively;
   wherein the splitting structure is opposite to the air inlet, and the splitting structure is arranged to be capable of splitting a gas entering from the air inlet into a first airflow and a second airflow, and enable the first airflow and the second airflow to respectively enter the first arc-shaped structure and the second arc-shaped structure substantially in a tangential direction of the first arc-shaped structure and a tangential direction of the second arc-shaped structure respectively, thus enabling the first airflow to rotationally rise along the first arc-shaped structure, the left sidewall, and a left part of the rear sidewall, and enabling the second airflow to rotationally rise along the second arc-shaped structure, the right sidewall, and a right part of the rear sidewall.

2. The condenser according to claim 1, wherein the water blocking structure is arranged close to the splitting structure.

3. The condenser according to claim 2, wherein a water guide channel is arranged on the front sidewall, and a bottom end of the water guide channel is connected with the water blocking structure.

4. The condenser according to claim 3, wherein the water blocking structure is arranged on the front sidewall and has a triangular shape, and a centerline of the water blocking structure coincides with a centerline of the splitting structure so that the cooling water is evenly broken up.

5. The condenser according to claim 4, wherein the water blocking structure is a water blocking protrusion formed on the front sidewall.

6. The condenser according to claim 1, wherein a first arc-shaped guide structure and a second arc-shaped guide structure are also arranged on the rear sidewall, so that the first airflow and the second airflow can flow smoothly toward the first arc-shaped structure and the second arc-shaped structure respectively.

7. The condenser according to claim 1, wherein the splitting structure is symmetrically arranged left and right, and a centerline of the splitting structure coincides with a centerline of the air inlet so that the first airflow and the second airflow have substantially the same volume.

8. The condenser according to claim 1, wherein the splitting structure comprises a first arc-shaped splitting part and a second arc-shaped splitting part; one end of the first arc-shaped splitting part is smoothly connected with the first arc-shaped structure, the

other end of the first arc-shaped splitting part is smoothly connected with one end of the second arc-shaped splitting part, and the other end of the second arc-shaped splitting part is smoothly connected with the second arc-shaped structure.

9. The condenser according to any one of claims 1 to 8, wherein a baffle is arranged at the air inlet to reduce an air inflow area of the air inlet.

10. A drying device, comprising the condenser according to any one of claims 1 to 9.

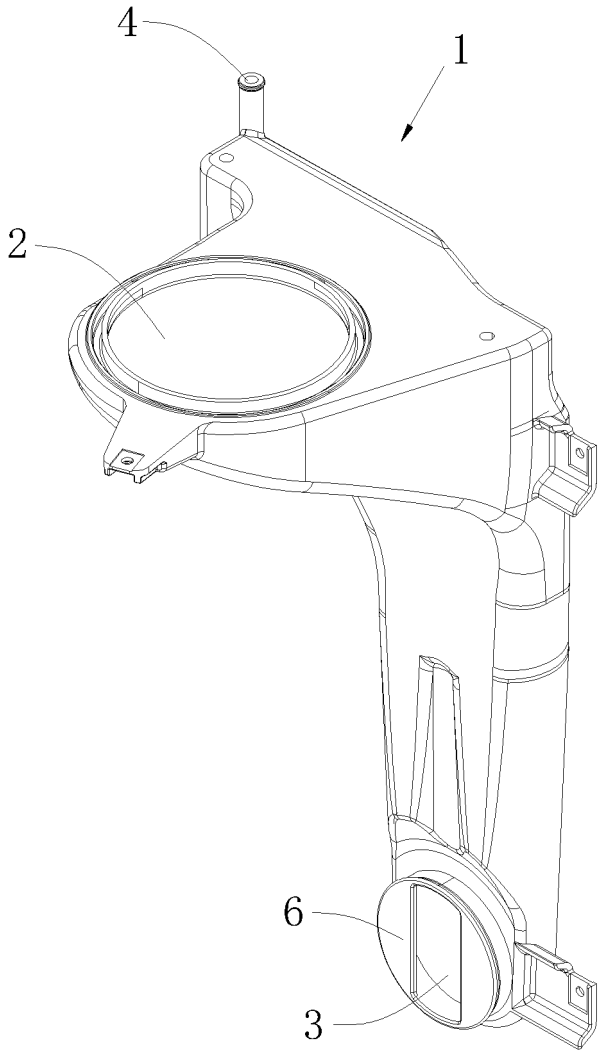

FIG. 1

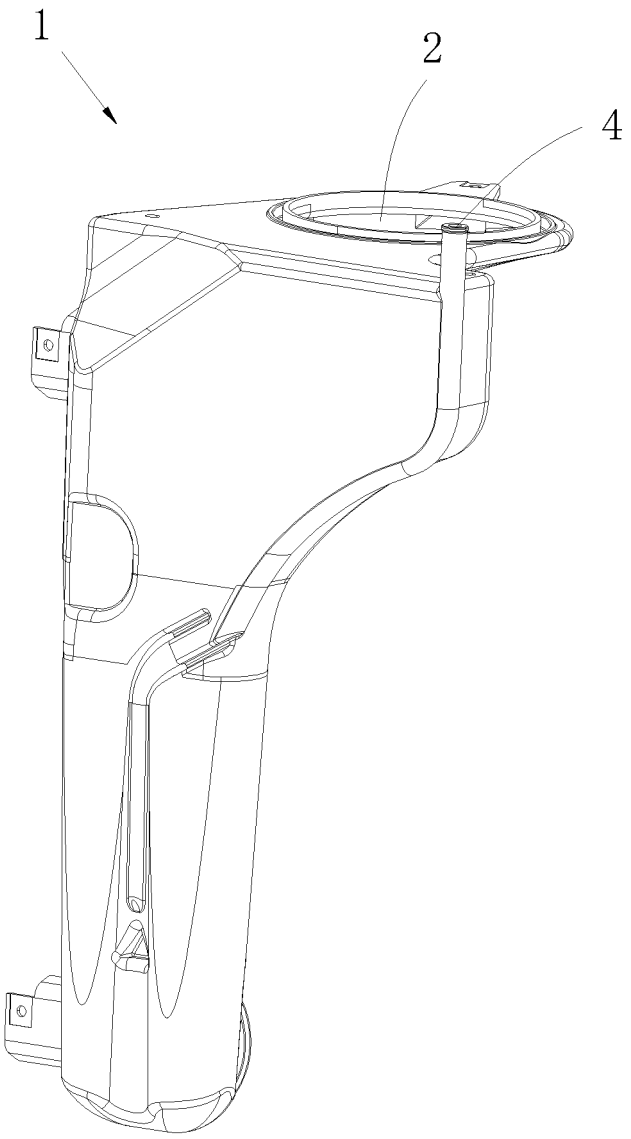

FIG. 2

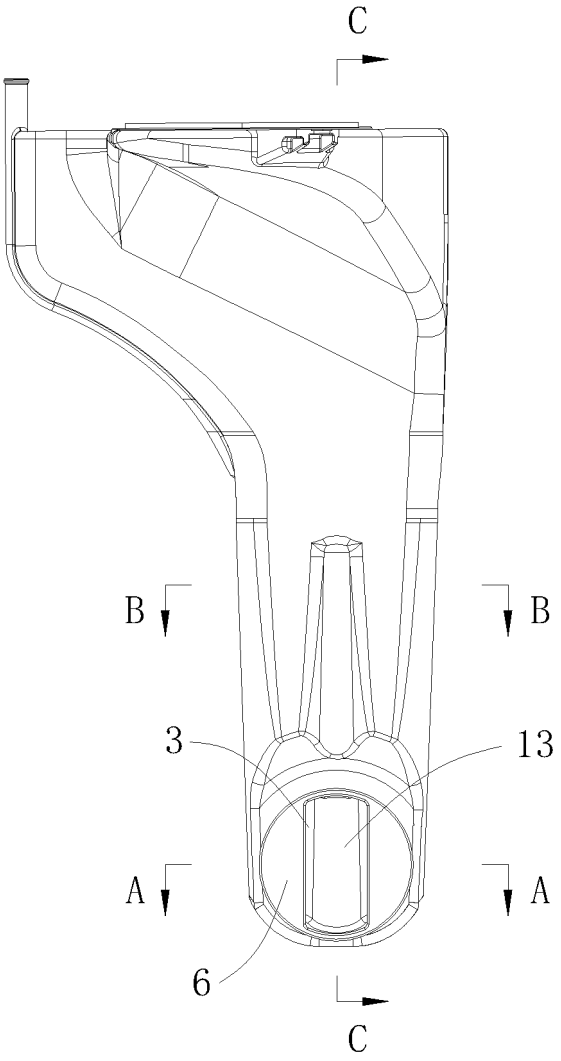

FIG. 3

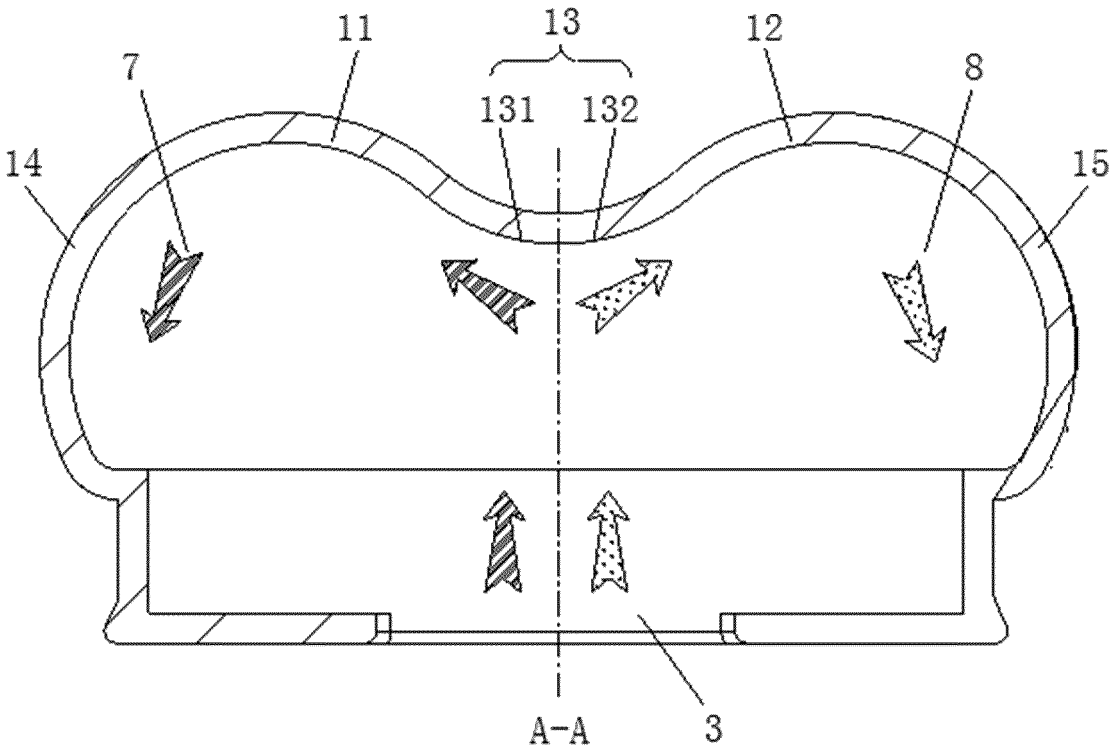

FIG. 4

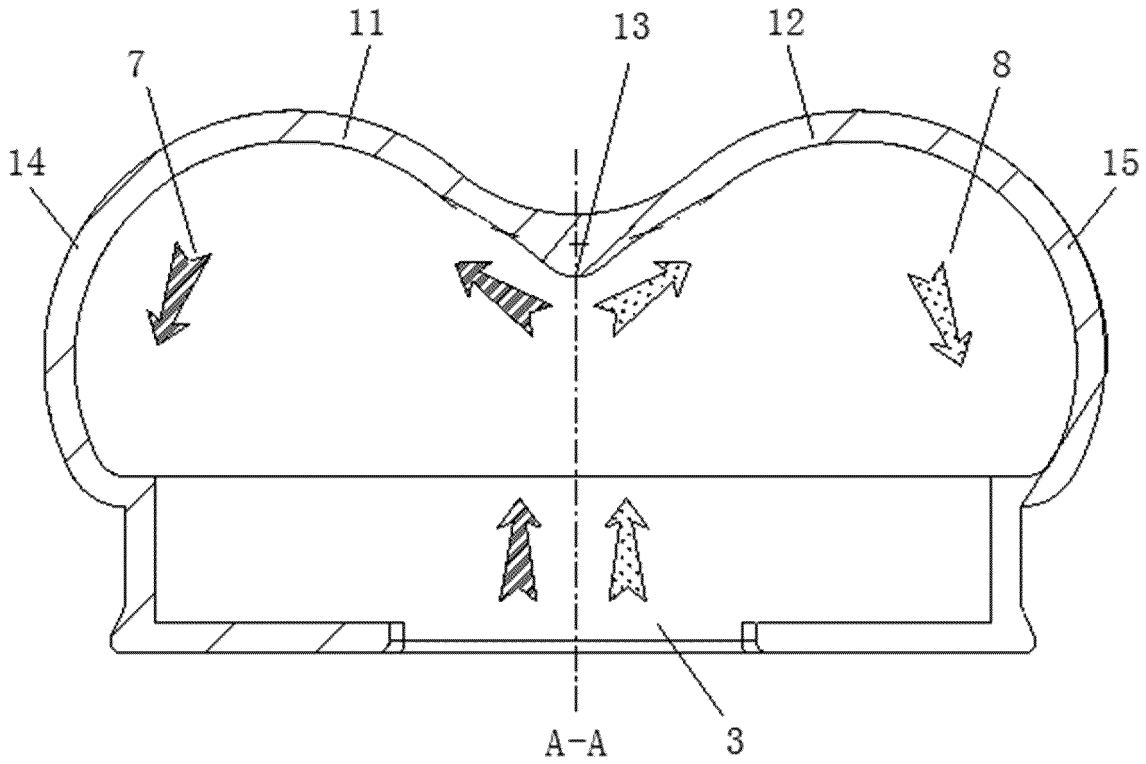

FIG. 5

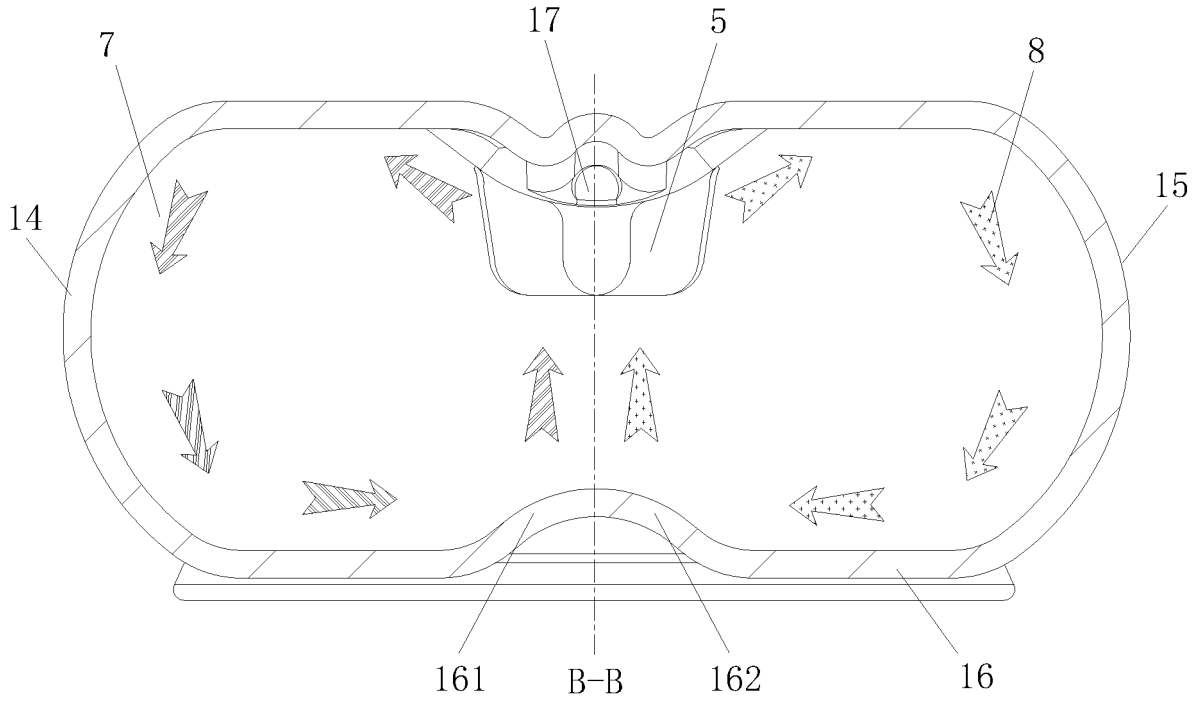

FIG. 6

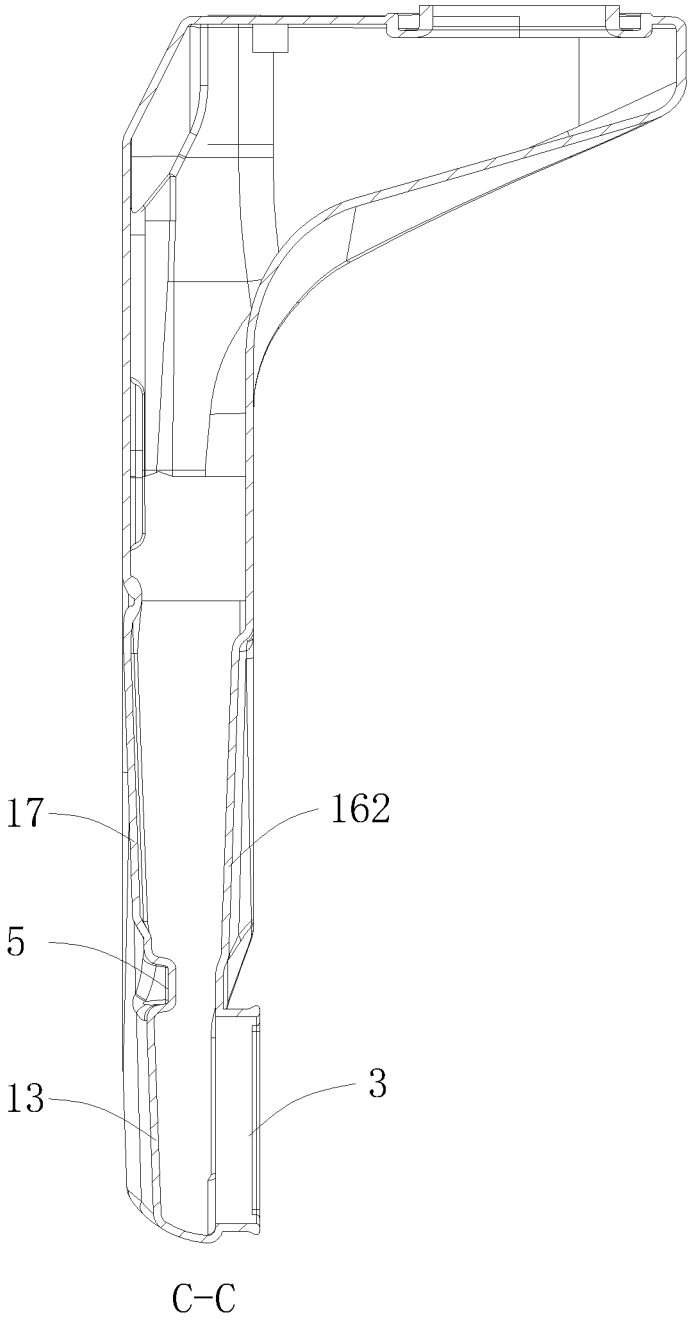

FIG. 7

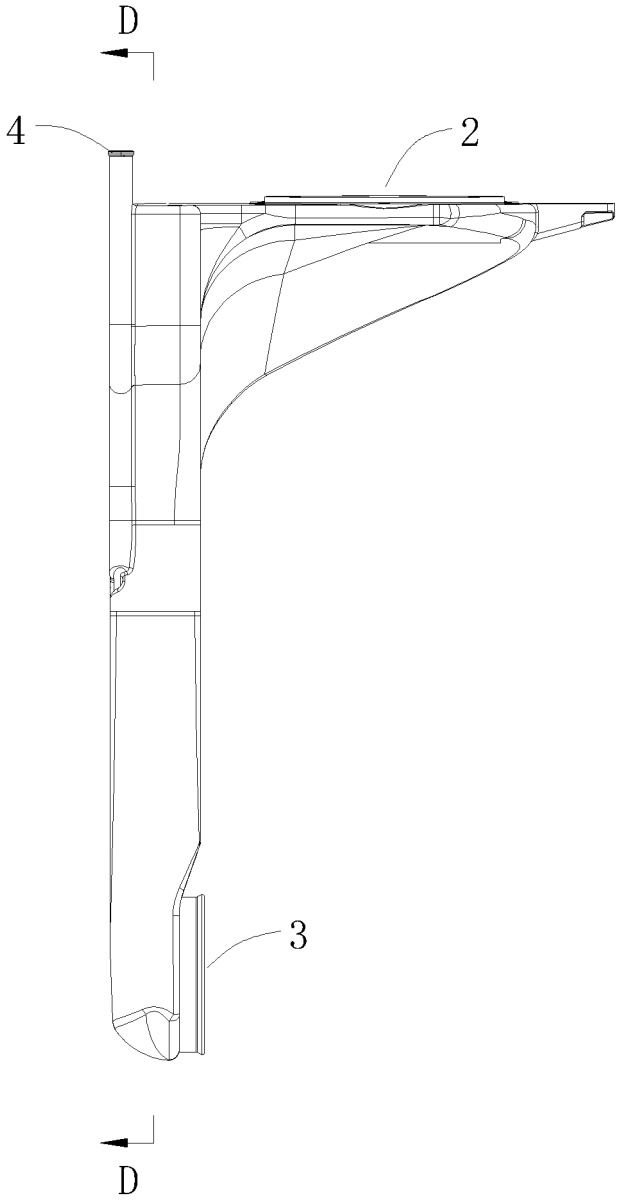

FIG. 8

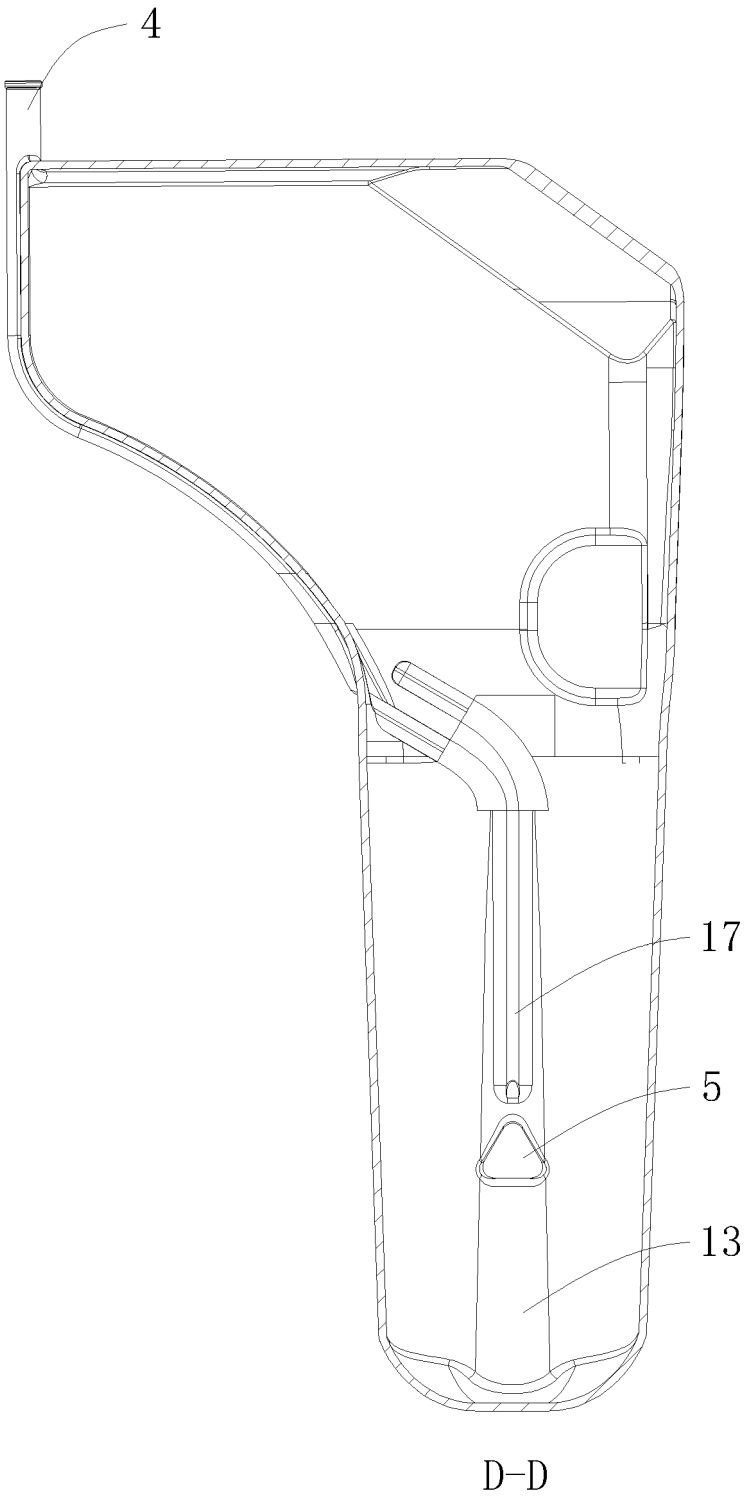

FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2022/072578

A. CLASSIFICATION OF SUBJECT MATTER

D06F 58/24(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

D06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNABS, CNTXT, DWPI, SIPOABS, CNKI: 冷凝器, 冷凝装置, 分流, 导流, 引流, 引导, 气体, 空气, 进气, 气流, 水冷, 液冷, 冷凝, 冷却, 第一, 第1, 突出, 凸出, 凸部, 壁, 壳, 旋转, 盘旋, 螺旋, condens+, airflow, airstream, shunt+, bulge, protru+, project+, wall, shell, first

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
PX	CN 113756071 A (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD. et al.) 07 December 2021 (2021-12-07) description, paragraphs [0046]-[0063], and figures 1-7	1-10
E	CN 215561394 U (QINGDAO HAIER DRUM WASHING MACHINE CO., LTD. et al.) 18 January 2022 (2022-01-18) claims 1-10	1-10
A	CN 104711833 A (BSH ELECTRICAL APPLIANCES (JIANGSU) CO., LTD.) 17 June 2015 (2015-06-17) description, paragraphs [0020]-[0025], and figures 1-3	1-10
A	CN 105088627 A (WUXI LITTLE SWAN CO., LTD.) 25 November 2015 (2015-11-25) entire document	1-10
A	JP 2002369992 A (HITACHI LTD.) 24 December 2002 (2002-12-24) entire document	1-10

☐ Further documents are listed in the continuation of Box C. ☑ See patent family annex.

* Special categories of cited documents:
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"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
07 April 2022	**22 April 2022**
Name and mailing address of the ISA/CN **China National Intellectual Property Administration (ISA/CN)** **No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China** Facsimile No. **(86-10)62019451**	Authorized officer Telephone No.

Form PCT/ISA/210 (second sheet) (January 2015)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2022/072578

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 113756071 A	07 December 2021	None	
CN 215561394 U	18 January 2022	None	
CN 104711833 A	17 June 2015	EP 2883487 A1	17 June 2015
CN 105088627 A	25 November 2015	None	
JP 2002369992 A	24 December 2002	CN 1772997 A	17 May 2006

Form PCT/ISA/210 (patent family annex) (January 2015)