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(72) Inventors:
• **ZHAO, Zhenyu**
Qingdao, Shandong 266101 (CN)
• **ZHANG, Yanqing**
Qingdao, Shandong 266101 (CN)
• **ZHAO, Bintang**
Qingdao, Shandong 266101 (CN)
• **SONG, Xiangpeng**
Qingdao, Shandong 266101 (CN)
• **MOU, Guoliang**
Qingdao, Shandong 266101 (CN)

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(74) Representative: **Winter, Brandl - Partnerschaft mbB**
Alois-Steinecker-Straße 22
85354 Freising (DE)

(71) Applicants:
• **Qingdao Haier Refrigerator Co., Ltd**
Qingdao, Shandong 266101 (CN)
• **Haier Smart Home Co., Ltd.**
Qingdao, Shandong 266101 (CN)

(54) **ICE-MAKING ASSEMBLY AND REFRIGERATOR**

(57) The present invention provides an ice-making assembly and a refrigerator having the same. The ice-making assembly comprises: an ice mold having a plurality of ice cells for containing ice-making water; a refrigerant pipe extending from one end to the other end of the ice mold and located at a bottom of the ice mold; a heating wire fixed at the bottom of the ice mold and spaced apart from the refrigerant pipe; a water draining tray fixed below the ice mold, an airflow chamber that is through from one end to the other end of the ice mold being formed between the water draining tray and the bottom of the ice mold; wherein the ice-making assembly further comprises a heat-dissipating member for fixing the refrigerant pipe to the ice mold, the heat-dissipating member comprises an engaging portion connected to the refrigerant pipe and fins extending downward from the engaging portion, the engaging portion directly contacts the refrigerant pipe in an extension direction of the refrigerant pipe, the fins comprise a plurality of fins spaced apart from one another, and each fin extends from one end to the other end of the ice mold and extends downward into the airflow chamber.

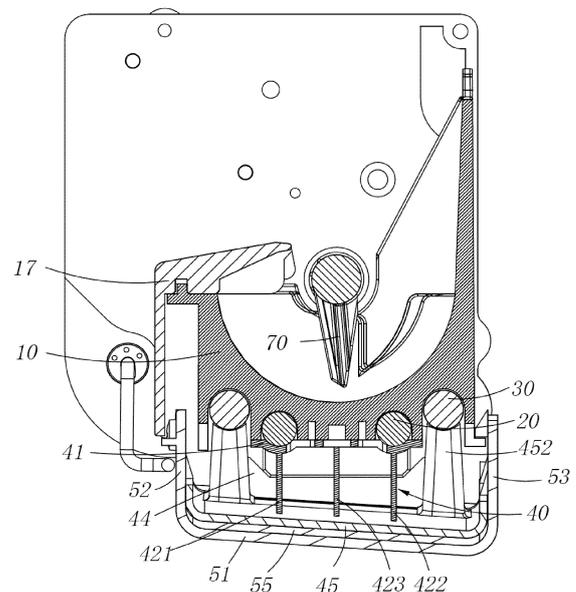


Fig. 2

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Description**TECHNICAL FIELD**

[0001] The present invention relates to the field of refrigerating appliances, and particularly to an ice-making assembly and a refrigerator.

BACKGROUND

[0002] An ice maker is usually disposed in a freezing chamber of a refrigerator to make ice by virtue of the cold air in the freezing chamber. As for a refrigerator with a refrigerating chamber above the freezing chamber, a user needs to bend down to open the door body of the freezing chamber upon taking out of ice. To enable the user to conveniently take ice, an independent ice-making chamber is disposed in the refrigerating chamber or a door body of the refrigerating chamber of some conventional refrigerators, the ice maker is disposed in the ice-making chamber, and a dispenser associated with the ice maker is disposed on an outer side of the door body. The cold air of the freezing chamber and the evaporator chamber is introduced through an air duct into the air-making chamber to achieve the supply of cold to the ice maker. Such an ice-making manner is also referred to as air-cooled ice making.

[0003] However, the ice-making efficiency in the air-chilled ice-making manner is low, and the air duct occupies a large space, thus occupying the storage space of the refrigerator itself. For this reason, there occurs a manner of making ice through direct contact between the refrigeration pipeline and the ice-maker, and the manner is referred to as direct-cooling ice-making. The direct-cooling ice-making has advantages such as quick ice making and a small occupation of space. However, since the space of the ice-making compartment is small and the structure of the ice maker itself is complicated, it is very troublesome when the ice maker is mounted. Furthermore, on account of the limitations of direct-chilling, the cold of the refrigerant pipe cannot be transferred out to a maximum degree so that the cold in the ice-making compartment is insufficient. Therefore, the prior art needs to be further improved.

SUMMARY

[0004] An object of the present invention is to provide an ice-making assembly which is structurally compact and facilitates the transfer of cold.

[0005] Another object of the present invention is to provide a refrigerator with an ice-making assembly which is structurally compact and facilitates the transfer of cold.

[0006] In order to achieve the above-mentioned object, the present invention provides an ice-making assembly, comprising:

an ice mold having a plurality of ice cells for contain-

ing ice-making water;

a refrigerant pipe extending from one end to the other end of the ice mold and located at a bottom of the ice mold;

5 a heating wire fixed at the bottom of the ice mold and spaced apart from the refrigerant pipe;

a water draining tray fixed below the ice mold, an airflow chamber that is through from one end to the other end of the ice mold being formed between the water draining tray and the bottom of the ice mold;

10 wherein the ice-making assembly further comprises a heat-dissipating member for fixing the refrigerant pipe to the ice mold, the heat-dissipating member comprises an engaging portion connected to the re-

15 frigerant pipe and fins extending downward from the engaging portion, the engaging portion directly contacts the refrigerant pipe in an extension direction of the refrigerant pipe, the fins comprise a plurality of fins spaced apart from one another, and each fin extends from one end to the other end of the ice mold and extends downward into the airflow chamber.

[0007] As a further improvement of an embodiment of the present invention, wherein the refrigerant pipe is arranged in a U-shape at the bottom of the ice mold, the fins comprise a first fin and a second fin corresponding to two straight sides of the U-shape, and a third fin located between the first fin and second fin, and a portion of the engaging portion corresponding to the third fin directly contacts the ice mold.

[0008] As a further improvement of an embodiment of the present invention, wherein a plurality of water draining holes are provided on the engaging portion at an interval, the plurality of water draining holes are disposed symmetrically relative to the third fin, and a portion of the refrigerant pipe is exposed from the plurality of water draining holes.

[0009] As a further improvement of an embodiment of the present invention, wherein the ice-making assembly further comprises a driving mechanism at an end of the ice mold, the water draining tray is arranged to be inclined downwards in a direction from one end of the ice mold connected to the driving mechanism to the other end and inclined downwards in a front-rear direction, and a height by which the plurality of fins extend downward matches the inclination direction of the water draining tray.

[0010] As a further improvement of an embodiment of the present invention, wherein one end of the water draining tray forms a water outlet, at least two upwardly-protruding support ribs are provided on the water draining tray, and the support ribs contact the heating wire in a thermally-conductive manner and fix a portion of the heating wire to the ice mold.

[0011] As a further improvement of an embodiment of the present invention, wherein the ice-making assembly further comprises a bottom cover fixedly connected to the ice mold, the bottom cover comprises a bottom wall and a first side wall and a second side wall extending

upwardly along the front and rear of the bottom wall respectively, the water draining tray is fixed between the first side wall and second side wall, a protruding rim protruding upwardly is provided at both ends of the bottom cover in a direction from one end to the other end of the ice mold, and the water draining tray is sandwiched between the two protruding rims.

[0012] As a further improvement of an embodiment of the present invention, wherein the ice-making assembly further comprises a housing fixed with the ice mold, the housing has a first edge and a second edge respectively corresponding to the first side wall and second side wall, one end of the bottom cover is connected to one end of the first edge and second edge; the at least support ribs comprise two first support ribs adjacent to the other end of the bottom cover, and the two first support ribs are respectively connected to the first edge and second edge.

[0013] As a further improvement of an embodiment of the present invention, wherein the bottom cover and the first edge are connected via a screw by penetrating the bottom cover and the first edge, the bottom cover is snap-fitted with the second edge, a post extends from a side of the two first support ribs facing away from each other, a hook portion extends respectively from the first edge and second edge, and the post can extend into the hook portion and rotate and move in the hook portion.

[0014] As a further improvement of an embodiment of the present invention, wherein the housing further comprises a back plate extending upwardly from a rear side of the ice mold, the ice-making assembly is mounted in an interior of the refrigerator by a mounting structure on the back plate, one end of the housing forms an upwardly-extending end plate, a water filling trough is disposed on an outer side of the end plate relative to the ice mold, the water filling trough is communicated with the ice cells, and wherein the back plate, the water filling trough, the ice mold and the housing are integrally formed.

[0015] As a further improvement of an embodiment of the present invention, wherein the edge of the water draining tray has an upwardly-extending edge, the first side wall and second side wall are respectively provided with a plurality of barbs, and the water draining tray is snap-fitted with the plurality of barbs via the edge and fixed with the bottom cover.

[0016] As a further improvement of an embodiment of the present invention, wherein an ice guide is fixedly connected at a front end of the ice mold, a guide rib extending in a lengthwise direction of the first side wall is disposed on an outer side of the first side wall of the bottom cover, and the ice guide extends downwards to a position flush with the guide rib.

[0017] In order to achieve the above-mentioned object, the present invention provides a refrigerator, comprising:

- a cabinet defining a refrigerating chamber and a freezing chamber;
- a door body movably connected to the cabinet and

configured to open and close the refrigerating chamber;

an ice-making chamber disposed in the door body; a refrigerating system comprising a compressor and a condenser connected to an outlet side of the compressor;

wherein the ice-making assembly according to any one of embodiments above is disposed in the ice-making chamber, and the refrigerant pipe is connected to the refrigerating system.

[0018] As compared with the prior art, in embodiments of the present invention, the heat-dissipating member can absorb the cold of the refrigerant pipe and the ice mold, perform heat exchange with the air in the airflow chamber, and make full use of the cold of the refrigerant pipe; furthermore, it is unnecessary to provide a ribbed plate at the bottom of the ice mold, and only necessary to fix the heat-dissipating member to the ice mold upon mounting the refrigerant pipe to the ice mold. The overall structure is more compact so that the space in the ice-making chamber can be saved.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

FIG 1 is an exploded perspective view of an ice-making assembly according to a preferred embodiment of the present invention;

FIG 2 is a cross-sectional view of the ice-making assembly of FIG 1;

FIG 3 is an exploded perspective view of the ice-making assembly of FIG 1;

FIG 4 is a perspective view of an ice mold of the ice-making assembly of FIG 1;

FIG 5 is a schematic view of a refrigerator according to a preferred embodiment of the present invention.

DETAILED DESCRIPTION

[0020] The present invention will be described in detail in conjunction with embodiments shown in the figures. However, the embodiments are not intended to limit the present invention. Structural, methodological or functional variations made by those having ordinary skill in the art according to the embodiments are all included in the protection scope of the present invention.

[0021] It should be appreciated that terms indicating spatial relative positions such as "up", "down", "in" and "out" used in the text herein are intended to describe a relationship of one unit or feature shown in figures relative to another unit or feature for an easy description purpose. The terms indicating spatial relative positions may be intended to include different orientations besides the orientations shown in the figures in use or operation of the device.

[0022] Referring to FIG 1 through FIG 5, a preferred

embodiment of the present invention provides an ice-making assembly 100 comprising an ice mold 10, and a refrigerant pipe 20 and a heating wire 30 located at a bottom of the ice mold 10, wherein the ice mold 10 has a plurality of ice cells for containing ice-making water, the refrigerant pipe 20 extends from one end to the other end of the ice mold 10, and the heating wire 30 is spaced apart from the refrigerant pipe 20, and preferably spaced apart from the refrigerant pipe 20 in a direction substantially perpendicular to an extension direction of the ice mold 20, i.e., the refrigerant pipe 20 and the heating wire 30 are arranged staggered from each other and respectively contact different positions of the bottom of the ice mold 20. The refrigerant pipe 20 is configured to supply cold to the ice mold 10 to freeze water in the ice cells, and the heating wire 30 is configured to supply heat to the ice mold 10 to facilitate release of ice cubes from the ice mold 10. In the present embodiment, a direction in which the ice mold extends lengthwise from one end to the other end is taken as a transverse direction, a side from which the ice cubes are released from the ice mold is taken as a front side, the opposite side is taken as a rear side, and a direction perpendicular to the transverse direction and the front-rear direction is taken as a vertical direction.

[0023] Further referring to FIG 2 and FIG 3, the ice-making assembly 100 comprises a water draining tray 45 fixed below the ice mold 10, one end of the water draining tray 45 forms a water outlet 451, at least two upwardly-protruding support ribs 452 are provided on the water draining tray 45, and the support ribs 452 contact the heating wire 30 in a thermally-conductive manner and fix a portion of the heating wire 30 to the ice mold 10. In the present embodiment, the refrigerant pipe 20 is arranged in a U-shape at the bottom of the ice mold 10, the heating wire 30 is also constructed in a U-shape, the refrigerant pipe 20 and the heating wire 30 are arranged oppositely, i.e., the two U-shapes open in opposite directions, and furthermore, the heating wire 30 is located on an outer side of the U-shape of the refrigerant pipe 20. The support ribs 452 and the water draining tray 45 are integrally arranged and may be made of a thermally conductive material, for example a metallic material, preferably a water draining tray made of aluminum, and may simultaneously absorb the heat of the heating wire 30 to melt the frost of the water draining tray 45. Four support ribs 452 are preferably provided. The four support ribs are arranged at an interval in the transverse direction and the front-rear direction respectively. As such, a space is left between the water draining tray 45 and the bottom of the ice mold 10, and forms an airflow chamber 44 which is through from one end to the other end of the ice mold 10, air may perform heat exchange with the refrigerant pipe 20 and the ice mold 10 upon flowing through the airflow chamber 44 to form cold air which may supply cold for the ice bin disposed below the ice-making assembly 100 to prevent the stored ice bins from melting. Either the refrigerant pipe 20 or the heating wire 30 per-

forms heat exchange in a direct contact manner, so that the efficiency in transferring the cold and heat is higher and thereby the ice-making efficiency is greatly improved.

[0024] The ice-making assembly 100 further comprises a heat-dissipating member 40 for fixing the refrigerant pipe to the ice mold. The heat-dissipating member 40 comprises an engaging portion 41 connected to the refrigerant pipe 20 and fins extending downward from the engaging portion 41. The engaging portion 41 directly contacts the refrigerant pipe 20 in an extension direction of the refrigerant pipe 20. The fins comprise a plurality of fins spaced apart from one another. Each fin extends from one end to the other end of the ice mold 10 and extends downward into the airflow chamber 44. The heat-dissipating member 40 can absorb the cold of the refrigerant pipe 20 and the ice mold 10, perform heat exchange with the air in the airflow chamber 44, and make full use of the cold of the refrigerant pipe 20; furthermore, it is unnecessary to provide a ribbed plate at the bottom of the ice mold 10, and only necessary to fix the heat-dissipating member 40 to the ice mold upon mounting the refrigerant pipe 20 to the ice mold 10. The overall structure is more compact so that the space in the ice-making chamber can be saved.

[0025] In the present embodiment, preferably, the fins comprise a first fin 421 and a second fin 422 corresponding to two straight sides of the U-shape of the refrigerant pipe 20, and a third fin 423 located between the first fin 421 and second fin 422, and a portion of the engaging portion 41 corresponding to the third fin 423 directly contacts the ice mold 10. As such, upon refrigeration, more cold may be transferred to the fin to enhance the utilization rate of the cold; upon heating to deice, heat may be absorbed from the ice mold 10 to melt the frost. A plurality of water draining holes 411 are provided on the engaging portion 41 at an interval. The plurality of water draining holes 411 are disposed symmetrically relative to the third fin 423, and a portion of the refrigerant pipe 20 is exposed from the plurality of water draining holes 411, thereby enabling the frost formed on the refrigerant pipe 20 and the ice mold 10 to completely melt into water upon heating for drainage, preventing icicles from forming on the contact surface of the refrigerant pipe 20 and the engaging portion 41 and affecting normal refrigeration. The water draining holes 411 may be provided evenly at an interval from one end to the other end of the ice mold 10, and a width of the water draining holes 10 may be substantially equal to a spacing between two rows of water draining holes. The heat-dissipating member 40 may be mounted on the ice mold 10 via a fixing member such as a screw or bolt, or snap-fitted with the ice mold via a snap, or connected with the ice mold in other connection manners.

[0026] Furthermore, the ice-making assembly further comprises a bottom cover 50 fixedly connected to the ice mold 10. The bottom cover 50 comprises a bottom wall 51 and a first side wall 52 and a second side wall 53 extending upwardly along the front and rear of the bottom

wall 51 respectively, the water draining tray 45 is fixed between the first side wall 52 and second side wall 53, a protruding rim 54 protruding upwardly is provided at both ends of the bottom cover 50 in a direction from one end to the other end of the ice mold 10, and the water draining tray 45 is sandwiched between the two protruding rims 54; the first side wall 52, second side wall 53 and the two protruding rims 54 achieve accurate positioning of the water draining tray 45 relative to the bottom cover 50 in two directions, and the water draining tray 45 is positioned and fixed more reliably. In addition, the edge of the water draining tray 45 has an upwardly-extending edge 455, the first side wall 52 and second side wall 53 are respectively provided with a plurality of barbs 535, and the water draining tray 45 is snap-fitted with the plurality of barbs 535 via the edge 455 and fixed with the bottom cover 50. In addition, a thermal insulation panel 55 may be disposed between the bottom cover 50 and the water draining tray 45 to insulate the heat transfer from the water draining tray 45 to the bottom cover 50 and prevent frost from being formed on the bottom cover 50.

[0027] The ice-making assembly 100 further comprises a housing 15 fixed to the ice mold 10, wherein the housing 15 has a first edge 151 and a second edge 152 respectively corresponding to the first side wall 52 and second side wall 53, and one end of the bottom cover 50 is connected to the first edge 151 and second edge 152; at least support ribs 452 comprise two first support ribs 453 adjacent to the other end of the bottom cover 50, i.e., adjacent to one end of the water outlet 45, and the two first support ribs 453 are respectively connected to the first edge 151 and second edge 152. Specifically, the bottom cover 50 and the first edge 151 are connected via a screw 16 by penetrating the bottom cover 50 and the first edge 151, and the bottom cover 50 is snap-fitted with the second edge 152; preferably, a hook 1521 is disposed at an end of the second edge 152, and correspondingly a catching block 531 is disposed at an end of the second side wall 53. Upon assembling, the catching block 531 is snap-fitted on a hook 1521 to achieve the snap-fitting of the bottom cover 50 and second edge 152. A post 4531 extends from a side of the two first support ribs 453 facing away from each other, a hook portion 155 extends respectively from the first edge 151 and second edge 152, and the post 4531 can extend into the hook portion 155 and rotate and move in the hook portion 155. Upon assembling, the refrigerant pipe 20 is fixed to the ice mold 10 by the heat-dissipating member 40, the bottom cover 50 and the water draining tray 45 are pre-assembled together, the post 4531 is docked with the hook portion 155 so that the bottom cover 50 and the water draining tray 45 together first rotate about the post 4531 and then move along the hook portion 155 so that the bottom cover 50 is snap-fitted with the second edge, finally, the bottom cover 50 and ice mold 10 are fixed by running the screw 16 through the bottom cover 50 and first edge 151, thereby achieving the mounting of the ice-

making assembly 100. The whole process is very convenient and quick. Furthermore, the heat transfer of the refrigerant pipe 20 and heating wire 30 to the ice mold 10 can be achieved reliably, and meanwhile the refrigerant pipe 20 and ice mold 10 can also achieve the heat exchange with the air in the airflow chamber 44, thereby facilitating supplying cold to other portions. In addition, upon deicing, the frost of the water draining tray 45 may also be melted with the heat of the heating wire 30, and the water resulting from the melting of the frost may be directly drained through the water outlet 451. The manner in which the refrigerant pipe 20 and the heating wire 30 simultaneously contact the ice mold 10 and the heat-conducting member 40 enables a higher utilization ratio of cold and heat and a faster heat transfer, thereby enabling an improvement in ice-making efficiency. In addition, if the ice mold needs to be cleaned, regardless of disassembly or installation, it is only necessary to connect the ice mold with the bottom cover by aligning relevant parts in position, so that the installation is very convenient.

[0028] Further referring to FIGS. 1-3, an ice guide 17 is fixedly connected at a front end of the ice mold 10, a guide rib 511 extending in a lengthwise direction of the first side wall 51 is disposed on an outer side of the first side wall 51 of the bottom cover 50, and the ice guide 17 extends downwards to a position flush with the guide rib 511, which may help a user to know a rough mounting position upon mounting the bottom cover 50. In addition, in order to facilitate connecting the ice guide 17, the ice guide 17 may be first connected to the ice mold 10, and an avoidance hole 171 may be provided on the ice guide 17 to help the screw 16 to run through to connect the bottom cover 50 with the ice mold 10. The ice-making assembly 100 further comprises a driving mechanism 60 at an end of the ice mold 10, and the driving mechanism 60 is used to bring an ice discharger 70 on the ice mold 10 to rotate to perform deicing. An open end of the U-shape of the heating wire 30 faces towards the driving mechanism 60 to facilitate making electrical connection. The open end of the U-shape of the refrigerant pipe 20 faces away from the driving mechanism 60 to facilitate connection with the refrigeration pipeline.

[0029] Frost will be formed on the bottom of the refrigerant pipe 20 and the ice mold 10. As the heating wire 30 is activated to de-ice, the water draining tray 45 meanwhile absorbs heat to melt the frost, and the water resulting from the melting of the frost directly falls into the water draining tray 15; in order to speed up water drainage, the water draining tray 45 may be arranged to be inclined downwards in a direction from one end of the ice mold 10 connected to the driving mechanism 60 to the other end, with an inclination angle being in a range of about 0.5-2.5 degrees. Furthermore, the water draining tray is inclined downwards in a front-rear direction, with an inclination angle being in a range of about 3-5 degrees. In order to further enhance the utilization rate of the cold of the refrigerant pipe, a height by which the plurality of fins

extend downward may match the inclination direction of the water draining tray, that is to say, the distance from the bottoms of the fins to the water draining tray in the transverse direction and the front-rear direction is substantially the same, i.e., the bottoms of the plurality of fins are also inclined consistent with the water draining tray, so that the contact area of the fins with the air in the airflow chamber 60 is larger. The water outlet 451 is disposed at an end of the water draining tray away from the driving mechanism 60 and at a rear end of the water draining tray 45, i.e., at the lowest part of the water draining tray 45, so that the water resulting from the melting of the frost can be sufficiently drained. Furthermore, a water blocking edge 456 is provided at an end of the water draining tray 45 away from an end of the driving mechanism 60 to prevent overflow when the water resulting from the melting of the frost is excessive.

[0030] The housing 15 and the ice mold 10 are integrally formed to simplify the installation of the entire ice-making assembly 100. The housing 15 has a front end and an opposite rear end, the rear end of the housing 15 integrally forms an upwardly-extending back plate 157, a mounting structure is provided on the back plate 157 for mounting the ice-making assembly 100 inside the refrigerator, and the driving mechanism 60 may be mounted on the housing 15. As such, only the housing 15 needs to be fixedly connected to the refrigerator, so the mounting is more convenient. In addition, one end of the housing 15 away from the driving mechanism 60 forms an upwardly-extending end plate 158, a water filling trough 18 is disposed on an outer side of the end plate 158 relative to the ice mold 10, a water filling port communicated with an inner cavity of the ice mold 10 is disposed at a position of the water filling trough 18 adjacent to the ice mold 10, that is to say, the water filling trough 18 is communicated with the ice cells. The water filling trough 18 and the ice mold 10 are also integrally formed, thereby avoiding the problem of water leakage during the water filling process.

[0031] In the ice-making assembly according to the above-mentioned embodiment, a tool needn't be used upon mounting the refrigerant pipe 20 together with the ice mold 10 and separating the refrigerant pipe 20 from the ice mold 10; upon mounting, the only thing to do is rotating the heat-dissipating member 40 in engagement with the refrigerant pipe 20, and the refrigerant pipe 20 is fixed relative to the ice mold 10. The mounting is very convenient, and the cost is lower.

[0032] Referring to FIG 6, a refrigerator in an embodiment provided by the present invention comprises a cabinet 910, a door body 920 movably connected to the cabinet and a refrigerating system, wherein the cabinet 910 defines a chilling compartment, a fan for introducing cold air into the chilling compartment is further provided in the cabinet, the chilling compartment comprises a refrigerating chamber 91 and a freezing chamber 92, the refrigerating chamber 91 and the freezing chamber 92 are provided from top to bottom, the door body 920 is used

for opening and closing the refrigerating chamber 91, either the refrigerating chamber 91 or the door body 920 is provided with an ice-making chamber, and an ice-making assembly 100 (not shown) is provided in the ice-making chamber, an ice bin 200 is provided below the ice-making assembly, a dispenser (not shown) selectively communicated with the ice-making chamber is provided on the door body 920, and ice cubes prepared by the ice-making assembly 100 fall into the ice bin 200 for storage and can be discharged from the dispenser. In the present embodiment, the ice-making chamber is preferably disposed on the door body 920 of the refrigerating chamber, and the chilling compartment comprises a freezing chamber and a refrigerating chamber, and certainly, the chilling compartment may comprise more chambers, such as a temperature variable chamber.

[0033] The refrigerating system comprises a compressor 913 and a condenser connected to an outlet side of the compressor 913, the refrigerant pipe 20 of the above-mentioned ice-making assembly 100 is connected to the refrigerating system, the compressor 913 is disposed at the bottom of the cabinet 910, an evaporator 912 for supplying cold to the freezing chamber 92 and the refrigerating chamber 91 is disposed in a rear of the freezing chamber, and the evaporator 912 may be connected to both sides of the compressor and the condenser in series or in parallel with the refrigerant pipe 20 for supplying cold for the ice-making. Since the installation of the ice-making assembly 100 itself is more convenient, the overall assembling of the refrigerator is also more convenient, thereby reducing the manufacturing cost of the refrigerator.

[0034] It should be understood that although the description is described according to the embodiments, not every embodiment only includes one independent technical solution, that such a description manner is only for the sake of clarity, that those skilled in the art should take the description as an integral part, and that the technical solutions in the embodiments may be suitably combined to form other embodiments understandable by those skilled in the art.

[0035] The detailed descriptions set forth above are merely specific illustrations of feasible embodiments of the present invention, and are not intended to limit the scope of protection of the present invention. All equivalent embodiments or modifications that do not depart from the art spirit of the present invention should fall within the scope of protection of the present invention.

Claims

1. An ice-making assembly, comprising:

- an ice mold having a plurality of ice cells for containing ice-making water;
- a refrigerant pipe extending from one end to the other end of the ice mold and located at a bottom

- of the ice mold;
 a heating wire fixed at the bottom of the ice mold
 and spaced apart from the refrigerant pipe;
 a water draining tray fixed below the ice mold,
 an airflow chamber that is through from one end
 to the other end of the ice mold being formed
 between the water draining tray and the bottom
 of the ice mold;
 wherein the ice-making assembly further com-
 prises a heat-dissipating member for fixing the
 refrigerant pipe to the ice mold, the heat-dissi-
 pating member comprises an engaging portion
 connected to the refrigerant pipe and fins ex-
 tending downward from the engaging portion,
 the engaging portion directly contacts the refrig-
 erant pipe in an extension direction of the refrig-
 erant pipe, the fins comprise a plurality of fins
 spaced apart from one another, and each fin ex-
 tends from one end to the other end of the ice
 mold and extends downward into the airflow
 chamber.
2. The ice-making assembly according to claim 1,
 wherein the refrigerant pipe is arranged in a U-shape
 at the bottom of the ice mold, the fins comprise a first
 fin and a second fin corresponding to two straight
 sides of the U-shape, and a third fin located between
 the first fin and second fin, and a portion of the en-
 gaging portion corresponding to the third fin directly
 contacts the ice mold.
 3. The ice-making assembly according to claim 2,
 wherein a plurality of water draining holes are pro-
 vided on the engaging portion at an interval, the plu-
 rality of water draining holes are disposed symmet-
 rically relative to the third fin, and a portion of the
 refrigerant pipe is exposed from the plurality of water
 draining holes.
 4. The ice-making assembly according to claim 3,
 wherein the ice-making assembly further comprises
 a driving mechanism at an end of the ice mold, the
 water draining tray is arranged to be inclined down-
 wards in a direction from one end of the ice mold
 connected to the driving mechanism to the other end
 and inclined downwards in a front-rear direction, and
 a height by which the plurality of fins extend down-
 ward matches the inclination direction of the water
 draining tray.
 5. The ice-making assembly according to claim 1,
 wherein one end of the water draining tray forms a
 water outlet, at least two upwardly-protruding sup-
 port ribs are provided on the water draining tray, and
 the support ribs contact the heating wire in a ther-
 mally-conductive manner and fix a portion of the
 heating wire to the ice mold.
 6. The ice-making assembly according to claim 5,
 wherein the ice-making assembly further comprises
 a bottom cover fixedly connected to the ice mold, the
 bottom cover comprises a bottom wall and a first side
 wall and a second side wall extending upwardly
 along the front and rear of the bottom wall respec-
 tively, the water draining tray is fixed between the
 first side wall and second side wall, a protruding rim
 protruding upwardly is provided at both ends of the
 bottom cover in a direction from one end to the other
 end of the ice mold, and the water draining tray is
 sandwiched between the two protruding rims.
 7. The ice-making assembly according to claim 6,
 wherein the ice-making assembly further comprises
 a housing fixed with the ice mold, the housing has a
 first edge and a second edge respectively corre-
 sponding to the first side wall and second side wall,
 one end of the bottom cover is connected to one end
 of the first edge and second edge; the at least support
 ribs comprise two first support ribs adjacent to the
 other end of the bottom cover, and the two first sup-
 port ribs are respectively connected to the first edge
 and second edge.
 8. The ice-making assembly according to claim 7,
 wherein the bottom cover and the first edge are con-
 nected via a screw by penetrating the bottom cover
 and the first edge, the bottom cover is snap-fitted
 with the second edge, a post extends from a side of
 the two first support ribs facing away from each other,
 a hook portion extends respectively from the first
 edge and second edge, and the post can extend into
 the hook portion and rotate and move in the hook
 portion.
 9. The ice-making assembly according to claim 7,
 wherein the housing further comprises a back plate
 extending upwardly from a rear side of the ice mold,
 the ice-making assembly is mounted in an interior of
 the refrigerator by a mounting structure on the back
 plate, one end of the housing forms an upwardly-
 extending end plate, a water filling trough is disposed
 on an outer side of the end plate relative to the ice
 mold, the water filling trough is communicated with
 the ice cells, and wherein the back plate, the water
 filling trough, the ice mold and the housing are inte-
 grally formed.
 10. The ice-making assembly according to claim 6,
 wherein the edge of the water draining tray has an
 upwardly-extending edge, the first side wall and sec-
 ond side wall are respectively provided with a plu-
 rality of barbs, and the water draining tray is snap-
 fitted with the plurality of barbs via the edge and fixed
 with the bottom cover.
 11. The ice-making assembly according to claim 6,

wherein an ice guide is fixedly connected at a front end of the ice mold, a guide rib extending in a lengthwise direction of the first side wall is disposed on an outer side of the first side wall of the bottom cover, and the ice guide extends downwards to a position flush with the guide rib. 5

12. A refrigerator, comprising:

a cabinet defining a refrigerating chamber and a freezing chamber; 10
a door body movably connected to the cabinet and configured to open and close the refrigerating chamber;
an ice-making chamber disposed in the door body; 15
a refrigerating system comprising a compressor and a condenser connected to an outlet side of the compressor;
wherein the ice-making assembly according to any one of claims 1-11 is disposed in the ice-making chamber, and the refrigerant pipe is connected to the refrigerating system. 20

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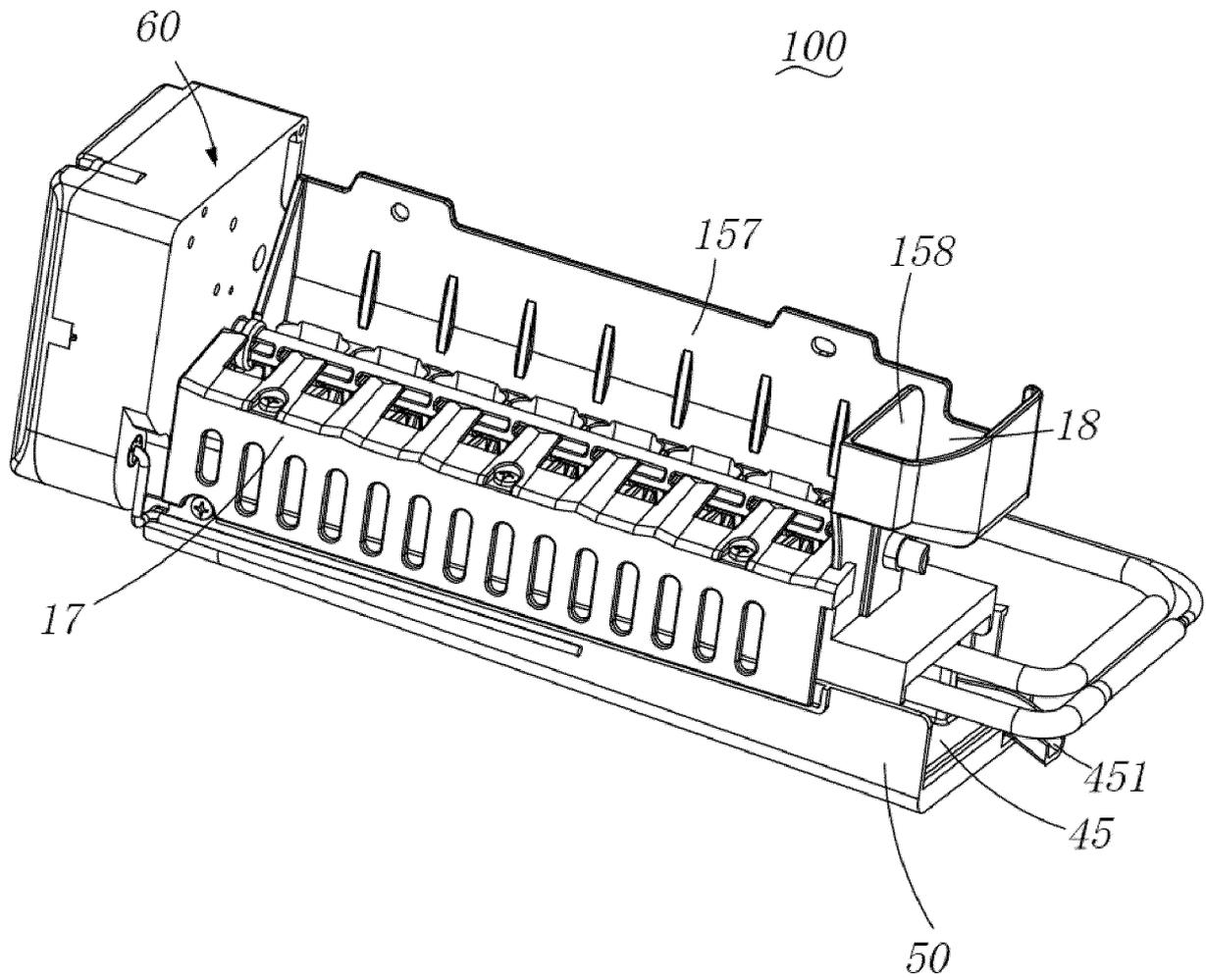


Fig.1

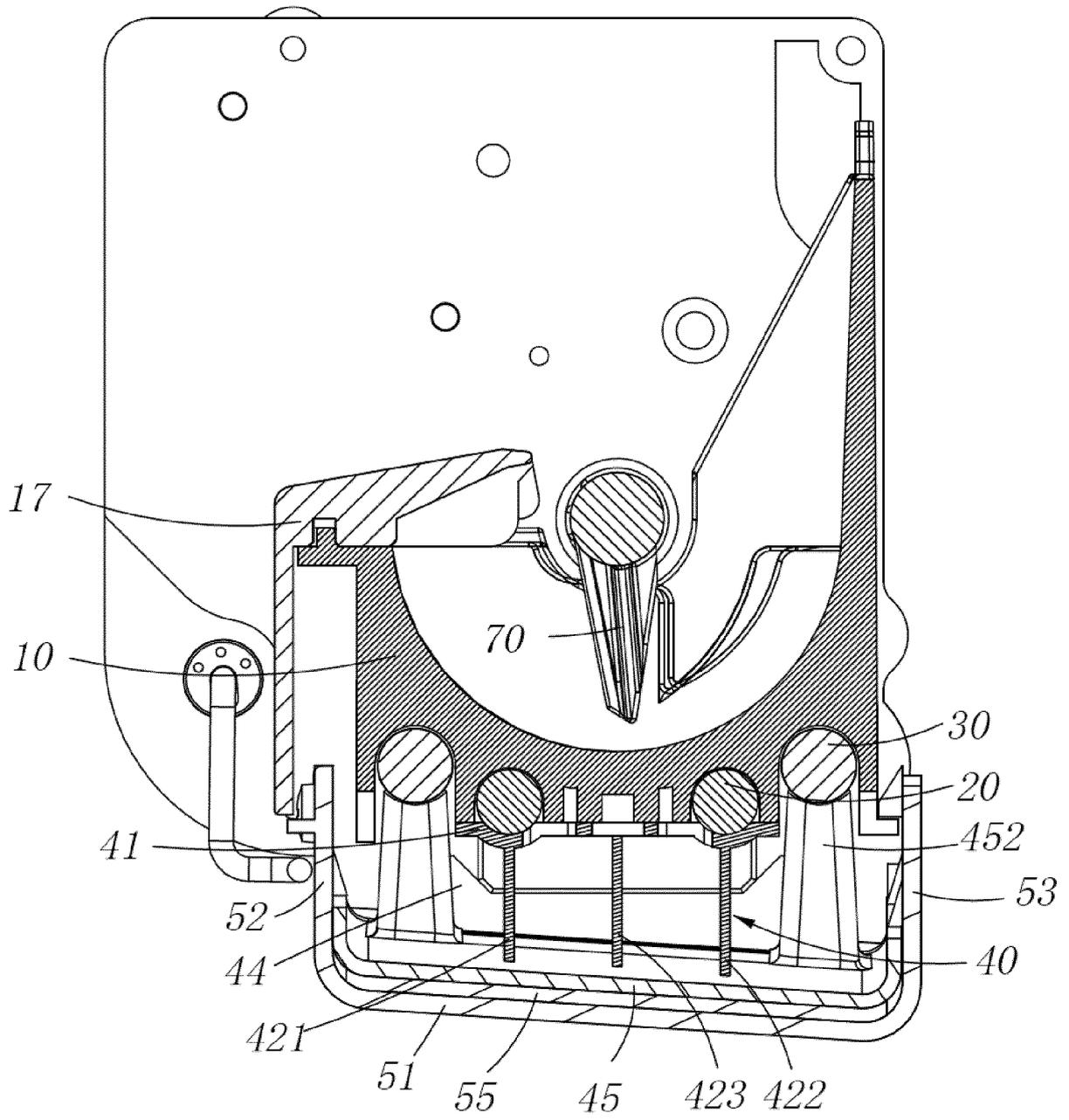


Fig. 2

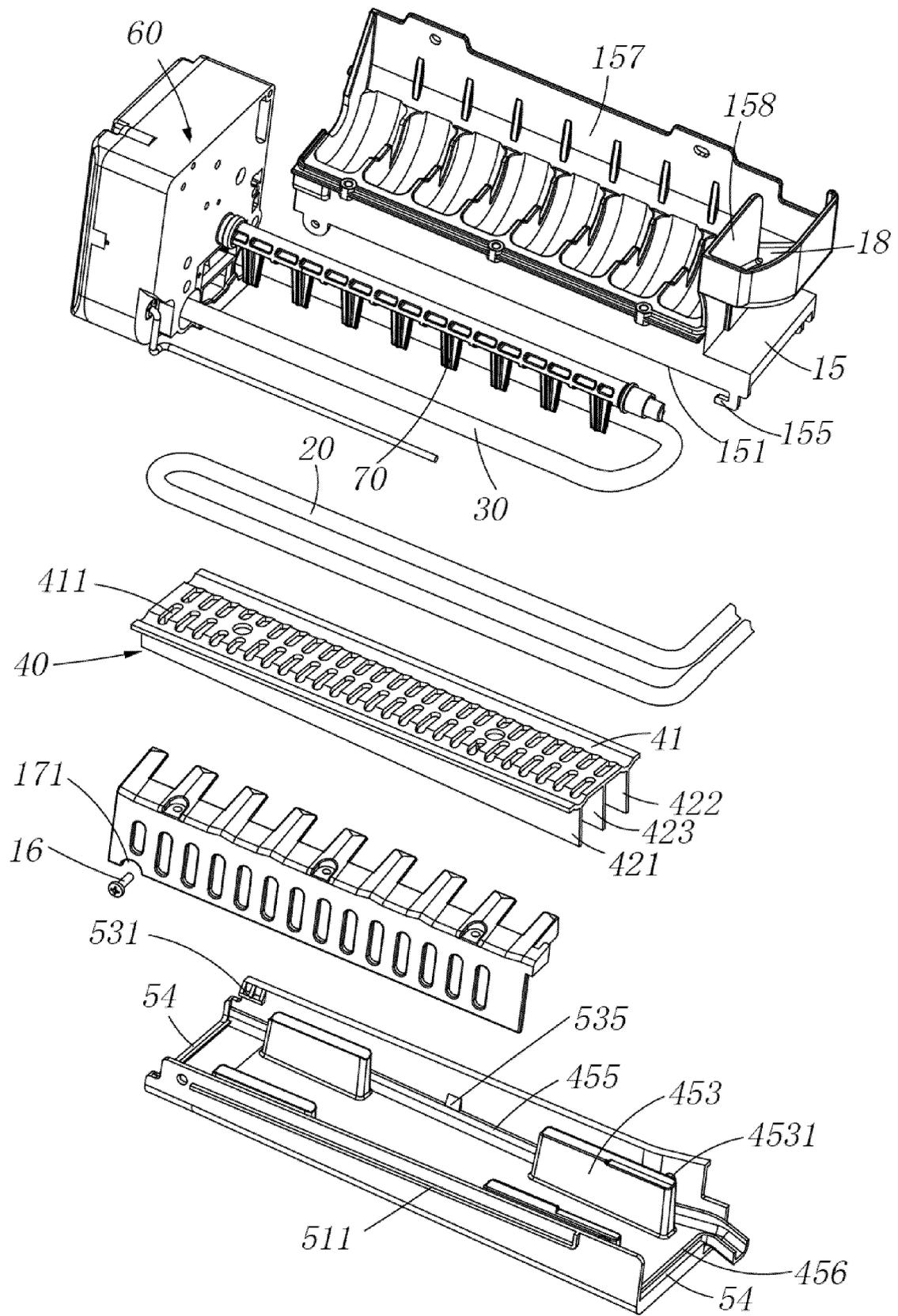


Fig. 3

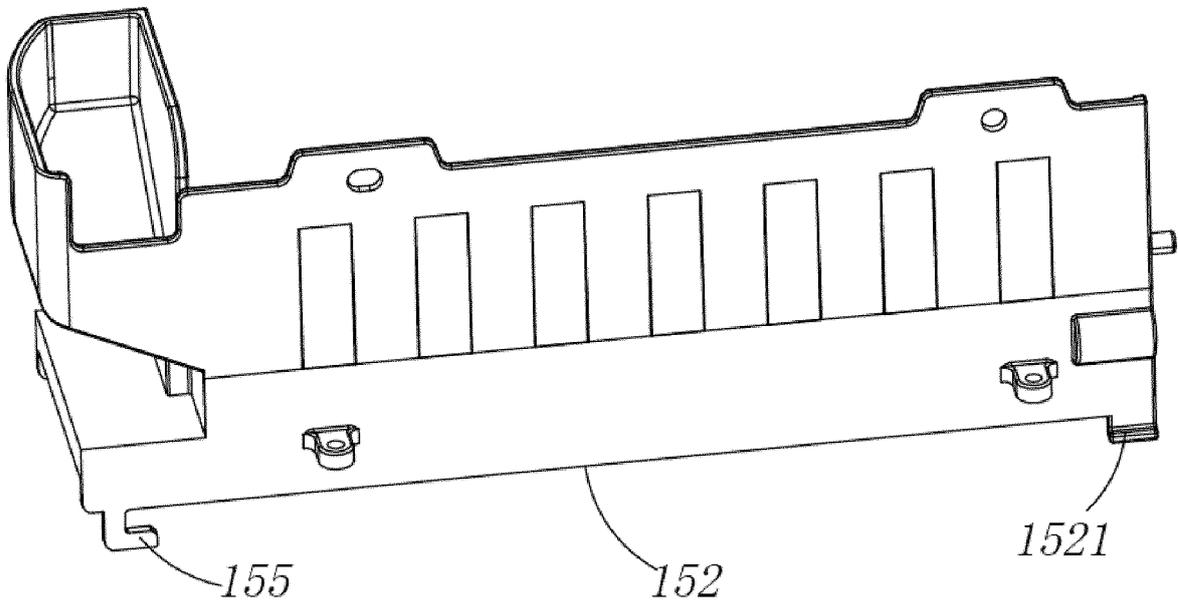


Fig. 4

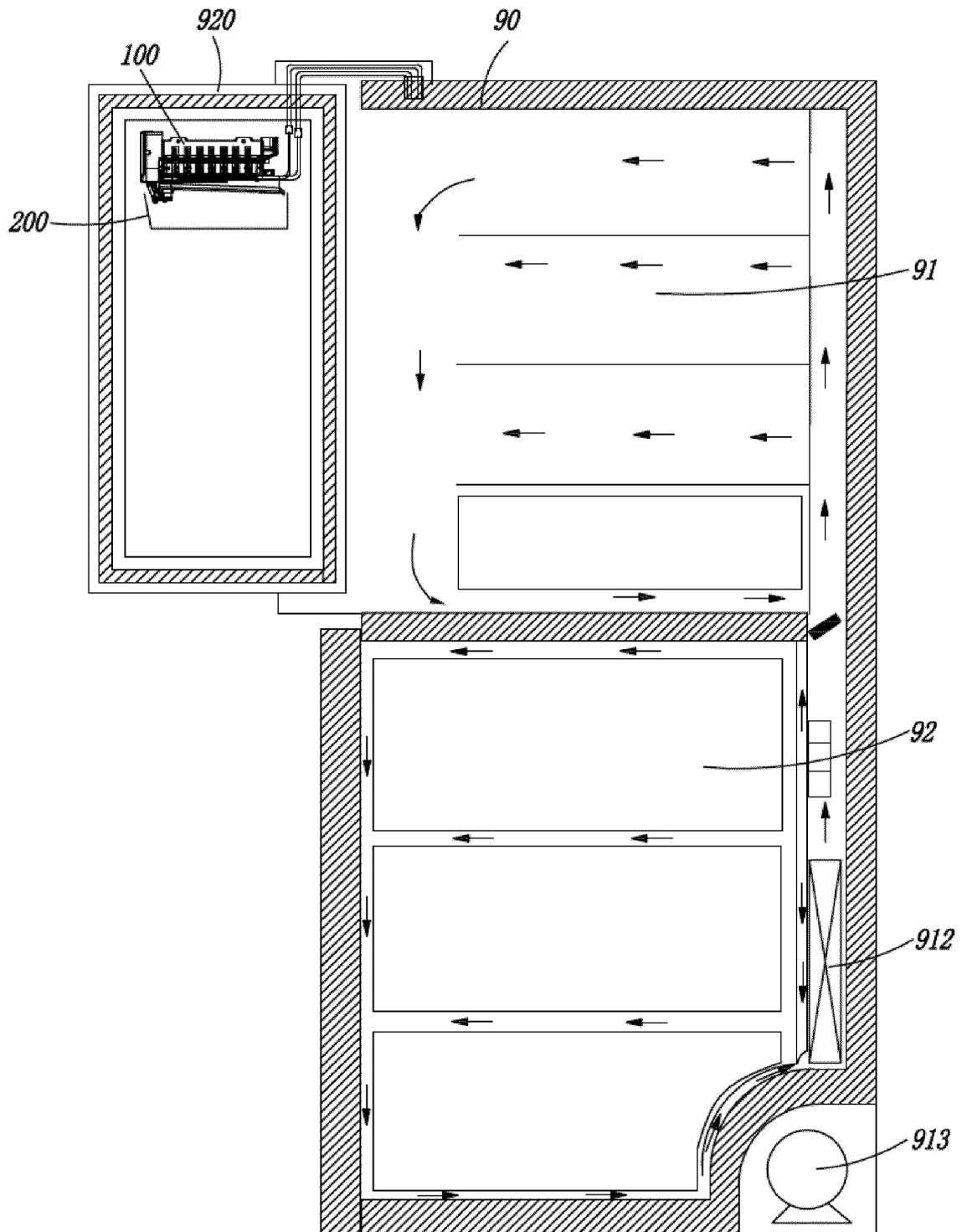


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2021/143525

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A. CLASSIFICATION OF SUBJECT MATTER		
F25C 1/24(2018.01)i; F25D 11/02(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) F25C1 F25D11 F25D21 F25D23 F25D17		
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, CNKI, DWPI: 冰盒模格盘制冷冷却蒸发管固定支撑翅片肋片 ice mould mold box grid pan plate refrigerat+ cool+ evaporat+ tube pipe conduit fix+ fast+ support+ fin		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.		
* Special categories of cited documents:	“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	
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“O” document referring to an oral disclosure, use, exhibition or other means		
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Date of the actual completion of the international search	Date of mailing of the international search report	
11 March 2022	31 March 2022	
Name and mailing address of the ISA/CN	Authorized officer	
China National Intellectual Property Administration (ISA/ CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China		
Facsimile No. (86-10)62019451	Telephone No.	

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