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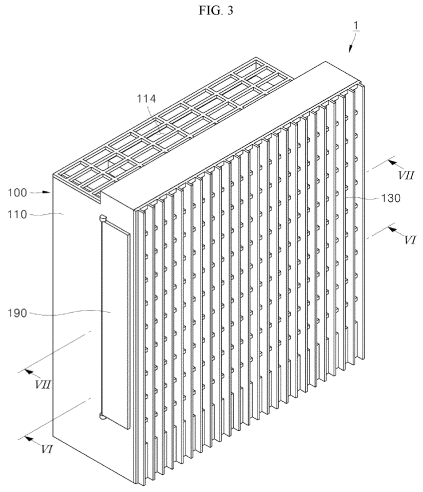
(54) MOVABLE HOOD

(57) An invention relating to a cooking appliance is disclosed. In the disclosed invention, at least one of a first manipulation device and a second manipulation device comprises a dial for selecting one of two or more operation modes and a pushbutton for selecting one of two operation modes, and the types of operation modes selectable by the second manipulation device may vary according to operation modes selected by the first manipulation device, or the types of operation modes selectable by the dial may vary according to operation modes selected by the pushbutton.

FIG. 3



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Description

BACKGROUND

[Technical Field]

[0001] The present invention relates to a movable hood, and more specifically, to a movable hood used to suction and remove pollutants floating therein.

[Background Art]

[0002] Generally, kitchens are provided with a kitchen counter on which a heating device such as an electric heater or a gas range is disposed to cook food by applying high-temperature heat to the food, such as boiling or baking.

[0003] In this case, the food to be cooked heated by the high heat of the heating device disposed on the kitchen counter generates pollutants such as smoke, odor, and oil vapor in the heating process. The pollutants may be floated by heat and spread throughout the kitchen or room. The diffused pollutants may provide an unpleasant odor to cause disgust. In particular, in a closed kitchen, the pollutants reduce workers' concentration and become a factor of harming the workers' health.

[0004] Therefore, a range hood is installed in the kitchen to exhaust the pollutants such as smoke, odor, and oil vapor generated when cooking food to the outside.

[0005] Such a range hood may include a hood main body that forms the appearance of the range hood and has an inlet formed on a lower surface thereof, and a blower for suctioning air into the hood main body and generating an airflow for discharging the air to the outside. In addition, the range hood may further include a filter installed on the hood main body to filter the air suctioned into the main body, and a pipe for forming a passage for discharging the air passing through the filter and suctioned into the main body to the outside.

[0006] An operation of the range hood configured as described above will be described as follows.

[0007] The pollutants generated in the process of heating the food to be cooked on the kitchen counter by the heating device are moved up by their own buoyancy due to a higher temperature than the surrounding air or are forcibly moved up by the airflow generated by a blower of the range hood. The moved-up pollutants may pass through the filter and may be discharged through the pipe connected to an external duct.

[0008] Although the range hood may suction some air and pollutants near the inlet formed in the lower surface of the hood main body, it is difficult to properly suction the air and pollutants located far away from the inlet. It is because, as a distance from the inlet increases, a flow rate of the suction airflow decreases in an inverse proportion to the square of the distance from the inlet.

[0009] That is, in the conventional range hoods, suction performance is quickly reduced as the distance from the inlet increases, and when a suction flow rate of a suction fan is increased, the collection efficiency of pollutants is not proportionally increased.

[0010] Nevertheless, there is a method for increasing the suction power of the range hood by increasing the suction flow rate of the suction fan, but since the consumed power of the suction fan should be increased by 23 times, that is, 8 times to double the suction flow rate of the suction fan, there is a problem that power consumption increases excessively, thereby greatly increasing noise.

[0011] Therefore, the effective suction area of the conventional range hood is inevitably limited to a small area having about a diameter of the inlet. Therefore, the conventional range hood is not suitable for removing the pollutants occurring far from the inlet.

[0012] A range hood using vortex has been developed to compensate such a disadvantage. The range hood using the vortex may generate a vortex by blowing the amount of air similar to the flow rate of the suction air into a space and can increase collection efficiency using the concentrated vortex generated as described above.

[0013] However, according to the range hood, noise is generated due to the generation of turbulence due to mutual interference between the blowing flow and the suction flow in a narrow area under the inlet.

[0014] In addition, the vortex generated from the range hood using the vortex generates a flow that blows into the space, and such a flow may cause additional diffusion of the pollutants in the space.

[0015] In addition, the range hood has a disadvantage in that the installation of additional equipment, such as a blower, a filter, and a flow pipe, for generating a vortex.

[0016] Meanwhile, recently, an exhaust device using a swirler has been introduced. The swirler is rotatably installed at the inlet side of the exhaust device. The swirler includes a disk-shaped rotational plate, a plurality of blades arranged on a lower surface of the rotational plate to form a vortex, and a driving motor for rotating the rotational plate.

[0017] The swirler configured as described above serves to expand the suction area of the exhaust device by generating the vortex near the inlet of the exhaust device upon rotating.

[0018] The larger the magnitude of the vortex generated by the swirler, the further the suction area of the exhaust device may be expanded. In particular, when a large vortex may be generated at the front side of the exhaust device, the air and pollutants located far away from the exhaust device can be suctioned more effectively.

[0019] Patent Document 1 (Korean Patent No. 10-2059802) discloses a range hood provided with a vortex fan. As shown in FIG. 43, the range hood disclosed in Patent Document 1 includes a housing 200, an upper case 300, a vortex fan 400, and a lower filter case 500.

[0020] An exhaust fan 210 is installed in the housing 200, and the upper case 300 is coupled to a lower end

of the housing 200. The vortex fan 400 is installed inside the upper case 300, and the lower filter case 500 is installed to be spaced apart from a lower portion of the vortex fan 400.

[0021] The vortex fan 400 is disposed in a separation space 460 between an upper surface of the lower filter case 500 and a ceiling surface of the upper case 300. When the driving motor 220 operates, the vortex fan 400 rotates together with the exhaust fan 210.

[0022] The vortex fan 400 pushes the air in the space 460 to the outside, and the pushed airflow flows down along an inclined surface of the upper case 300 and then is discharged outward from the upper case 300 through an exhaust space 700 between an outer surface of the lower filter case 500 and an inner surface of the upper case 300.

[0023] As the airflow discharged outward from the upper case 300 is returned by a suction power of the exhaust fan 210, a vortex is generated in an outer lower portion of the lower filter case 500. That is, a kind of low pressure zone is generated in the outer periphery of the lower filter case 500, and an upward airflow appears in a central portion in which the exhaust fan 210 and the vortex fan 400 are disposed.

[0024] The upward airflow is strengthened by the suction power of the exhaust fan 210, and as the exhaust fan 210 rotates together with the vortex fan 400, the donut-shaped low pressure zone performs a circular motion. The generated whirlwind airflow makes it possible to collect gas in a wide area.

[0025] The range hood of Patent Document 1 is fixedly installed at any one location in the kitchen, for example, at an upper end of a sink. Such a range hood may slightly suction and discharge only the air near the sink in which the range hood is installed, and when cooking is performed at a location out of the kitchen, it is difficult to suction and discharge the air therearound.

[0026] There is a physical limit that, even when the suction power of a general exhaust fan such as an exhaust fan 210 provided in the range hood in Patent Document 1 is away from an inlet of the exhaust fan by only a diameter of the exhaust fan, a flow rate of the suction flow rate at the corresponding location is reduced to 1/10 or less of the suction flow rate at the inlet of the exhaust fan.

[0027] Therefore, when cooking is performed at a location away from a place at which the range hood is installed, it is not actually possible to suction and remove pollutants, such as odor or smoke, generated from the cooking area through the range hood.

[0028] In addition, the range of the vortex generated by the vortex fan 400 of the range hood in Patent Document 1 is much greater than the range of the range hood. Therefore, when the range hood is installed in a dining table or a kitchen space, an additional space for maintaining the vortex generated by the vortex fan 400 should be secured sufficiently.

[0029] That is, the range hood provided with the vortex fan 400 as disclosed in Patent Document 1 has a limit in installation space in that the range hood should be installed at a dining table or in a kitchen space in a state in which a sufficient additional space is secured.

[0030] In addition, when the range hood is installed at the dining table or in the kitchen space, there is a possibility that a vortex may be in direct contact with a user who is cooking or eating at the dining table or in the kitchen space. In this case, there may be problems that it becomes difficult to properly maintain the vortex and considerable discomfort may be given to the user.

[0031] In addition, the vortex fan 400 of the range hood disclosed in Patent Document 1 may effectively generate a vortex under the condition of being rotated at a specific speed. That is, when rotating at a speed outside an appropriate range, the vortex fan 400 may not properly generate a vortex.

[0032] When the rotational speed of the vortex fan 400 is outside the appropriate range, the vortex may not be properly generated, and therefore, there may be a phenomenon in which the suction performance of the range hood is further degraded when the vortex fan 400 is operated than when the vortex fan 400 is not operated.

[0033] That is, in Patent Document 1, when the rotation speed of the vortex fan 400 may not be well maintained within the appropriate range, there may be a problem in which the suction performance is rather degraded compared to the range hood without the vortex fan 400.

[0034] In addition, in Patent Document 1, two fans are built into one range hood. That is, the exhaust fan 210 and the vortex fan 400 are installed together inside the range hood, and the exhaust fan 210 and the vortex fan 400 are arranged in a row in a vertical direction.

[0035] Therefore, the range hood of Patent Document 1 has a considerably great width due to the vortex fan 400 and has a considerably great thickness in the vertical direction due to the two fans arranged in a row in the vertical direction.

[0036] The range hood of Patent Document 1 has problems that it is difficult to install the range hood in a narrow kitchen space and it is difficult to use the range hood in a portable manner due to its size and weight.

[0037] That is, in the range hood of Patent Document 1, it is difficult to to use the range hood in a state of being disposed on a sink or a dining table due to its size and it is difficult to move the range hood due to its weight, making it actually impossible to use the range hood in a portable manner.

[0038] In the range hood of Patent Document 1, the suction flow is generated upward. When the suction flow is generated upward as described above, there is a high possibility that such polluted air will eventually be suctioned into the range hood even when the polluted air leaks from the range hood while being suctioned.

[0039] However, when a location at which the range hood is installed and a location at which cooking is performed are far away from each other, for example, when the range hood is fixedly installed on the upper end of

the sink and cooking is performed at an island dining table far away from the range hood, the range hood of Patent Document 1 cannot actually suction and filter the polluted air generated in the cooking process performed at the island dining table.

[0040] To treat the polluted air generated in the cooking process at the island dining table, etc., a portable type movable range hood rather than the range hood installed at the fixed location is needed.

[0041] The portable type range hood may be installed in a state of being placed on a flat bottom surface, such as an island dining table. The portable type range hood may be easily moved to the cooking location to suction the polluted air generated in the cooking process.

[0042] However, the portable type range hood is installed in a state of being placed on the bottom surface rather than being installed in a state of hanging from top, making it difficult to generate an upward suction flow.

[0043] That is, the portable type range hood is disposed horizontally adjacent to the polluted air source rather than being disposed above the polluted air source, making it difficult to generate the upward suction flow.

[0044] When the portable type range hood generates the upward suction flow without interfering with cooking, the size of the portable type range hood may inevitably be very large.

[0045] Patent Document 2 (Korean Patent No. 10-1891256) discloses a portable hood. As shown in FIG. 44, the portable hood disclosed in Patent Document 2 includes a body 100, a head 200, and a connector 300.

[0046] The body 100 may be placed on a flat surface, such as a dining table or the ground and supports the head 200 and the connector 300. The connector 300 connects the body 100 with the head 200.

[0047] In addition, the head 200 may be seated on the body 100 when the portable hood 1 is in a state of being fully folded and may protrude forward more than the body 100 when the portable hood 1 is in a state of being fully unfolded.

[0048] The head 200 may suction and purify air at the bottom and then discharge the air upward. The head 200 may include a housing 210, an air guide, a blower, a diffuser 240, a discharge grill 250, and a filter unit.

[0049] The housing 210 forms the appearance of the head 200, and an air guide is disposed in the housing 210. The blower is disposed in the air guide.

[0050] The diffuser 240 is coupled to an upper end of the air guide and an upper end of the housing 210 to diffuse the air blown by the blower. In addition, the discharge grill 250 is coupled to an upper end of the diffuser 240, and the filter unit is disposed in the housing 210 and coupled to a lower end of the air guide.

[0051] A connector accommodation groove 130 is formed in an upper surface of the body 100. When the head 200 is in a state of being folded above the body 100, the connector 300 may be accommodated in the connector accommodation groove 130. When the head 200 is in the state of being folded above the body 100, the connector 300 is accommodated in the connector accommodating groove 130, and thus the connector 300 may be invisible when viewed from the outside of the portable hood 1.

[0052] When the blower is operated, the head 200 may suction air at the bottom and discharge the air upward. The head 200 may be moved in a vertical direction and in a front-rear direction in a state of being connected to the connector 300. In addition, the head 200 may be tilted by being rotated vertically, or the head 200 may be rotated horizontally to adjust the location of the head 200.

[0053] According to the portable hood 1 of Patent Document 2, the head 200 may move in the vertical and front-rear directions and may be located at the top of the cooking appliance. The portable hood 1 provided with the head 200 may generate an upward suction flow.

[0054] In the portable hood 1 of Patent Document 2, a length of the connector 300 is limited to about a length within a diameter of the body 100. Since the diameter of the head 200 is also similar to the diameter of the body 100, the length of the connector 300 may be limited to about a length within the diameters of the body 100 and the head 200.

[0055] Therefore, unless the size of the body 100 or the head 200 becomes very large, it is difficult for the head 200 to be located far upward from the cooking appliance due to the limited length of the connector 300.

[0056] That is, in order for the portable hood 1 to generate the upward suction flow at the top of the cooking appliance, the head 200 is inevitably located at the top not far from the cooking appliance. As described above, when the head 200 is disposed adjacent to the cooking appliance at the top of the cooking appliance, there is a problem that the portable hood 1 interferes with cooking.

[0057] However, when the size of the body 100 is increased to increase the length of the connector 300, the size of the portable hood 1 becomes unnecessarily large. As the size of the portable hood 1 increases as described above, it is difficult to secure the arrangement space for the portable hood 1 and it is also difficult to move the portable hood 1 due to the increase in size and weight of the portable hood.

[0058] In addition, since the portable hood 1 of Patent Document 2 discharges the suctioned air back into the inside without discharging the suctioned air to the outside, the air should be purified by performing filtering once.

[0059] To this end, a filter unit should include a large number of filters or should be provided with an expensive filter. However, when the expensive filter is applied to the filter unit, there is a problem that the manufacturing cost increases accordingly. In addition, as the number of filters increases, the size of the device increases, and the suction performance is inevitably degraded due to increased flow resistance.

[0060] Considering such a point, it is difficult for the filter unit to include a large number of filters or an expensive filter, and thus it can be fully seen that it is difficult

for the portable hood 1 of Patent Document 2 to fully purify polluted air by performing filtering once.

[0061] In addition, a suction area of the portable hood 1 of Patent Document 2 is inevitably smaller than that of the range hood of Patent Document 1 due to the nature of the portable hood 1, which has a limit in increasing its size. Therefore, the portable hood 1 of Patent Document 2 inevitably faces the difficulty in effectively collecting polluted air generated in the cooking process.

[Related Art Documents]

[Patent Documents]

[0062]

(Patent Document 1) Korean Patent No. 10-2059802
(Patent Document 2) Korean Patent No. 10-1891256

[Technical Problem]

[0063] The present invention is directed to providing a movable hood capable of effectively collecting pollutants generated in a cooking process at locations out of an installation place of the typical range hood, such as a kitchen.

[0064] In addition, the present invention is directed to providing a movable hood capable of effectively increasing the collection efficiency for pollutants without greatly increasing in power consumption.

[0065] In addition, the present invention is directed to providing a movable hood capable of being disposed to freely move at various locations and effectively purifying pollutants.

[0066] In addition, the present invention is directed to providing a movable hood capable of being easily and quickly installed even in a narrow space.

[0067] In addition, the present invention is directed to providing a movable hood having a small thickness to be sufficiently installed even in a narrow cooking space.

[0068] In addition, the present invention is directed to providing a movable hood that does not add cumbersome installation work or interfere with the activities of a cooking user due to the installation of an additional structure.

[0069] In addition, the present invention is directed to providing a movable hood with improved structure capable of effectively collecting pollutants and preventing the influence on the combustion of a cooking appliance.

[0070] In addition, the present invention is directed to providing a movable hood capable of providing both an operation mode in which preventing inconvenience or discomfort to the user is prioritized and an operation mode in which the more improved pollutant collection performance is provided.

[Technical Solution]

[0071] A movable hood according to one embodiment of the present invention for achieving the objects includes a first fan configured to suction outside air in a first direction and discharges the outside air in the first direction or a second direction orthogonal to the first direction, and a second fan configured to suction the air outside the first fan and discharge the air in a direction between a third direction orthogonal to the first direction and the second direction and the first direction.

[0072] In addition, according to another embodiment of the present invention, a movable hood includes a first fan configured to suction outside air in a first direction, and a second fan disposed not to overlap the first fan in the first direction, wherein the first fan and the second fan are arranged in a second direction orthogonal to the first direction, and the second fan suctions the air outside the first fan and discharges the air in a direction between a third direction orthogonal to the first direction and the second direction and the first direction.

[0073] In addition, according to another embodiment of the present invention, a movable hood includes a first fan forming a suction flow at a front side, and a second fan disposed at both sides of the first fan to discharge air to the front side from the both sides of the first fan, wherein the second fan generates a discharge flow that moves in a direction away from the suction flow toward the front side.

[0074] In addition, according to another embodiment of the present invention, a movable hood includes a first fan configured to rotate about an axis in a first direction to form a suction flow in the first direction, and a second fan configured to rotate about an axis in a second direction orthogonal to the first direction and form a discharge flow moving in a direction away from the suction flow as it moves away from the second fan in the first direction.

[0075] With this configuration, according to the present invention, by forming the air curtain near a suction flow, it is possible to increase suction efficiency for polluted air generated from a cooking object.

[0076] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air and discharge the suctioned air in a direction differing from a suction direction, and a second fan configured to filter the air introduced by the first fan, wherein an inlet configured to form a passage for discharging the air discharged from the first fan to the outside is disposed outside an area in which the outside air is suctioned.

[0077] The movable hood according to the present invention can purify the polluted air generated during cooking while changing the location as needed without being fixedly installed at any location.

[0078] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air in a front-rear direction or a lateral direction, a filter configured to filter the air suctioned by the first fan, and a second fan configured to suction some of the air passing through the filter and discharge at least some of the suctioned air to

an area in which the suction is performed by the first fan.

[0079] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air in a front-rear direction or a lateral direction, a filter configured to filter the air suctioned by the first fan, and a second fan configured to suction some of the air passing through the filter and discharge at least some of the suctioned air to the outside, wherein the air is discharged by the second fan so that at least some of the air discharged from the second fan is jointed to a suction flow generated by the first fan.

[0080] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air from a front side, a filter configured to filter the air suctioned by the first fan, and a second fan configured to suction the air passing through the filter and discharge the air in a direction between the front and a centrifugal direction.

[0081] Therefore, the re-suction of the air discharged after being already filtered may be guided by the air curtain formed at both left and right sides of the movable hood.

[0082] The movable hood according to the present invention having such a configuration can more effectively purify polluted air generated in a cooking process by performing a repetitive purification operation for the polluted air.

[0083] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air from a front side and discharge the outside air in a centrifugal direction, and a second fan configured to suction the air outside the first fan in a radial direction and discharge the air in a direction between a front and the centrifugal direction.

[0084] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air from a front side and discharge the outside air upward, and a second fan configured to suction the air outside the first fan in a lateral direction and discharge the air in a direction between a front and a side.

[0085] According to another embodiment of the present invention, the movable hood includes a main body provided with an inlet, an outlet, and a discharge port, a first fan configured to suction air through the outlet and discharge the air to the outside of the main body through the outlet, and a second fan configured to discharge at least some of the air flowing into the main body to the outside of the main body through the discharge port.

[0086] According to another embodiment of the present invention, the movable hood includes a main body provided with an outlet and a discharge port, a second fan configured to discharge at least some of the air flowing into the main body to the outside of the main body through a discharge port, and a louver configured to open and close the discharge port.

[0087] In addition, according to another embodiment of the present invention, the movable hood includes a main body provided with an outlet and a discharge port, a second fan configured to discharge at least some of the air flowing into the main body to the outside of the main body through a discharge port, and a louver configured to guide the flow of the air discharged through the discharge port outside the main body.

[0088] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air in a lateral direction and discharge the outside air in a centrifugal direction, and a second fan disposed outside the first fan in a radial direction to discharge the air in a direction between a front and the centrifugal direction.

[0089] In addition, according to another embodiment of the present invention, the movable hood includes a first fan configured to suction outside air in a front-rear direction and discharge the outside air upward, and a second fan disposed on a side portion of the first fan to discharge the air in a direction between a front and a side.

[0090] Therefore, the first fan and the second fan are not arranged in a line in a direction in which a suction flow is generated, and the second fan may be disposed on a side portion of the first fan out of a suction direction and discharge direction of the first fan.

[0091] The movable hood according to the present invention may be provided in a form that has a small thickness sufficiently installed even in a narrow cooking space.

[0092] A movable hood according to one aspect of the present invention may include a main body having an accommodation space formed therein, a first fan accommodated in the accommodation space and configured to suction outside air in a first direction and discharge the outside air the first direction or a second direction orthogonal to the first direction, and a second fan configured to suction the air outside the first fan and discharge the air in a direction between a third direction orthogonal to the first direction and the second direction and the first direction.

[0093] In addition, the second fan is preferably accommodated inside the main body to be disposed at one side in the first direction more than the first fan.

[0094] In addition, the second fan is preferably disposed not to overlap the first fan in the first direction.

[0095] In addition, a pair of the second fans are preferably disposed to be spaced apart from each other in the second direction with the first fan interposed therebetween.

[0096] In addition, each of the second fans is preferably disposed at one side in the first direction more than the first fan.

[0097] In addition, the main body may be provided with an inlet forming a passage for allowing the outside air to flow into the first fan, and an outlet forming a passage for allowing the air suctioned into the first fan to be discharged to the outside of the main body.

[0098] Here, it is preferable that the inlet forms a passage for opening the main body in the first direction, and the outlet forms a passage for opening the main body in the second direction.

[0099] In addition, the main body may include a case having an accommodation space formed therein and having an open one side in the first direction, and a cover configured to cover the case at one side in the first direction.

[0100] Preferably, the inlet may be formed to pass through the cover in the first direction.

[0101] In addition, the case may include a first surface forming a surface orthogonal to the first direction, a pair of second surfaces disposed to face each other with the first surface interposed therebetween, and third surfaces disposed to face each other with the first surface and the second surface interposed therebetween and each forming a surface orthogonal to the third direction.

[0102] In this case, it is preferable that an outlet is provided on at least any one of the pair of the second surfaces, and the outlet is formed to pass through the second surface in the second direction.

[0103] In addition, the main body may further include a scroll disposed between the first surface and the cover and having an inner circumferential surface formed in a cured surface surrounding an outer circumferential surface of the first fan.

[0104] Preferably, the pair of the second fans may be disposed to be spaced apart from each other in the second direction with the scroll interposed therebetween.

[0105] In addition, the cover is preferably disposed between the first fan and the second fan.

[0106] In addition, the main body may be provided with a discharge port forming a passage for allowing the air suctioned into the second fan to be discharged to the outside of the main body, and the discharge port may form a passage for opening the main body in the third direction.

[0107] In addition, the discharge port is preferably formed to pass through the third surface in the third direction.

[0108] In addition, the main body may further include a partition wall configured to block the second fan and the inlet.

[0109] In addition, the discharge port preferably communicates with a space in which the second fan is disposed.

[0110] In addition, it is preferable that the partition wall forms a surface parallel to the third surface and is disposed between the third surface and the inlet to block between the second fan and the inlet.

[0111] In addition, it is preferable that the cover is disposed between the first fan and the second fan and between the scroll and the partition wall, the second fan is disposed in a space surrounded by the second surface, the cover, and the partition wall, and the discharge port communicates with the space in which the second fan is disposed.

[0112] In addition, the movable hood according to the present invention may further include a louver protruding from the main body in the second direction at an unfolded location.

[0113] The louver may form a surface disposed at the other side in the first direction more than the discharge port at the unfolded location.

[0114] In addition, it is preferable that the louver may be provided to cover the third surface outside the main body and move between a closed location at which the discharge port is closed and the unfolded location.

[0115] In addition, the louver may be installed on the main body so that an end portion of one side in the first direction may rotate in the third direction about an end portion of the other side in the first direction coupled to the main body.

[0116] In addition, it is preferable that the end portion of the other side of the louver is coupled to the main body at a location biased to the other side in the first direction more than the discharge port.

[0117] In addition, it is preferable that the louver forms a surface parallel to a direction between the first direction and the third direction at the unfolded location.

[0118] In addition, it is preferable that the second fan suctions the air from one side in the first direction and discharges the air in the third direction.

[0119] In addition, the second fan may discharge the air in the third direction through the discharge port.

[0120] In addition, the second fan may suction the air from the other side in the first direction and discharge the air in the third direction.

[0121] In this case, it is preferable that an auxiliary inlet forming a passage for allowing the outside air to flow into the second fan is provided on the main body.

[0122] In addition, it is preferable that the auxiliary inlet is formed to pass through an area facing the second fan of the first surface in the first direction.

[0123] In addition, the case may include a first case configured to accommodate the first fan, and a second case disposed to be biased to one side in the first direction more than the first case.

[0124] Here, it is preferable that the first case and the second case are connected in the first direction, and one side of the second case in the first direction is open.

[0125] In addition, the outlet may be formed on the first case, and the outlet may be formed to pass through the end portion of one side of the first case in the second direction in the second direction.

[0126] In addition, it is preferable that the second case is formed to protrude to one side in the second direction more than the inlet so that the second case may block the outlet at one side in the first direction.

[0127] In addition, it is preferable that the second fan is accommodated in the second case, the cover is disposed between the first fan and the second fan, and the second fan is accommodated in a space surrounded by the second case and the cover.

[0128] In addition, the movable hood according to the

present invention may further include a grill configured to cover the main body at one side in the first direction and coupled to the main body.

[0129] In addition, the movable hood may further include a filter disposed between the first fan and the grill and configured to filter the outside side suctioned into the first fan.

[Advantageous Effects]

[0130] According to the movable hood of the present invention, by allowing the movable hood to purify the polluted air generated during cooking while changing its location as needed rather than being fixedly installed at any one location, it is possible to effectively purify both the polluted air generated at the installation place of the typical range hood and the polluted air generated in the cooking process performed at the location out of the installation place of the typical range hood.

[0131] Since the portable hood according to the present invention may be used by being moved to the location desired by the user, such as a kitchen, a dining table, a room, a lounge, a living room, or an outdoor, the portable hood can be highly used.

[0132] In addition, according to the present invention, by forming the air curtain near the suction flow to increase the suction efficiency for the polluted air generated from the cooking object, it is possible to provide the more improved suction performance and pollutant removal performance.

[0133] In addition, according to the present invention, it is possible to provide the more improved pollutant removal performance by achieving the n^{th} filtering effect in which the polluted air is repeatedly suctioned and filtered multiple times.

[0134] Therefore, according to the present invention, the movable hood may be disposed to be freely moved to various locations rather than the typical hood installation location, thereby more efficiently collecting the pollutants generated in the cooking process and very effectively purifying polluted air near the cooking area.

[0135] In addition, according to the present invention, by improving the suction efficiency for the polluted air using the air curtain, it is possible to increase very effectively the collection efficiency for the pollutants without increasing the suction flow rate of the fan and effectively increase the collection efficiency for the pollutants without greatly increasing power consumption.

[0136] In addition, according to the present invention, by allowing the air curtain formed by the operation of the second fan module to serve as the structure such as a blocking film or an awning, it is possible to provide the movable hood having the more improved suction performance without any hassle of installing an additional structure.

[0137] In addition, according to the present invention, it is possible to provide the movable hood having a small thickness sufficient to be installed in the narrow cooking space by arranging the second fan module on the side portion of the first fan module departing from the suction direction and discharge direction of the first fan module without arranging the first fan module and the second fan module in a line in a direction in which suction flow is generated.

[0138] In addition, according to the present invention, by allowing the air curtain generated by the operation of the second fan module to serve as the structure such as a blocking film or an awning, it is possible to improve the suction performance without interfering with the user's cooking activity.

[0139] In addition, according to the present invention, it is possible to stably maintain the combustion of the heating device and effectively remove the pollutants generated by the heat generated by the corresponding heating device.

[0140] In addition, according to the present invention, it is possible to secure the sufficient suction performance necessary for removing the pollutants while effectively responding to the situation in which the user may feel inconvenience or discomfort by having the air curtain formation function that may be turned on/off appropriately depending on the situation.

[0141] To this end, according to the present invention, it is possible to provide both the operation mode in which preventing inconvenience or discomfort to the user is prioritized and the operation mode in which the more improved pollutant collection performance together.

[Description of Drawings]

[0142]

FIG. 1 is a cross-sectional view of a range hood having a vortex fan according to the related art.

FIG. 2 is a perspective view of a state in which a portable hood according to the related art is fully unfolded.

FIG. 3 is a perspective view showing a movable hood according to one embodiment of the present invention.

FIG. 4 is an exploded perspective view showing a disassembled state of the movable hood shown in FIG. 3.

FIG. 5 is a perspective view showing a state in which a suction grill and a filter are excluded from the movable hood shown in FIG. 3.

FIG. 6 is a cross-sectional view along line "VI-VI" in FIG. 3.

FIG. 7 is a cross-sectional view along line "VII-VII" in FIG. 3.

FIG. 8 is a perspective view showing a state in which a louver is opened in the movable hood shown in FIG. 5.

FIG. 9 is a cross-sectional view showing a state in which the louver is opened in the movable hood shown in FIG. 6.

FIG. 10 is a cross-sectional view showing a state in which the louver is opened in the movable hood shown in FIG. 7.

FIG. 11 is an enlarged view of portion "XI" in FIG. 10.

FIG. 12 is a view showing another example of the movable hood shown in FIG. 11.

FIG. 13 is a view showing a state before the movable hood according to one embodiment of the present invention is operated.

FIG. 14 is a view showing an operating state of only a first fan of the movable hood shown in FIG. 13.

FIG. 15 is a side view showing an airflow near the movable hood in the operating state of the movable hood shown in FIG. 14.

FIG. 16 is a top view showing an airflow near the movable hood in the operating state of the movable hood shown in FIG. 14.

FIG. 17 is a view showing a simultaneous operating state of the first fan and a second fan of the movable hood shown in FIG. 14.

FIG. 18 is a side view showing an airflow near the movable hood in the operating state of the movable hood shown in FIG. 17.

FIG. 19 is a top view showing an airflow near the movable hood in the operating state of the movable hood shown in FIG. 17.

[Modes of the Invention]

[0143] The above-described objects, features, and advantages will be described below in detail with reference to the accompanying drawings, and thus those skilled in the art to which the present invention pertains will be able to easily carry out the technical spirit of the present invention. In describing the present invention, when it is determined that a detailed description of the known technology related to the present invention may unnecessarily obscure the gist of the present invention, a detailed description thereof will be omitted. Hereinafter, exemplary embodiments according to the present invention will be described in detail with reference to the accompanying drawings. In the drawings, the same reference numerals are used to denote the same or similar components.

[0144] Although terms such as first and second are used to describe various components, it goes without saying that the components are not limited by these terms. These terms are only used to distinguish one component from another component, and unless otherwise stated, it goes without saying that the first component may be the second component.

[0145] The present invention is not limited to the embodiments disclosed below, but may be variously changed and implemented in various different forms. The present embodiment is merely provided to allow the disclosure of the present invention to be complete and fully inform those skilled in the art of the scope of the invention. Therefore, it should be understood that the present invention is not limited to the embodiments disclosed below, but includes not only the substitutions and additions between a configuration of any one embodiment and a configuration of another embodiment, but also all changes, equivalents, and substitutions included in the technical spirit and scope of the present invention.

[0146] The accompanying drawings are only for easy understanding of the embodiments disclosed in the specification, and it should be understood that the technical spirit disclosed in the specification is not limited by the accompanying drawings, and all changes, equivalents, or substitutes included in the spirit and technical scope of the present invention are included in the accompanying drawings. In the drawings, components may be expressed exaggeratedly great or small in size or thickness in consideration of better understanding, etc., but the scope of the present invention should not be construed limitedly.

[0147] The terms used in the present specification are only used to describe specific implementations or embodiments and are not intended to limit the present invention. The singular expression includes the plural expression unless the context clearly dictates otherwise. In the specification, terms "-include," "-consist of," etc. are intended to specify the presence of features, numbers, steps, operations, components, parts, or combinations thereof described in the specification. That is, it should be understood that terms "-include," "-consist of," etc. in the specification do not preclude the possibility of the presence or addition of one or more other features, numbers, steps, operations, components, parts or combinations thereof in advance.

[0148] Terms including ordinal numbers such as first or second may be used to describe various components, but the components are not limited by the terms. The terms are used only for the purpose of distinguishing one component from another.

[0149] When a first component is described as being "connected" or "coupled" to a second component, it should be understood that the first component may be directly connected or coupled to the second component or a third component may be present therebetween. On

the other hand, when the first component is described as being "directly connected" or "directly coupled" to the second component, it should be understood that the third component is not present therebetween.

[0150] When a certain component is described as being "above" or "under" another component, it should be understood that the certain component may be disposed directly above another component and other components may also be present therebetween.

[0151] Unless defined otherwise, all terms used herein, including technical or scientific terms, have the same meaning as commonly understood by those of ordinary skill in the art to which the present invention pertains. Terms such as those defined in a commonly used dictionary should be construed as having a meaning consistent with the meaning in the context of the related art and should not be construed in an ideal or excessively formal meaning unless explicitly defined in the application.

[0152] In a state in which a mobile hood is placed on the floor, a direction in which a grill is installed with respect to the center of the mobile hood is defined as a front side Therefore, a direction in which outside air enters the mobile hood through the grill becomes a rear side. For convenience, a direction facing the front and rear sides can be referred to as a first direction. Then, the front side may be one side in the first direction, and the rear side may be the other side in the first direction.

[0153] In addition, a direction of gravity can be defined as downward, and a direction opposite to the direction of gravity can be defined as upward.

[0154] In addition, a horizontal direction perpendicular to a front-rear direction of the mobile hood, that is, a width direction of the mobile hood when viewing the mobile hood from the front of a grill of the mobile hood can be referred to as a left-right direction. For convenience, the left-right direction can be referred to as a second direction. Then, a right side can be referred to as one side in the second direction, and a left side can be referred to as the other side in the second direction.

[0155] In addition, the width direction of the mobile hood may be referred to as a lateral direction. Then, the right side can be referred to as one side in the lateral direction, and the left side can be referred to as the other side in the lateral direction.

[0156] In addition, the above-described vertical direction can be referred to as a third direction. Then, an upper side can be referred to as one side in the third direction, and a lower side can be referred to as the other side in the third direction.

[0157] In addition, the above-described vertical direction can be referred to as a vertical direction. Then, the front-to-rear direction and the left-right direction, that is, the first direction and the second direction can be referred to as a horizontal direction.

[0158] Throughout the specification, when "A and/or B" is described, it means A, B, or A and B unless otherwise stated, and when "C to D" is described, it means C or more and D or less unless otherwise stated.

[Overall structure of the movable hood]

[0159] FIG. 3 is a perspective view showing a movable hood according to one embodiment of the present invention, and FIG. 4 is an exploded perspective view showing a disassembled state of the movable hood shown in FIG. 3.

[0160] Referring to FIGS. 3 and 4, the mobile hood 1 according to one embodiment of the present invention is not fixed to a specific location and may be installed at a location at which polluted air needs to be purified. That is, a location of the mobile hood 1 according to the present embodiment may be freely changed as needed. The mobile hood 1 may include a main body 100, a first fan module 150, and a second fan module 160.

[0161] The main body 100 may form the appearance of the mobile hood 1 according to the present embodiment, and an accommodation space may be formed inside the main body 100. In the present embodiment, the main body 100 is shown as being formed in a substantially hexahedral shape. The main body 100 may accommodate components constituting the mobile hood 1, such as the first fan module 150 and the second fan module 160, therein.

[0162] The main body 100 may include a case 110 and a cover 120.

[0163] The case 110 is a component occupying most of the main body 100 and may be formed in a hexahedral shape having an open one side in the first direction. An accommodation space may be formed inside the case 110, and the first fan module 150, the second fan module 160, etc. may be accommodated therein.

[0164] In addition, the case 110 may form the appearance of the mobile hood 1 and may be provided to be seated on the ground, an upper plate of a sink, a floor of a dining table, etc.

[0165] The mobile hood 1 according to the present embodiment provided with the case 110 may be provided in a form that may be easily moved to a place in which cooking is performed, such as a sink, a dining table, or an island dining table, without being fixedly installed at any one location.

[0166] Hereinafter, for convenience, one side in the first direction will be referred to as the front side, the other side in the first direction will be referred to as the rear side, one side in the second direction will be referred to as the upper side, the other side in the second direction will be referred to as the lower side, and one side and the other side in the third direction will be referred to as the right side and the left side, respectively.

[0167] The cover 120 is provided to cover the case 110 at one side in the first direction, that is, the front side. As an example, the cover 120 may be provided in a shape corresponding to the open front shape of the case 110, for example, in a form of a quadrangular plate.

[0168] The main body 100 may be provided with an

inlet 122 and an outlet 114. The inlet 122 may form a passage for allowing outside air to flow into a first fan 151 in the main body 100. In addition, the outlet 114 may form a passage for allowing air suctioned into the first fan 151 to be discharged to the outside of the main body 100 in the main body 100.

[0169] The inlet 122 may form a passage that opens the inside of the main body 100 in the first direction, that is, the front-back direction. In addition, the outlet 114 may form a passage for opening the inside of the main body 100 in the second direction, that is, the vertical direction.

[0170] The inlet 122 may be provided in the cover 120. The inlet 122 may be formed to pass through the cover 120 in the front-rear direction. In addition, the outlet 114 may be provided in the case 110. The outlet 114 may be formed to pass through the case 110 in the vertical direction.

[0171] The first fan module 150 may be accommodated inside the main body 100, that is, in the accommodation space. The first fan module 150 may suction outside air in the front-rear 1 direction and discharge the outside air in the front-rear direction or the vertical direction. In the present embodiment, the first fan module 150 is shown as suctioning the outside air from the front side to the rear side and discharging the outside air upward.

[0172] The first fan module 150 may suction polluted air to the rear side and then discharge the purified air inside the mobile hood 1 upward.

[0173] The second fan module 160 is provided to suction air from the outside of the first fan module 150 and discharge the air in a direction between the third direction and the first direction, that is, in a direction between the left-right direction and the front-rear direction.

[0174] In the present embodiment, the second fan module 160 is shown as being disposed at each of the right and left sides of the first fan module 150. In addition, in the present embodiment, it is shown that the second fan module 160 at the right side discharges air in the direction between the right side and the front side, and the second fan module 160 at the left discharges the air in the direction between the left side and the front side.

[0175] That is, each second fan module 160 may suction air from the inside or outside of the mobile hood 1 and then discharge the air in a direction between the lateral outer side and front side of the mobile hood 1.

[0176] As described above, the flow of the air discharged by the second fan module 160 may serve as an air curtain formed at the lateral outer side of the suction flow generated at the front side of the mobile hood 1 by the first fan module 150. Detailed description thereof will be made below.

[0177] Meanwhile, the mobile hood 1 according to the present embodiment may further include a grill 130. The grill 130 may cover the main body 100 at the front side and may be coupled to the main body 100. The grill 130 may be disposed at the frontmost side of the mobile hood 1 to form the front appearance of the mobile hood 1.

[0178] The grill 130 may cover an open front surface of the case 110 and may be coupled to the case 110. The grill 130 can block foreign substance from flowing into the components accommodated inside the case 110, for example, the first fan module 150 and the second fan module 160, and protect the components from an external impact.

[0179] A plurality of through holes may be formed in the grill 130 to pass therethrough in the front-rear direction. The grill 130 including the through holes may serve to provide a passage for allowing outside air to flow into the main body 100 and cover the front surface of the main body 100 to prevent the inside of the main body 100 from being exposed to the outside.

[0180] In addition, the mobile hood 1 according to the present embodiment may further include a filter 140. The filter 140 may be disposed between the first fan 151 and the grill 130, that is, at the rear side of the grill 130. The filter 140 may serve to filter the outside air sucked into the first fan 151 and the second fan 161.

[0181] The filter 140 may be formed in a shape corresponding to the front shape of the main body 100 or the shape of the grill 130. In the present embodiment, the filter 140 is shown as being formed in a quadrangular shape corresponding to the front shape of the main body 100.

[0182] The filter 140 may be provided in a form including at least any one of a pre-filter, an oil-mist filter/grease filter, an odor filter, a dust filter, a deodorizing filter, and a sterilizing filter.

[0183] The pre-filter may be used to catch large dust and oil particles, and the oil mist filter may be used to remove oil vapor generated during cooking. In addition, the deodorizing filter may be formed of activated carbon, etc., which removes odors, and the dust filter is a filter used to remove fine dust.

[0184] The filter 140 may be any one of the filters or formed in combination of the filters.

[0185] Meanwhile, the movable hood 1 according to the present embodiment may further include a battery. The battery may be electrically connected to at least any one of the first fan 151 and the second fan 161 to supply power to at least any one of the first fan 151 and the second fan 161.

[0186] In the present embodiment, it is shown that the battery is electrically connected to both the first fan 151 and the second fan 161 to supply power to both the first fan 151 and the second fan 161. As an example, the battery may be provided inside the case 110. As another example, the battery may be disposed above the case 110 or under the case 110.

[0187] By providing the battery 271 in the movable hood 1, the installation location of the movable hood 1 is not limited to a location at which power may be supplied from an external power source. That is, the movable hood 1 according to the present embodiment may effectively treat the polluted air generated in the cooking process even at a location at which it is difficult to receive the power from the external power source.

[0188] The battery may be provided in a rechargeable form, and to this end, the movable hood 1 may further be provided with a terminal for charging the battery.

[Structure of the main body]

[0189] FIG. 5 is a perspective view showing a state in which a suction grill and a filter are excluded from the movable hood shown in FIG. 3, and FIG. 6 is a cross-sectional view along line "VI-VI" in FIG. 3.

[0190] Referring to FIGS. 3 to 6, the case 110 may be formed in a substantially hexahedral shape, the accommodation space is formed inside the case 110, and the front surface of the case 110 is open. The case 110 may be formed in a hexahedral shape including a first surface 111, a pair of second surfaces 113, and a pair of third surfaces 115.

[0191] The first surface 111 may be provided in a form that forms a surface perpendicular to an axis in the front-rear direction. The first surface 111 may form a back surface of the case 110.

[0192] The pair of second surfaces 113 may be disposed to face each other vertically with the first surface 111 interposed therebetween. Each second surface 113 may be provided in a form that forms a surface perpendicular to an axis in the vertical direction. The second surface 113 may form top and bottom surfaces of the case 110.

[0193] The pair of third surfaces 115 may be disposed to face each other in the left-right directions with the first surface 111 and the second surface 113 interposed therebetween. Each third surface 115 may be provided in a form that forms a surface perpendicular to an axis in the left-right direction. The third surface 115 may form both side surfaces of the case 110.

[0194] The case 110 including the first surface 111, the second surface 113, and the third surface 115 may be formed in a form of a box of a substantially hexahedron shape in which the accommodation space is formed therein and a front surface is open.

[0195] The outlet 114 may be provided on any one of the pair of second surfaces 113. The outlet 114 may be formed to pass through the second surface 113 in the second direction, that is, the vertical direction.

[0196] In the present embodiment, it is shown that the outlet 114 is provided on the second surface 113 disposed at the top of the pair of second surfaces 113. The outlet 114 may be formed to vertically pass through the second surface 113 forming an upper surface of the case 110.

[0197] The main body 100 may further include a scroll 117. The scroll 117 may be disposed between the first surface 111 disposed at the rear side of the first fan module 150 and the cover 120 disposed at the front side of the first fan module 150. A space in which a first fan 151 to be described below is accommodated may be formed inside the scroll 117. In addition, an inner circumferential surface of the scroll 117 may be formed as a curved surface surrounding the first fan 151.

[0198] The cover 120 may be provided in a form of a quadrangular-shaped plate that corresponds to the shape of the open front surface of the case 110. The cover 120 may be disposed between the first fan module 150 and the second fan module 160 to block a space between the first fan module 150 and the second fan module 160. That is, a space in which the first fan module 150 is installed and a space in which the second fan module 160 is installed may be physically separated by the cover 120.

[0199] The inlet 122 may be formed in the cover 120. The inlet 122 may be a passage connecting the space in which the first fan module 150 is installed with the space in which the second fan module 160 is installed, but is used as only a passage through which outside air flows into the first fan module 150. In the present embodiment, the inlet 122 is rarely used as a passage connecting the first fan module 150 with the second fan module 160.

[0200] The filter 140 and the grill 130 may be disposed in front of the cover 120. The filter 140 and the grill 130 may be disposed to be spaced at a predetermined distance from the cover 120 in the front-rear direction. A distance between the cover 120 and the filter 140 in the front-rear direction may be about a length corresponding to a length of the second fan module 160 in the front-rear direction.

[0201] According to the present embodiment, the first fan module 150 may be accommodated in a space between the first surface 111 of the case 110 and the cover 120. In addition, the second fan module 160 may be accommodated in a space between the cover 120 and the filter 140. In addition, the filter 140 may be accommodated in a space between the first fan module 150 and the grill 130.

[0202] Meanwhile, the case 110 may include a first case 110a and a second case 110b.

[0203] The first case 110a is disposed at the rear side of the first case 110a and the second case 110b and may accommodate the first fan module 150 therein. For example, the first case 110a may include the entirety of the first surface 111 and rear areas of the second surface 113 and the third surface 115. The scroll 117 may be formed in the first case 110a.

[0204] The second case 110b is disposed at the front side of the first case 110a and the second case 110b. That is, the second case 110b may be disposed in front of the first case 110a. For example, the second case 110b may include front areas of the second surface 113 and the third surface 115, and a front surface of the second case 110b may be open.

[0205] The first case 110a and the second case 110b may be connected in the front-rear direction and may be formed integrally. The first case 110a and the second case 110b may be connected in the front-rear direction and formed integrally. That is, the second case 110b may be formed to protrude upward more than the first case 110a so that an upper end of the second case 110b is

disposed at a location higher than an upper end of the first case 110a.

[0206] The outlet 114 may be provided in the first case 110a provided at a lower height than the second case 110b. The outlet 114 may be formed to vertically pass through an upper end portion of the first case 110a. For example, the outlet 114 may be formed to vertically pass through the rear area of the second surface 113 disposed at the top.

[0207] Therefore, the second case 110b is formed to protrude upward more than the outlet 114 formed in the first case 110a as described above to block the outlet 114 at the front side.

[0208] The second fan module 160 may be accommodated in the second case 110b. In the present embodiment, it is shown that a pair of second fan modules 160 are accommodated inside the second case 110b. The pair of second fan modules 160 may be disposed to be spaced apart from each other in the left-right direction inside the second case 110b.

[0209] Any one of the pair of second fan modules 160 may be disposed at a location biased to the right side more than the first fan module 150. In addition, the other one of the pair of second fan modules 160 may be disposed at a location biased to the left side more than the first fan module 150. In the present embodiment, the pair of second fan modules 160 are disposed at locations adjacent to a right end portion and a left end portion of the second case 110b, respectively.

[0210] The second fan module 160 disposed as described above may be accommodated in a space surrounded by the second case 110b and the cover 120. More specifically, the second fan module 160 may be accommodated in a space surrounded by the second case 110b, the cover 120, and the grill 130.

[Structure of the first fan module]

[0211] The first fan module 150 may include the first fan 151 and a first driver 153.

[0212] The first fan 151 may be accommodated in the accommodation space inside the main body 100, more specifically, in the scroll 117 provided in the first case 110a. The first fan 151 may suction outside air in the front-rear direction by rotating about the axis in the front-rear direction.

[0213] The first fan 151 suctioning the outside air as described above may discharge the outside air in the front-rear direction or in the left-right direction. In the present embodiment, it is shown that the first fan 151 is provided in a form of a centrifugal fan. This first fan 151 may rotate about the axis in the front-rear direction to suction air at the front side and discharge the air in a centrifugal direction.

[0214] The first driver 153 may provide a driving force for rotating the first fan 151. The first driver 153 may be provided in a form of an electric motor and installed in a form fixed to the case 110, more specifically, the first surface 111.

[0215] The first fan 151 rotated by the first driver 153 may generate a suction flow that induces a flow of the outside air so that the outside air at the front side of the mobile hood 1 is suctioned into the mobile hood 1.

[0216] Due to the suction flow generated by the first fan 151, the outside air may pass through the grill 130 and the filter 140 and flow into the mobile hood 1. The air introduced as described above may move to the rear side inside the mobile hood 1, pass through the inlet 122, and then may be suctioned into the first fan 151.

[0217] The air suctioned into the first fan 151 may be discharged centrifugally from the first fan 151, and the flow of the air discharged as described above may be guided to an upper end side of the case 110 by the scroll 117. The air moving upward as described above may be discharged to the upper side of the mobile hood 1 through the outlet 114 disposed at an upper end of the case 110.

[Structure of the second fan module]

[0218] FIG. 7 is a cross-sectional view along line "VII-VII" in FIG. 3.

[0219] Referring to FIGS. 4 to 7, the second fan module 160 may include a second fan 161 and a second driver 163.

[0220] The second fan 161 may be accommodated in the second case 110b. More specifically, the second fan 161 may be accommodated in a space surrounded by the second case 110b, the cover 120, and the grill 130. Therefore, the second fan 161 may be accommodated inside the main body 100 to be disposed in front of the first fan 151. In addition, the second fan 161 may rotate about the axis in the vertical direction.

[0221] In the present embodiment, it is shown that the second fan 161 suctions air from the front side and discharges the air in a direction between the front and the side. As an example, an inlet 162 of the second fan 161 may be disposed in a direction toward the front side, and an outlet 164 of the second fan 161 may be disposed in a direction between the front and the side, that is, in a direction toward a discharge port 116.

[0222] The second fan 161 may suction some of the air flowing into the mobile hood 1 by the suction flow generated by the first fan 151 at the front side. As described above, the air suctioned into the second fan 161 may be discharged to the outside of the mobile hood 1 and discharged in the direction between the front and the side.

[0223] In the present embodiment, it is shown that the second fan 161 is provided in a form of a tangential fan. The second fan 161 provided in the form of the tangential fan may suction air at the front side while rotating about the axis in the vertical direction and discharge the air in the centrifugal direction.

[0224] The second driver 163 may provide a driving force for rotating the second fan 161. The second driver 163 may be provided in a form of an electric motor and

installed at the upper or lower side of the second fan 161. In the present embodiment, it is shown that the second driver 163 is installed at an upper end of the second fan 161.

[0225] The second fan 161 rotated by the second driver 163 may re-discharge some of the outside air flowing into the mobile hood 1 in the direction between the front and side of the mobile hood 1. According to the present embodiment, the second fan 161 may be disposed in front of the first fan 151. Therefore, some of the air moving toward the first fan 151 may be suctioned by the second fan 161 and then re-discharged toward the front side of the mobile hood 1.

[0226] In addition, the second fan 161 may be disposed not to overlap the first fan 151 in the front-rear direction. More specifically, a pair of second fans 161 may be disposed to be spaced apart from each other in the left-right direction with the first fan 151 interposed therebetween. That is, the pair of second fans 161 may be disposed to be spaced apart from each other in the left-right direction with the scroll 117 interposed therebetween.

[0227] Therefore, the second fan 161 may be disposed outside the first fan 151 in the left-right direction and disposed at a location biased to the outside more than the location of the suction flow guided by the first fan 151 in the left-right direction. Therefore, the flow of the air discharged by the second fan 161 may be formed at a location biased to the outside more than the location of the suction flow in the left-right direction.

[0228] As described above, the flow of the air discharged to the outside of the mobile hood 1 by the second fan 161 may act in a form of an air curtain at the side portion of the mobile hood 1.

[0229] For example, the second fan 161 disposed at the right side of the mobile hood 1 may discharge air in the direction between the front and right sides of the mobile hood 1. The flow of the air discharged as described above may act in the form of the air curtain at the right side of the mobile hood 1.

[0230] In addition, the second fan 161 disposed at the left side of the mobile hood 1 may discharge air in the direction between the front and left sides of the mobile hood 1. The flow of the air discharged as described above may act in the form of the air curtain at the left side of the mobile hood 1.

[Peripheral structure of the second fan]

[0231] FIG. 8 is a perspective view showing a state in which a louver is opened in the mobile hood shown in FIG. 5, and FIG. 9 is a cross-sectional view showing a state in which the louver is opened in the mobile hood shown in FIG. 6.

[0232] Referring to FIGS. 8 and 9, the main body 100 may be provided with the discharge port 116. The discharge port 116 may form a passage for allowing the air suctioned by the second fan 161 to be discharged to the outside of the main body 100. The discharge port 116 may form a passage for opening the main body 100 in the left-right direction.

[0233] The discharge port 116 may be formed to pass through the third surface 115 in the left-right direction. The discharge port 116 may be formed in each of the pair of third surfaces 115 that form both side surfaces of the main body 100. In addition, the discharge port 116 may be formed in the second case 110b of the first case 110a and the second case 110b. That is, the discharge port 116 may be disposed at a location that overlaps the second fan 161 in the left-right direction.

[0234] The air discharged from the second fan 161 may be discharged to the outside of the mobile hood 1 through the adjacent discharge port 116 and discharged in the direction between the front side and the side.

[0235] According to the present embodiment, the main body 100 may further include a partition wall 125. The partition wall 125 may form a surface parallel to the third surface 115. With respect to the left and right direction, the partition wall 125 may be disposed between the third surface 115 and the inlet 122.

[0236] With respect to the front-rear direction, the partition wall 125 may be disposed between the cover 120 and the filter 140. That is, the cover 120 may be disposed between the first fan 151 and the second fan 161 and between the scroll 117 and the partition wall 125.

[0237] In the present embodiment, it is shown that a pair of partition walls 125 are provided in the main body 100. One of the partition walls 125 may be disposed between the third surface 115 disposed at the right side and the outlet 114. In addition, the other partition wall 125 may be disposed between the third side 115 disposed at the left side and the outlet 114.

[0238] An upper end of each partition 125 may be connected to the second surface 113 disposed thereabove, and a lower end of each partition 125 may be connected to the second surface 113 disposed thereunder. Therefore, a space (hereinafter referred to as "right space") surrounded by the third side 115, the pair of second surfaces 113, and the partition wall 125 that are disposed at the right side may be formed at the right side of the outlet 114. In addition, a space (hereinafter referred to as "left space") surrounded by the third surface 115, the pair of second surfaces 113, and the partition wall 125 that are disposed at the left side may be formed at the left side of the outlet 114.

[0239] Front surfaces of the right space and the left space are each open forward, and outside air may flow into the right space or the left space through the open front surfaces. The second fan module 160 may be accommodated inside the right space and the left space.

[0240] In addition, each discharge port 116 may communicate with a space in which the second fan 161 is disposed, that is, the right space or the left space. That is, the discharge port 116 disposed at the right side may communicate with the right space, and the discharge port 116 disposed at the left side may communicate with the left space.

[0241] Meanwhile, the mobile hood 1 according to the present embodiment may further include a louver 190. The louver 190 may be installed in the case 110 and provided to move between a closed location and an unfolded location.

[0242] The louver 190 may be formed in a shape that covers the third surface 115 and closes the discharge port 116 at the closed location. For example, the louver 190 may be provided in a form of a quadrangular panel having the size corresponding to the size of an area in which the discharge port 116 is formed. As an example, the louver 190 may be formed in the form of the panel having a shape similar to the shape of the third surface 115 in an area of the second case 110b.

[0243] The louver 190 may form a surface disposed behind the discharge port 116 when disposed at the unfolded location. At the unfolded position, the louver 190 may form a surface parallel to a line extending in a direction between the left-right direction and the front-rear direction and a line extending in the vertical direction.

[0244] The louver 190 may close the discharge port 116 at the closed location and may be unfolded to the outside of the main body 100 with an attitude protruding in the left-right direction from the main body 100 at the unfolded location.

[0245] To this end, the louver 190 may be rotatably installed on the main body 100. Specifically, the louver 190 may be installed on the main body 100, more specifically, the main body 100 so that the front end portion may be rotated in the left-right direction about the rear end portion coupled to the third surface 115. The rear end portion of the louver 190 may be coupled to the main body 100 at a location biased to the rear side more than the discharge port 116.

[0246] In addition, the mobile hood 1 according to the present embodiment may further include a third driver 170 and links 180 and 185 that are provided to rotate the louver 190.

[0247] The third driver 170 may generate a rotational force about the axis in the vertical direction. As an example, the third driver 170 may be provided in a form that includes an electric motor having a shaft that rotates about the axis in the vertical direction, and a cylindrical rotational member 175 rotated by the shaft.

[0248] The links 180 and 185 may be provided in a form that connects the third driver 170 with the louver 190 and includes the first link 180 and the second link 185.

[0249] The first link 180 may be connected to the third driver 170, more specifically, the rotational member 175. The first link 180 may be rotatably connected to the rotational member 175. That is, the first link 180 may be connected to the rotational member 175 to rotate about the axis in the vertical direction.

[0250] In addition, the first link 180 may be eccentrically connected to the rotational member 175. That is, the first link 180 may be connected to the rotational member 175 between the rotation center and outer circumferential surface of the rotational member 175. Therefore, when the rotational member 175 rotates, the locations of the first link 180 in the front-rear direction and the left-right direction may be changed.

[0251] The second link 185 may connect the first link 180 with the louver 190. The second link 185 may be rotatably connected to the first link 180 in a state of being fixed to the louver 190. The first link 180 and the second link 185 may be rotatably connected about the axis in the vertical direction.

[0252] As an example, the second link 185 may be formed integrally with the louver 190 and formed in a form that protrudes from the louver 190 in the vertical direction. In this case, the second link 185 may be formed in a form that protrudes from the louver 190 in the horizontal direction. In the present embodiment, the horizontal direction is defined as a direction parallel to a plane perpendicular to the vertical direction.

[0253] The third driver 170 may be disposed in the right space and the left space, respectively. That is, the third driver 170 may be accommodated inside the case 110. The first link 180 connected to the third driver 170 inside the case 110 should be connected to the louver 190 disposed outside the case 110.

[0254] To connect the first link 180 with the louver 190, a through hole 118 may be provided in the case 110, more specifically, in the third surface 115. The through hole 118 may be formed to pass through the third surface 115 in the left-right direction and may form a passage necessary for the first link 180 and the second link 185 to enter and exit the case 110.

[0255] In the present embodiment, it is shown that the third driver 170 is disposed under the second fan 161. Therefore, the through hole 118 may be disposed under the discharge port 116. In addition, it is preferable that the louver 190 is formed in a shape that may cover the discharge port 116 and the through hole 118 together at the closed location. It is because the air inside the mobile hood 1 may be discharged to the outside of the mobile hood 1 or the outside air may flow into the mobile hood 1 through both the discharge port 116 and the through hole 118.

[0256] As shown in FIGS. 5 and 6, in a state in which the louver 190 closes the discharge port 116 at the closed location, when the rotational member 175 is rotated in one direction according to an operation of the third driver 170, the first link 180 may protrude outward from the main body 100 while moving in the left-right direction.

[0257] Therefore, as shown in FIGS. 8 and 9, the louver 190 connected to the first link 180 through the second link 185 may be moved to the unfolded location by being rotated by the first link 180. As a result, the louver 190 may be laterally expanded to the outside of the main body 100 behind the discharge port 116 while opening the discharge port 116.

[Operations of the second fan and the louver]

[0258] FIG. 10 is a cross-sectional view showing a

state in which the louver is opened in the mobile hood shown in FIG. 7, FIG. 11 is an enlarged view of portion "XI" in FIG. 10, and FIG. 12 is a view showing another example of the mobile hood shown in FIG. 11.

[0259] Hereinafter, the operations of the second fan and the louver according to one embodiment of the present invention will be described with reference to FIGS. 5 to 12.

[0260] As shown in FIGS. 5 to 7, in a state in which the louver 190 is located at the closed location, the discharge port 116 and the through hole 118 are closed by the louver 190, and the second fan module 160 is not operated.

[0261] In this state, as shown in FIGS. 8 to 10, when the third driver 170 rotates the first link 180 in one direction, the first link 180 moves rearward and laterally to move the louver 190 to the unfolded location.

[0262] In this case, the louver 190 disposed at the right side of the main body 100 may be unfolded in a form that protrudes to the right side of the main body 100, and the louver 190 disposed at the left side of the main body 100 may be unfolded in a form that protrudes to the left side of the main body 100.

[0263] In addition, as shown in FIGS. 10 and 11, the operation of the second fan module 160 starts, and thus some of the air flowing into the mobile hood 1 may be suctioned by the second fan 161 and then discharged through the discharge port 116. As described above, the air discharged through the discharge port 116 may be discharged between the front side and the side. In this case, the louver 190 located behind the discharge port 116 may guide the discharge flow of the air.

[0264] As described above, the airflow discharged to the outside of the mobile hood 1 through the discharge port 116 may move in a direction between the front side and the side and may be discharged forward from the mobile hood 1. The flow of the air discharged as described above forms an air curtain in front of the mobile hood 1 and affects the flow of the air near the mobile hood 1.

[0265] For example, the air curtain formed as described above may block the flow of the air located in a lateral outer area of the air curtain and the mobile hood 1, thereby preventing the air located in the lateral outer area of the air curtain from being suctioned to the mobile hood 1.

[0266] Therefore, since a condition in which the air located in a lateral inner area of the air curtain may be suctioned into the mobile hood 1 may be effectively established, it is possible to more effectively suction polluted air generated in front of the mobile hood 1.

[0267] Meanwhile, FIG. 12 shows another example of the second fan.

[0268] Referring to FIG. 12, the second fan module 165 may include a second fan 161 provided in a form that suctions air from the rear side and discharges the air in a direction between the front side and the side. As an example, the inlet 162 of the second fan 161 may be disposed in a direction toward the rear side, and the outlet 164 of the second fan 161 may be disposed in a direction between the front side and the side, for example, in a direction toward the discharge port 116.

[0269] To purify the polluted air generated in the cooking process, the mobile hood 1 suctions the polluted air in a state in which the front surface faces a cooking vessel. Therefore, the air suctioned from the front side of the mobile hood 1 may be mainly the polluted air generated in the cooking process.

[0270] Upon cooking food, hot heat and high-temperature water vapor in addition to oil vapor and smoke are also generated together. Therefore, when the second fan module 160 discharges the air suctioned at the front side of the mobile hood 1 in a form of an air curtain, even when the air is in a state of being filtered by the filter 140, the flow in the form of the air curtain may cause discomfort to a user due to its heat, etc.

[0271] The second fan module 160 does not suction the air at the front side of the mobile hood 1, but suctions the air at the rear side of the mobile hood 1. That is, the second fan module 160 does not suction the high-temperature polluted air generated in the cooking process, but suctions the air at a location slightly away from the source of the polluted air.

[0272] Therefore, the second fan module 160 may form the air curtain in a cleaner and more refreshing state. Therefore, it is possible to more effectively suppress the high-temperature polluted air from flowing to the user and significantly reduce the discomfort felt by the user when the airflow forming the air curtain reaches the user.

[Function and effect of the mobile hood]

[0273] FIG. 13 is a view showing a state before the mobile hood according to one embodiment of the present invention is operated, and FIG. 14 is a view showing an operating state of only a first fan of the mobile hood shown in FIG. 13. In addition, FIG. 15 is a side view showing an airflow near the mobile hood in the operating state of the mobile hood shown in FIG. 14, and FIG. 16 is a top view showing an airflow near the mobile hood in the operating state of the mobile hood shown in FIG. 14. In addition, FIG. 17 is a view showing a simultaneous operating state of the first fan and a second fan of the mobile hood shown in FIG. 14, FIG. 18 is a side view showing an airflow near the mobile hood in the operating state of the mobile hood shown in FIG. 17, and FIG. 19 is a top view showing an airflow near the mobile hood in the operating state of the mobile hood shown in FIG. 17.

[0274] Hereinafter, the operation and effect of the mobile hood according to the present embodiment will be described with reference to FIGS. 13 to 19.

[0275] It should be noted that lines shown in FIGS. 15 and 18 are lines indicating an air volume, and the closer the color of the line indicating the air volume is to blue, the lower the air volume is, and the closer the color of the line indicating the air volume is to red, the higher the air volume is.

[0276] As shown in FIG. 13, the mobile hood 1 according to the present embodiment may be disposed adjacent to a cooking vessel P for generating polluted air in the cooking process. The mobile hood 1 may purify the polluted air generated during cooking while changing the location thereof as needed rather than being fixedly installed at any one location.

[0277] As an example, even when cooking is performed using a portable burner in a place other than a kitchen, for example, a room or a lounge, the mobile hood 1 according to the present embodiment may be disposed near its cooking location to purify the polluted air generated from the cooking vessel P heated by the portable burner.

[0278] As shown in FIG. 14, the mobile hood 1 according to the present embodiment may suction the polluted air generated from the cooking vessel P in a state of being disposed adjacent to the cooking vessel P in which cooking is performed.

[0279] The mobile hood 1 according to the present embodiment may be installed at various locations in various forms by freely changing the location and attitude thereof. The mobile hood 1 may effectively suction the polluted air generated from the cooking vessel P in a state in which the front surface thereof is disposed to face the cooking vessel P.

[0280] In a state in which only the first fan module is operated and the second fan module is not operated, as shown in FIGS. 14 to 16, not only the polluted air generated from the cooking vessel P is suctioned, but also the air at different locations not related to the location at which cooking is performed is suctioned.

[0281] For example, not only the the air including the polluted air generated at the front side of the mobile hood 1 is suctioned, but also the air at the side or rear side of the mobile hood 1 is suctioned.

[0282] The suction power generated by the first fan module may spread and act in all directions near the mobile hood 1, thereby making it difficult to effectively suction the polluted air generated at the front side of the mobile hood 1.

[0283] That is, as the suction power generated by the first fan module is evenly dispersed and applied both to the front side and in other directions, the strength of the suction power acting on the front side of the mobile hood 1 inevitably becomes weaker accordingly.

[0284] Therefore, it is difficult for the smoke and pollutants generated from the cooking vessel P to be effectively suctioned into the mobile hood 1. That is, as the strength of the suction power acting on the front side of the mobile hood 1 weakens, a suction possible area of the mobile hood 1 is inevitably reduced.

[0285] In addition, due to the weakening of the strength of the suction power acting on the front side of the mobile hood 1, there may occur a phenomenon that the suction flow suctioned into the mobile hood 1 is affected by the exhaust flow discharged through the outlet 114.

[0286] That is, some of the suction flow in front of the mobile hood 1 at the top may not be suctioned into the mobile hood 1, and as shown in FIG. 15, there may occur a phenomenon that some joins the exhaust flow and flow out upward from the mobile hood 1.

[0287] Such a phenomenon may occur in a case where, as the rotational speed of the first fan increases, a strong suction power is generated by the first fan, thereby increasing a rate of the exhaust flow discharged through the outlet 114, but a rate of the suction flow in front of the mobile hood 1 may not reach the above rate.

[0288] For example, such a phenomenon may occur when the rotational speed of the first fan is increased to increase the suction power of the mobile hood 1.

[0289] In this case, since the polluted air may not properly be purified by the mobile hood 1 and may spread to the surroundings together with the exhaust flow discharged from the mobile hood 1, there may occur a problem that the pollutants rather spread to the kitchen or the entire interior by the mobile hood 1.

[0290] As shown in FIGS. 17 to 19, when the louver 190 is unfolded to the unfolded location to open the discharge port 116 and also operate the second fan module, air may be discharged through the discharge port 116.

[0291] The air discharged as described above may form an air curtain that surrounds the suction flow at both sides in the left-right direction. The air curtain allows the suction power generated by the first fan module to mainly act in the area surrounded by the air curtain, thereby increasing the strength of the suction flow generated in front of the mobile hood 1.

[0292] For example, as shown in FIG. 18, the air curtain may block the flow of the air located in the lateral outer area of the air curtain and the mobile hood 1, thereby preventing the air located in the lateral outer area of the air curtain from being suctioned into the mobile hood 1.

[0293] Therefore, since the condition necessary to increase the intensity of the flow of the air formed in the area surrounded by the air curtain, that is, the suction flow may be effectively established, it is possible to effectively increase the intensity of the suction flow, thereby more effectively suctioning the polluted air.

[0294] In addition, when the strength of the suction flow increases as described above, as shown in FIGS. 17 to 19, the suction flow is generated in a low-flow form and suctioned into the mobile hood 1.

[0295] When the suction flow is generated in a low-flow form as described above, a distance between the suction flow and the outlet 114 increases accordingly, and thus there is a low possibility that the suction flow will be affected by the exhaust flow discharged through the outlet 114.

[0296] In addition, since the intensity of the suction flow increases as the suction flow is generated in a low-flow form, the possibility of being affected by the exhaust flow discharged through the outlet 114 is further reduced.

[0297] Therefore, the mobile hood 1 according to the present embodiment can effectively contribute to suppressing the spread of pollutants in the cooking space

by effectively suctioning, purifying, and then discharging the pollutants without spreading the pollutants.

[0298] In addition, as the strength of the suction flow increases as described above and the suction possible range of the mobile hood 1 increases, some of the discharge flow forming the air curtain may be affected by the suction flow to increase the amount of pollutants re-suctioned into the mobile hood 1. The air discharged through the discharge port 116 is in a state of being purified by already passing through the filter 140 once. When the air is suctioned back into the mobile hood 1, the air may pass through the filter 140 once more and may be re-purified.

[0299] While the mobile hood 1 is operating, the above phenomenon may occur repeatedly. Therefore, it is possible to achieve the n^{th} filtering effect in which air is filtered multiple times by the filter 140. Therefore, the mobile hood 1 according to the present embodiment can provide the more improved air purification effect.

[0300] Due to the characteristics of the mobile hood 1 provided to enable movement arrangement, the mobile hood 1 according to the present embodiment does not discharge the suctioned polluted air to the outside, filters the polluted air through the filter 140, and then re-discharges the polluted air therein.

[0301] Therefore, the mobile hood 1 according to the present embodiment needs to provide a much higher level of pollutant removal performance than a range hood in a form that suctions polluted air and then discharges the polluted air to the outside.

[0302] In addition, the mobile hood 1 according to the present embodiment does not form an upward suction flow at the top of the cooking vessel P, but forms a suction flow outside the cooking vessel P in the horizontal direction. The mobile hood 1 according to the present embodiment needs to provide a higher level of suction performance and pollutant removal performance than a range hood that forms an upward suction flow.

[0303] That is, since the mobile hood 1 according to the present embodiment forms the suction flow outside the cooking vessel P in the horizontal direction and re-discharges the suctioned polluted air therein without discharging the suctioned polluted air to the outside, the mobile hood 1 should provide a high level of suction performance and pollutant removal performance.

[0304] Considering such a point, the mobile hood 1 according to the present embodiment can improve suction performance by guiding the suction of the polluted air through the air curtain formed by the second fan module and at the same time, achieve the n^{th} filtering effect in which the polluted air is repeatedly suctioned multiple times and filtered.

[0305] The mobile hood 1 according to the present embodiment can further provide the following effects.

[0306] First, the mobile hood 1 according to the present embodiment can purify the polluted air generated during cooking while changing the location as needed rather than being fixedly installed at any one location. The mobile hood has an advantage that can be highly used because the mobile hood may be used by being moved to a place desired by the user, such as a kitchen, a dining table, a room, a lounge, a living room, or an outdoor.

[0307] Second, since the mobile hood 1 according to the present embodiment can provide the more improved suction performance and pollutant removal performance by forming the air curtain near the suction flow to increase the suction efficiency for the polluted air generated from a cooking object.

[0308] Third, the mobile hood 1 according to the present embodiment can provide the more improved pollutant removal performance by achieving the n^{th} filtering effect in which the polluted air is repeatedly suctioned and filtered multiple times.

[0309] The mobile hood 1 according to the present embodiment may be disposed to be freely moved to various locations rather than the typical hood installation place, thereby more efficiently collecting the pollutants generated in the cooking process and very effectively purifying polluted air near the cooking area.

[0310] Fourth, the mobile hood 1 according to the present embodiment can very effectively increase the collection efficiency for the pollutants without increasing the suction rate of the fan by increasing the suction efficiency for the polluted air using the air curtain as described above. Therefore, the mobile hood 1 according to the present embodiment can effectively increase the collection efficiency for pollutants without significantly increasing power consumption.

[0311] Fifth, the mobile hood 1 according to the present embodiment can improve the suction performance of the mobile hood 1 without the hassle of installing an additional structure by allowing the air curtain formed by the operation of the second fan module to serve as a structure such as a blocking film or an awning.

[0312] In addition, when the structure such as a blocking film or an awning is installed in the cooking space, the structure may interfere with the activity of a user who is cooking. In contrast, the mobile hood 1 according to the present embodiment can improve suction performance without interfering with the activity of the user who is cooking by allowing the air curtain formed by the operation of the second fan module to serve as the structure such as a blocking film or an awning.

[0313] Sixth, the mobile hood 1 according to the present embodiment may be provided in a shape having a small thickness sufficient to be installed in the narrow cooking space by arranging the second fan module on the side portion of the first fan module departing from the suction direction and discharge direction of the first fan module without arranging the first fan module and the second fan module in a line in a direction in which suction flow is generated.

[0314] Seventh, the mobile hood 1 according to the present embodiment can stably maintain the combustion of a heating device for generating flame, for example, a gas cook-top, and effectively remove the pollutants gen-

erated by heat generated by the corresponding heating device.

[0315] In the case of the range hood that uses a swirler or a vortex fan, there is a problem such as the fact that the vortex generated from the swirler or the vortex fan reach the flame of the gas cook-top, thereby causing the flame to shake and affecting the combustion of the gas cook-top.

[0316] In contrast, in the mobile hood 1 according to the present embodiment, like the discharge flow forming the air curtain that faces the side and front side without facing the front side toward the heating device, any discharge flow generated from the mobile hood 1 does not face the heating device.

[0317] Therefore, the mobile hood 1 according to the present embodiment can effectively improve the suction performance of the mobile hood 1 without affecting the combustion of the heating device that generates a flame, such as a gas cook-top.

[0318] Eighth, the mobile hood 1 according to the present embodiment can secure the sufficient suction performance necessary for removing the pollutants while effectively responding to the situation in which the user may feel inconvenience or discomfort by having the air curtain formation function that may be turned on/off appropriately depending on the situation.

[0319] In the case of the range hood using the swirler or the vortex fan, when the range hood is installed in a narrow space, there is a problem that the suction performance of the range hood is degraded because a vortex is not properly generated by the structure near the range hood.

[0320] In addition, in the case of the range hood, when the range hood is installed at a location very close to the user, for example, near a dining table, there is a problem that the user may feel inconvenience or discomfort due to the vortex formed by the swirler or the vortex fan.

[0321] In contrast, the mobile hood 1 according to the present embodiment may be provided so that the air curtain formation function may be turned on/off to appropriately turn the air curtain formation function on or off depending on the situation.

[0322] That is, when a space sufficient to form the air curtain may not be secured or the mobile hood 1 is disposed at a location very close to the user, or when the air curtain formation function is not required, the mobile hood 1 may be operated in a state in which the air curtain formation function is turned off.

[0323] In addition, when the mobile hood 1 according to the present embodiment is installed in the space sufficient to form the air curtain and there is no concern of the air curtain in contact with the user, it is possible to secure the suction performance sufficient to effectively remove the pollutants by turning the air curtain formation function on.

[0324] That is, the mobile hood 1 according to the present embodiment can provide both an operation mode in which preventing inconvenience or discomfort to the user is prioritized and an operation mode in which the more improved pollutant collection performance is provided. The user may operate the mobile hood 1 by selecting one of the two modes as needed.

[0325] The present invention has been described with reference to the embodiments shown in the accompanying drawings, but it is merely illustrative, and those skilled in the art to which the relevant technology pertains will understand that various modifications and other equivalent embodiments are possible therefrom. Therefore, the true technical scope of the present invention should be determined by the scope of the appended claims.

[Description of Reference Numerals]

[0326]

1: movable hood
100: main body
110: case
110a: first case
110b: second case
111: first surface
113: second surface
114: outlet
115: third surface
116: discharge port
117: scroll
118: through hole
120: cover
122: inlet
125: partition wall
130: grill
140: filter
150: first fan module
151: first fan
153: first driver
160: second fan module
161: second fan
163: second driver
170: third driver
175: rotational member
180: first link
185: second link
190: louver

Claims

1. A movable hood comprising:

a main body having an accommodation space formed therein;
a first fan accommodated in the accommodation space and configured to suction outside air in a first direction; and
a second fan disposed not to overlap the first fan in the first direction,

wherein the first fan and the second fan are arranged in a second direction orthogonal to the first direction, and
the second fan discharges the air suctioned outside the first fan in a direction between a third direction orthogonal to the first direction and the second direction and the first direction.

2. The movable hood of claim 1, wherein the second fan is accommodated inside the main body to be disposed at one side in the first direction more than the first fan.

3. The movable hood of claim 1, wherein a pair of the second fans are disposed to be spaced apart from each other in the second direction with the first fan interposed therebetween.

4. The movable hood of claim 1, wherein the main body is provided with an inlet forming a passage for allowing the outside air to flow into the first fan, and an outlet forming a passage for allowing the air suctioned into the first fan to be discharged to the outside of the main body,

the inlet forms a passage for opening the main body in the first direction, and
the inlet forms a passage for opening the main body in the second direction.

5. The movable hood of claim 1, wherein the main body includes:

a case having an accommodation space formed therein and having an open one side in the first direction; and
a cover configured to cover the case at one side in the first direction, and
an inlet forming a passage for opening the main body in the first direction is formed to pass through the cover in the first direction.

6. The movable hood of claim 1, wherein the main body further includes:

a case having an accommodation space formed therein and having an open one side in the first direction;
a cover configured to cover the case at one side in the first direction; and
a scroll disposed in a space surrounded by the case and the cover and having an inner circumferential surface formed in a curved surface surrounding an outer circumferential surface of the first fan, and
a pair of the second fans are disposed to be spaced apart from each other in the second direction with the scroll interposed therebetween.

7. The movable hood of claim 1, wherein a discharge port forming a passage for allowing the air suctioned into the second fan to be discharged to the outside of the main body, and
the discharge port forms a passage for opening the main body in the third direction.

8. The movable hood of claim 1, further comprising a louver protruding from the main body in the second direction at an unfolded location.

9. The movable hood of claim 1, wherein the second fan suctions the air from one side in the first direction and discharges the air in the third direction.

10. The movable hood of claim 1, wherein the main body includes:

a first case configured to accommodate the first fan; and
a second case disposed to be biased to one side in the first direction more than the first case,
the first case and the second case are connected in the first direction, and
one side of the second case in the first direction is open.

FIG. 1

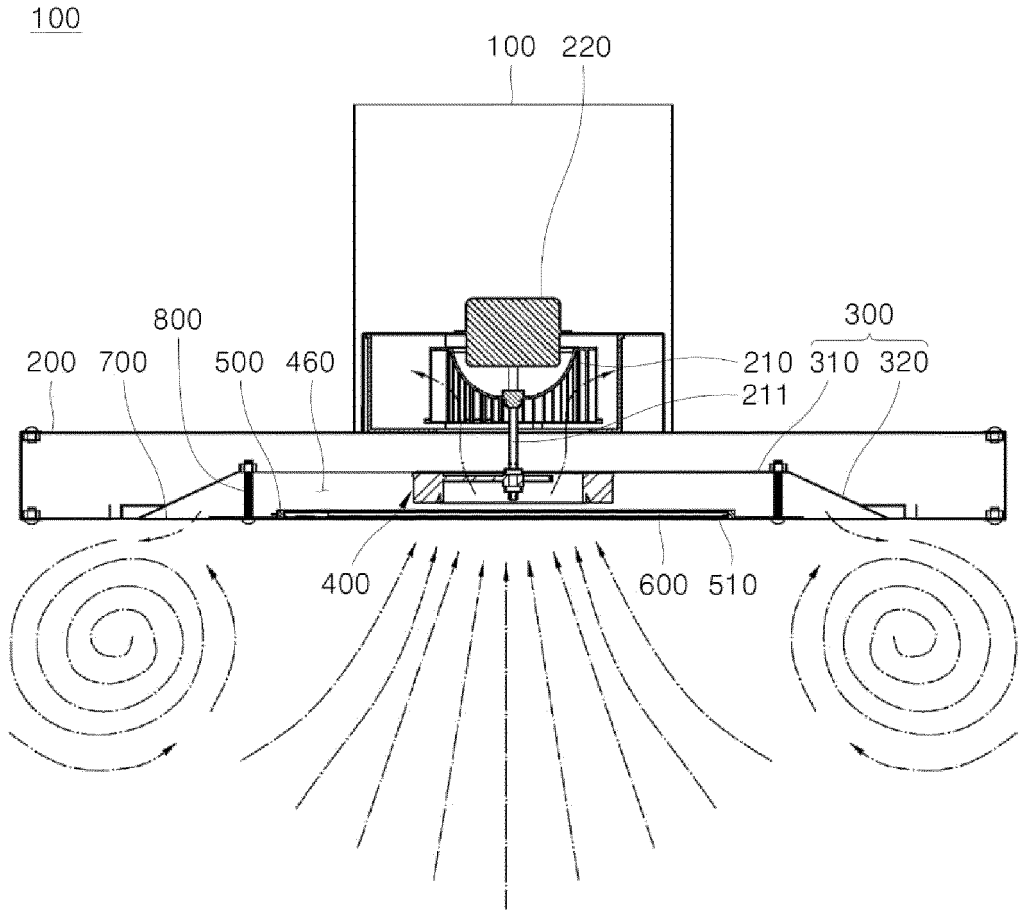
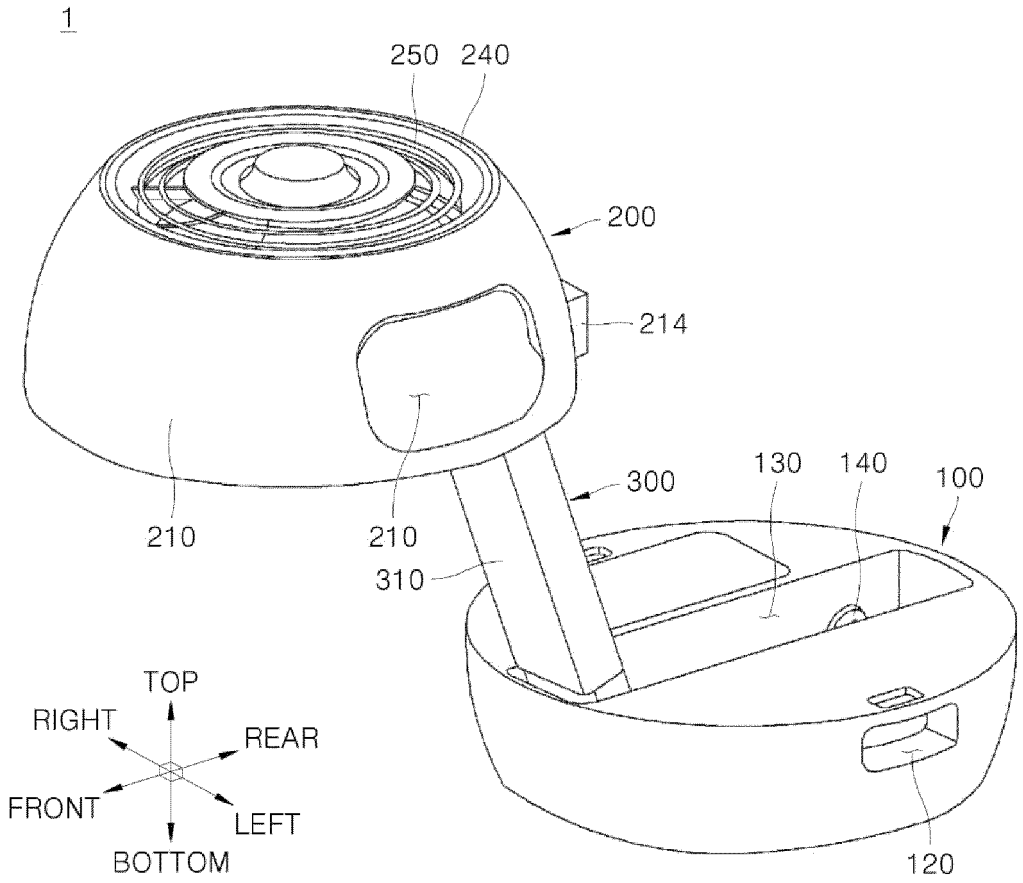


FIG. 2


1
250
240
200
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130
140
100
310
120
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RIGHT
REAR
FRONT
LEFT
BOTTOM

FIG. 3

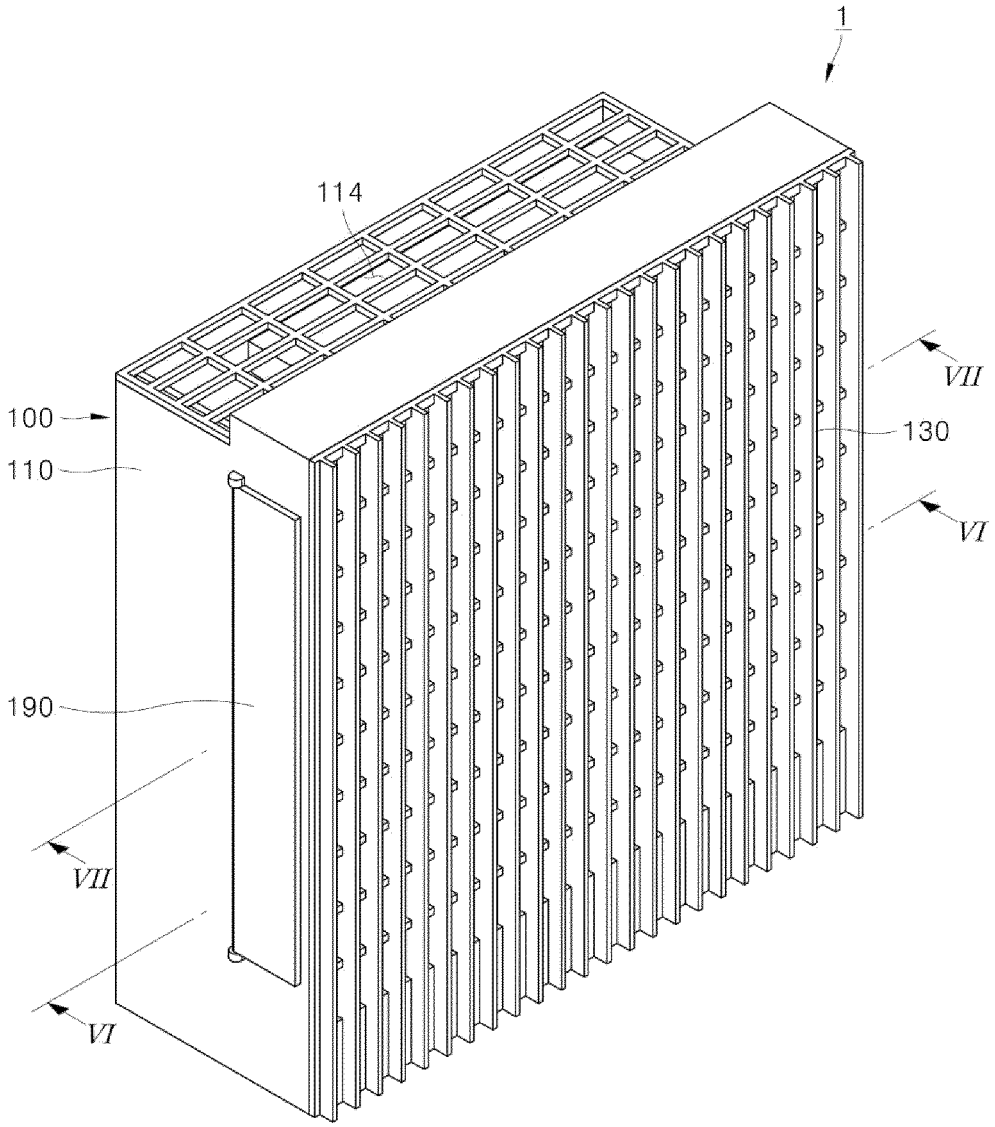
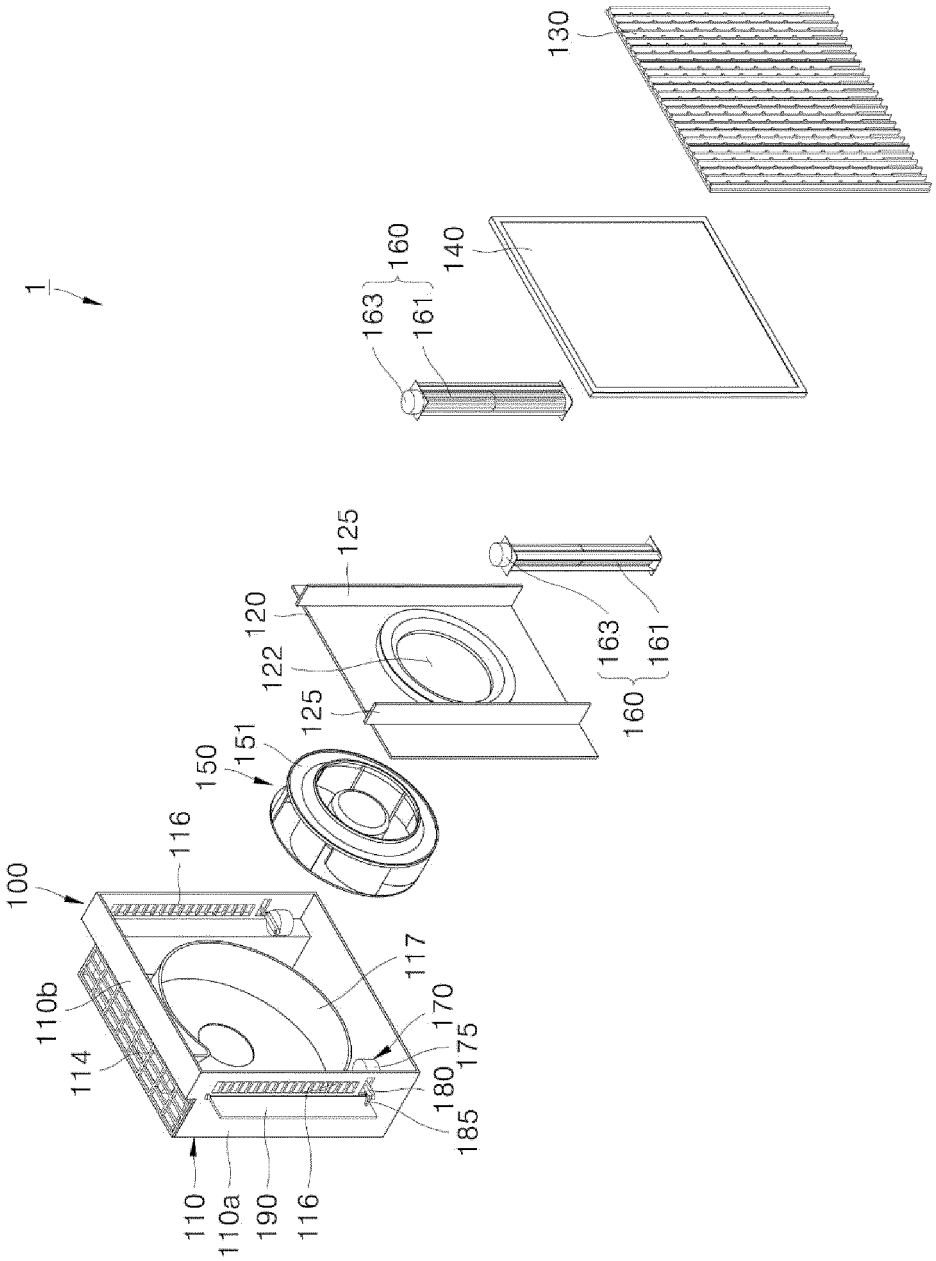


FIG. 4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160
140
163
161
1
125
120
122
125
163
161
160
151
150
116
100
117
110b
170
175
114
180
185
110
110a
190
116

FIG. 5

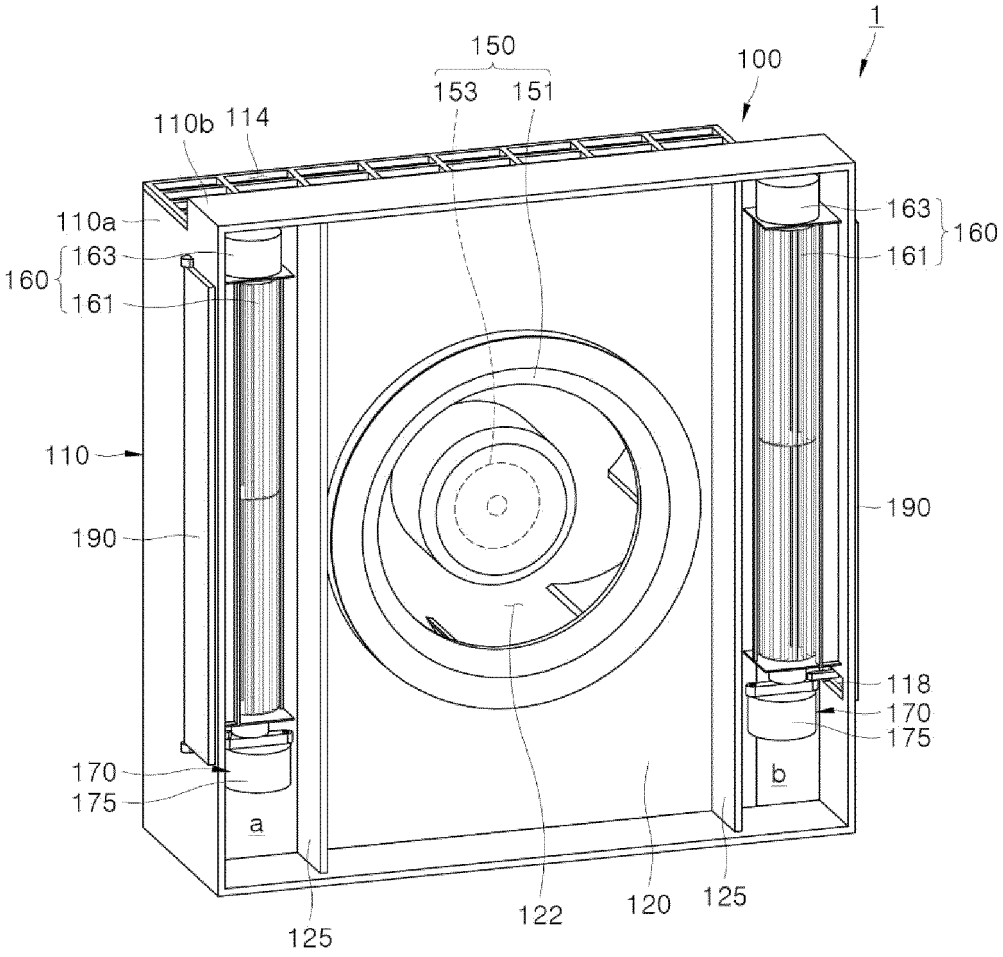
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FIG. 6

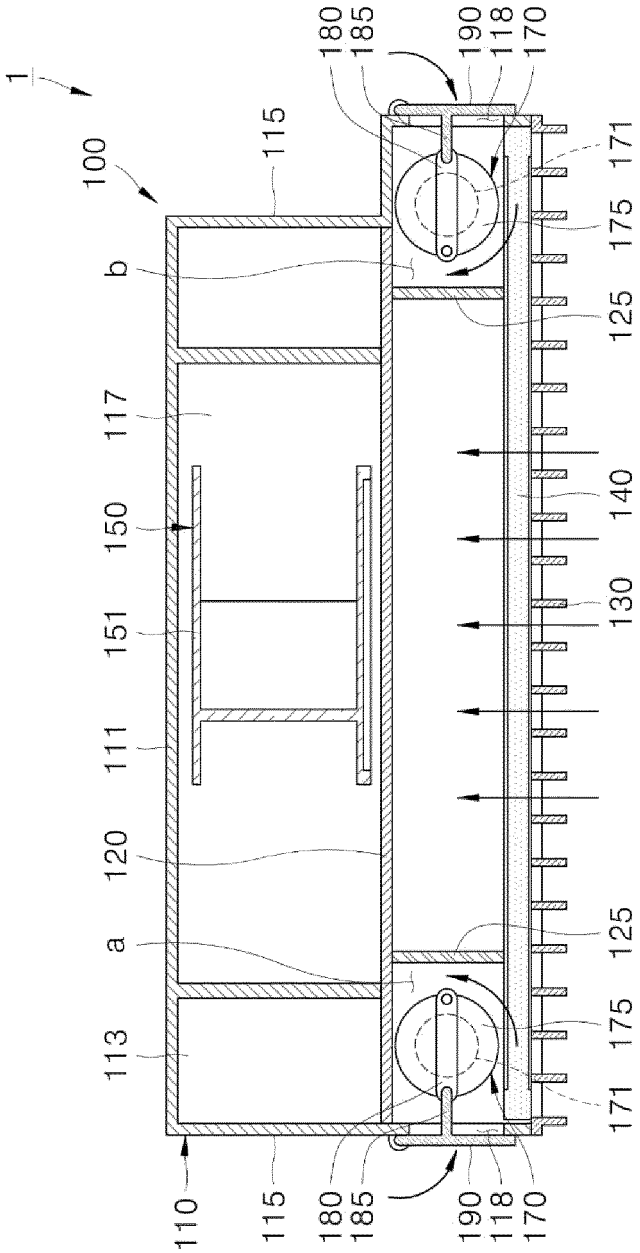
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FIG. 7

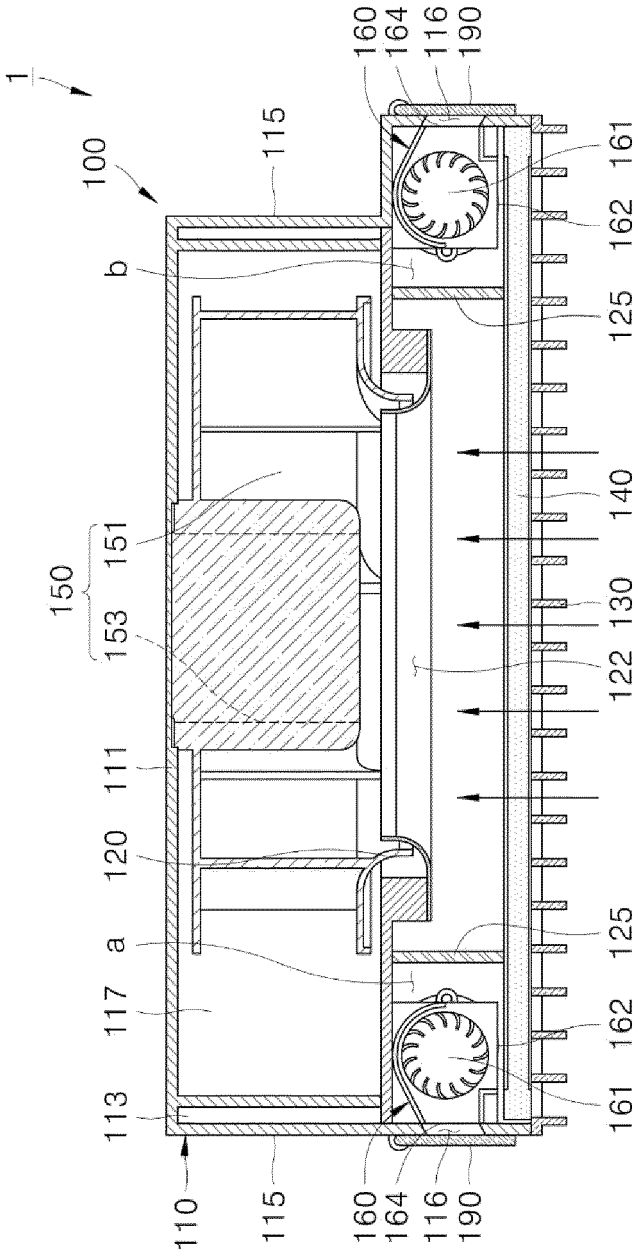
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FIG. 8

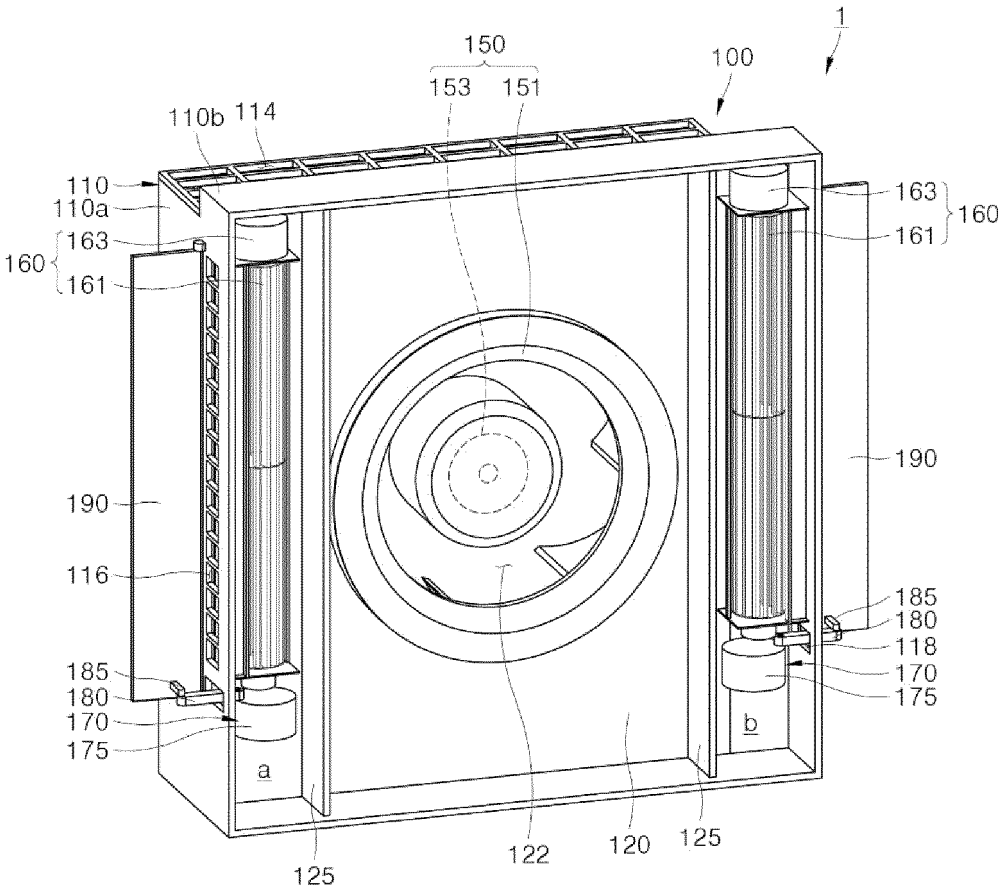
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FIG. 9

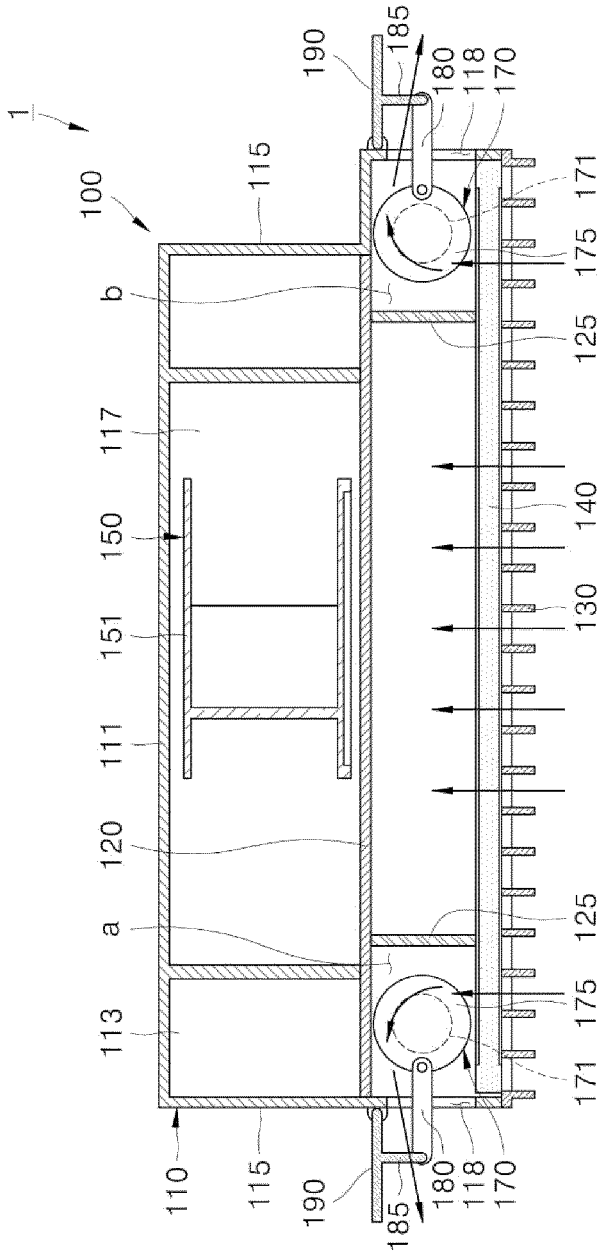
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FIG. 10

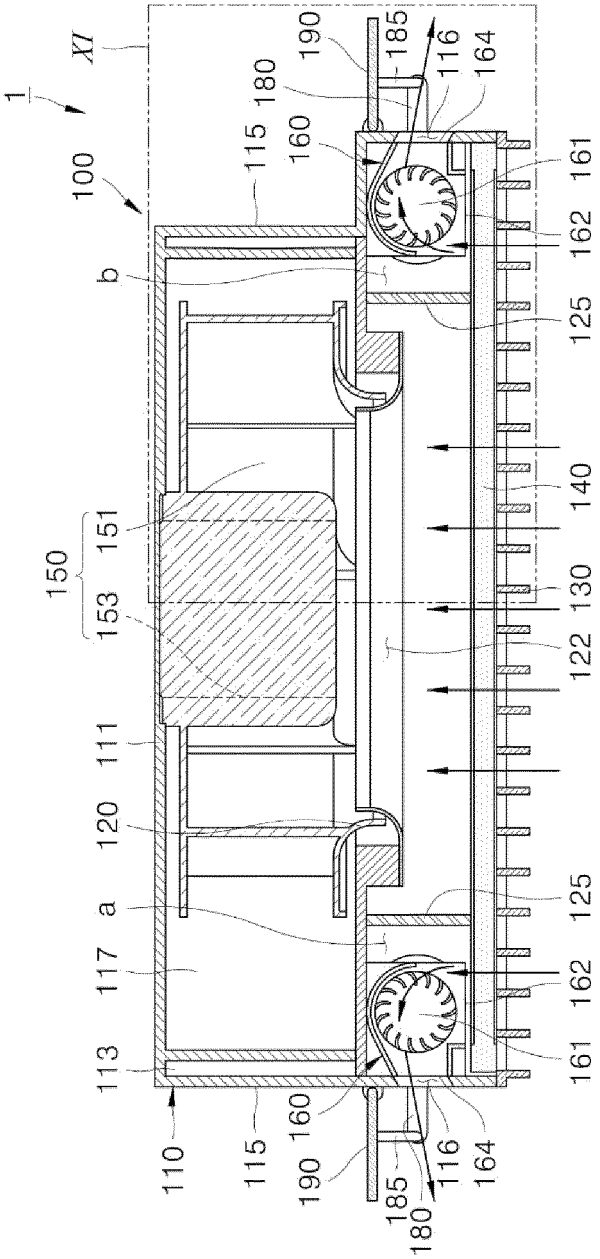
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FIG. 11

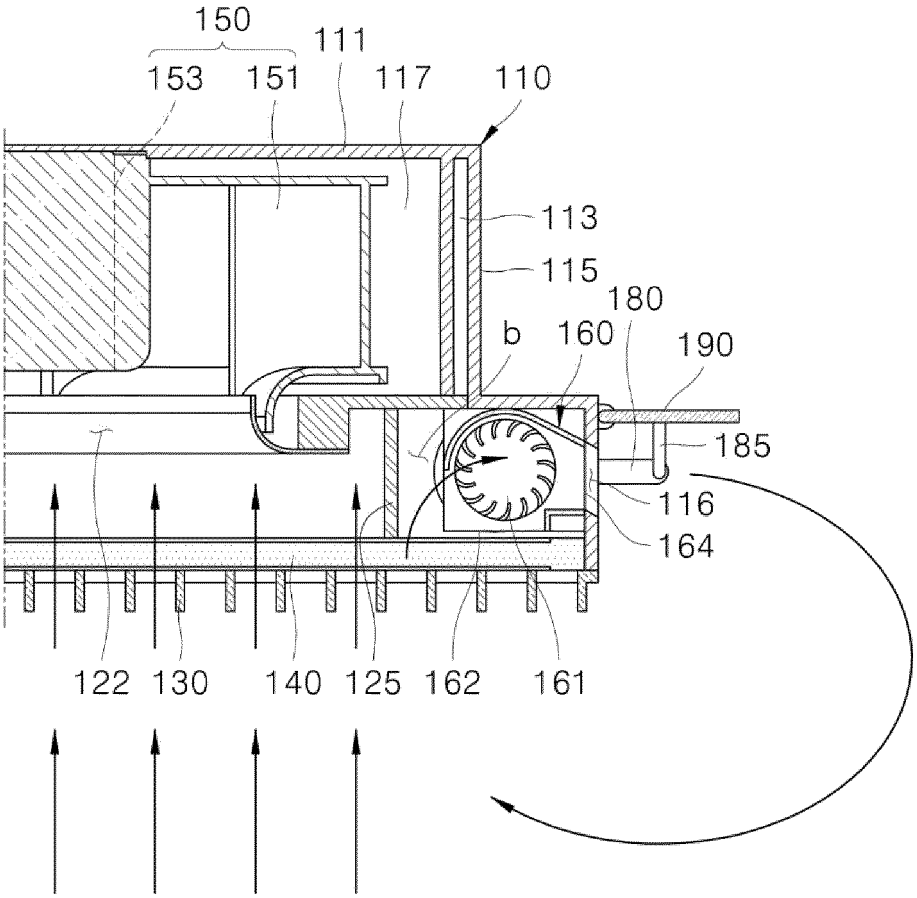
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FIG. 12

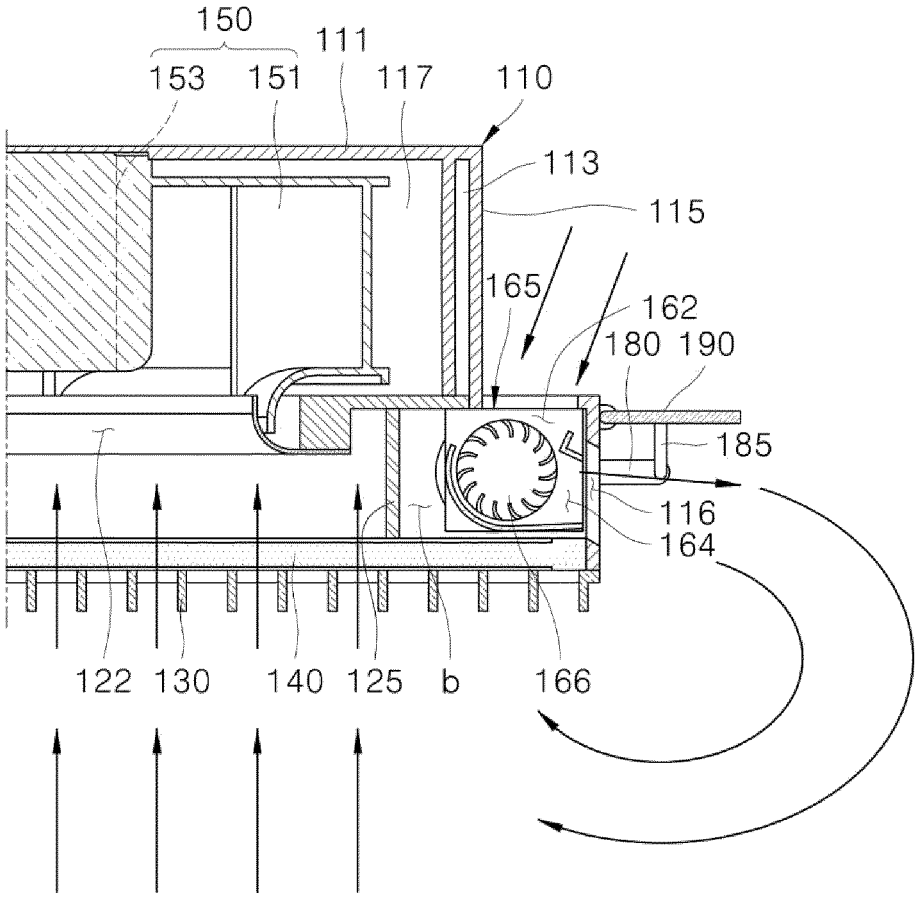
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FIG. 13

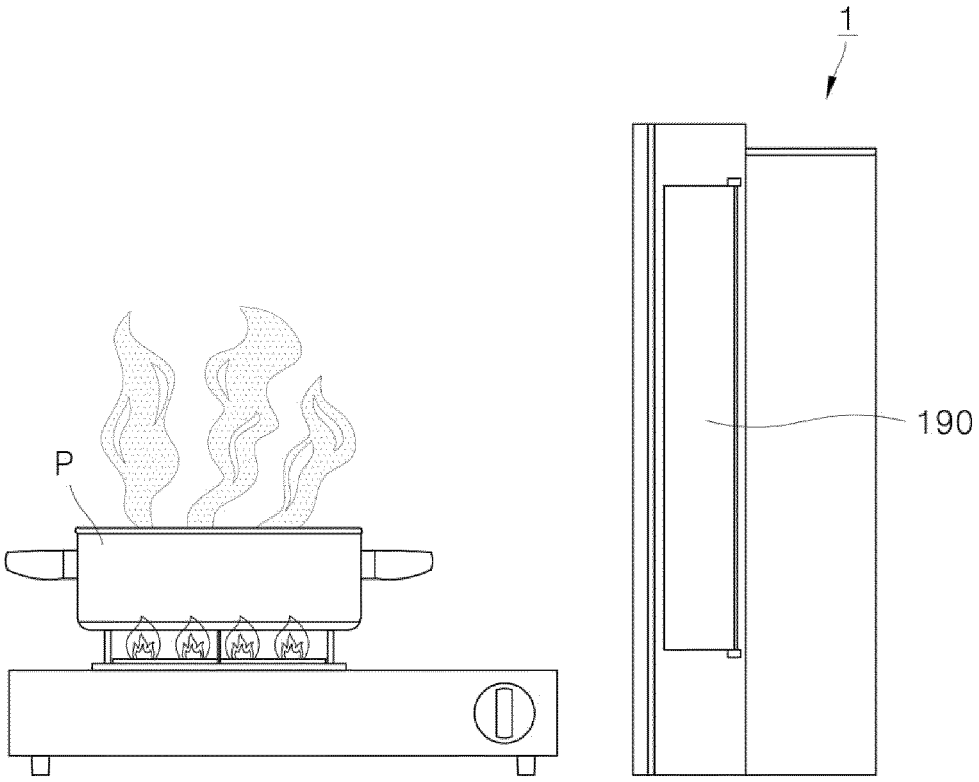
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FIG. 14

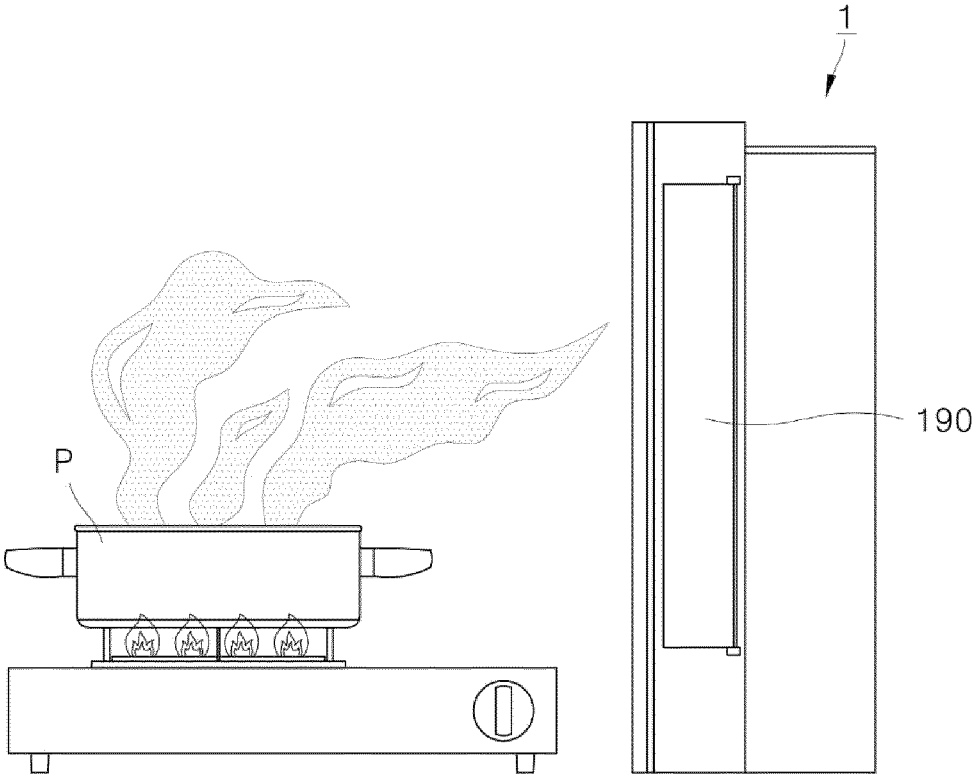

FIG. 15

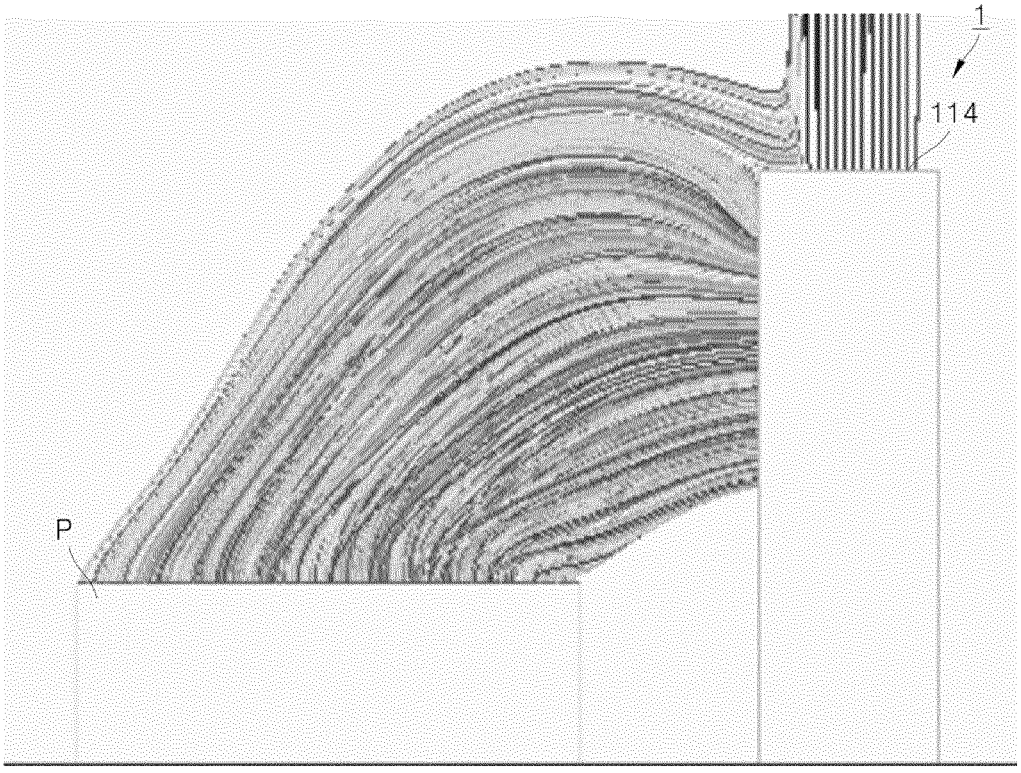

FIG. 16

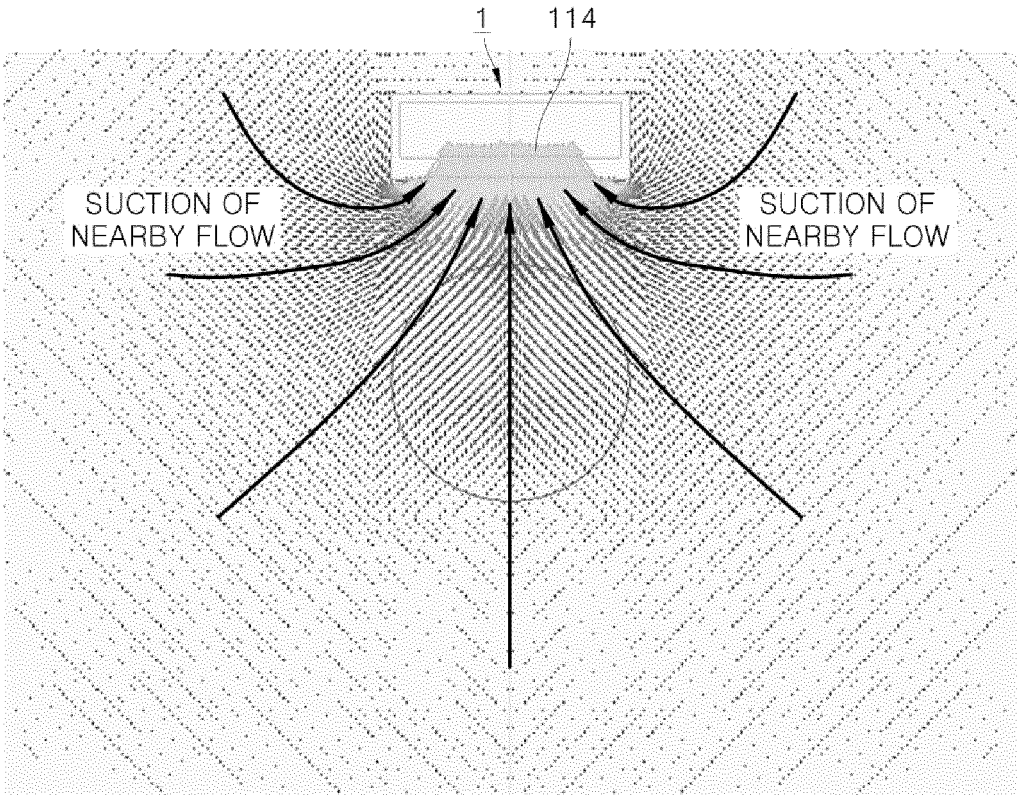

FIG. 17

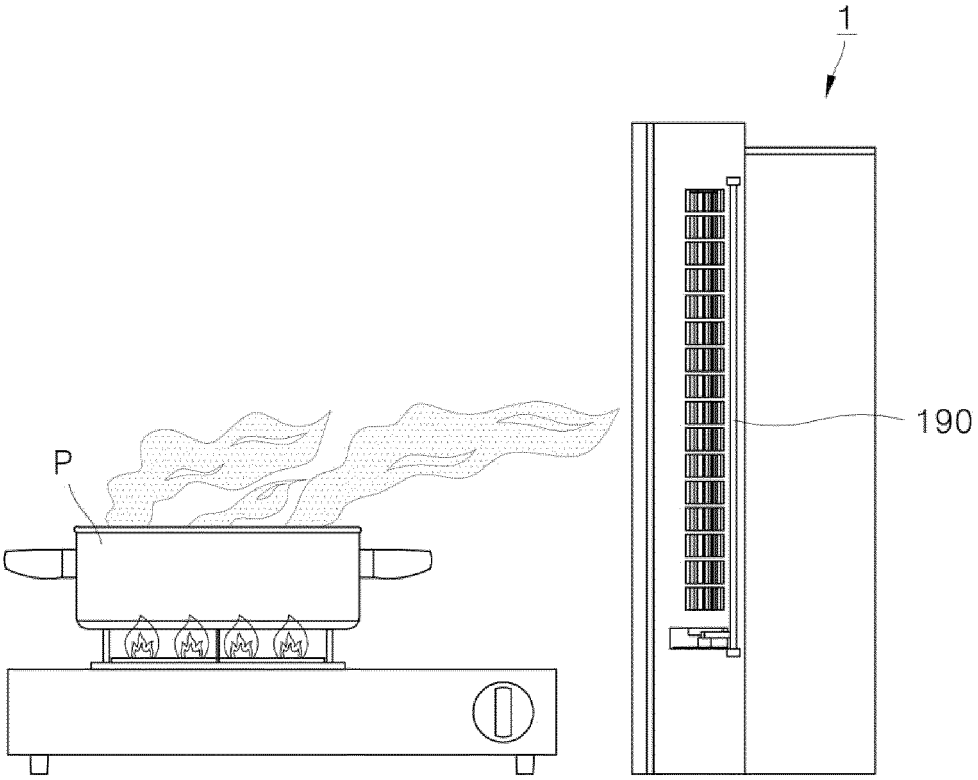

FIG. 18

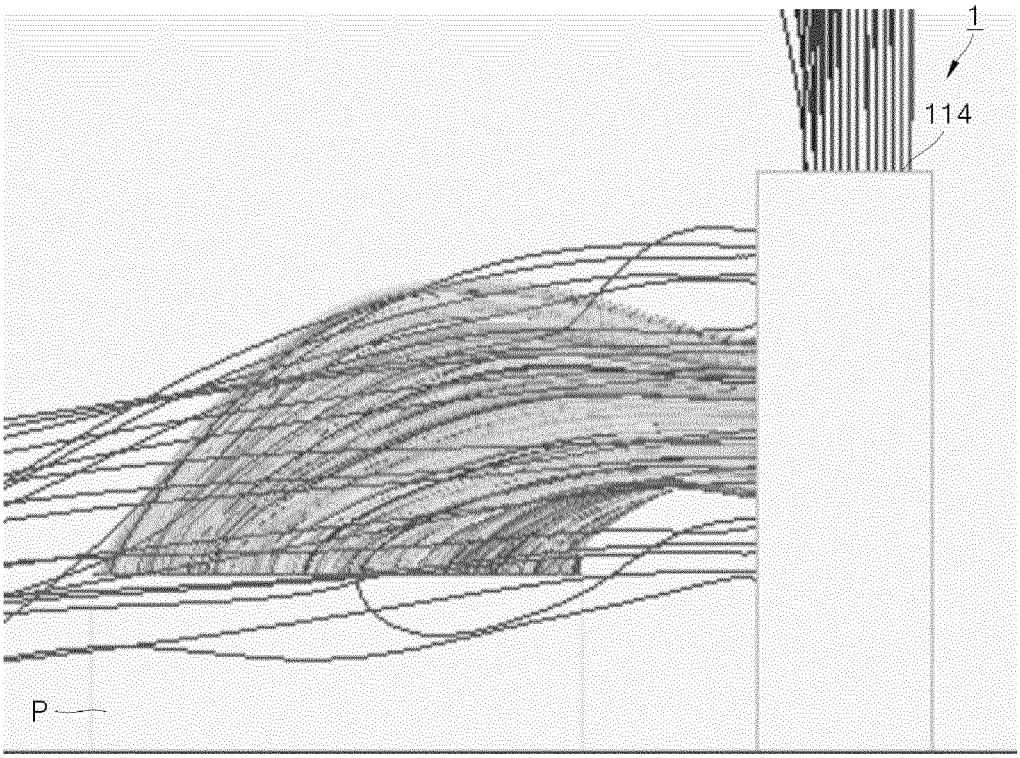
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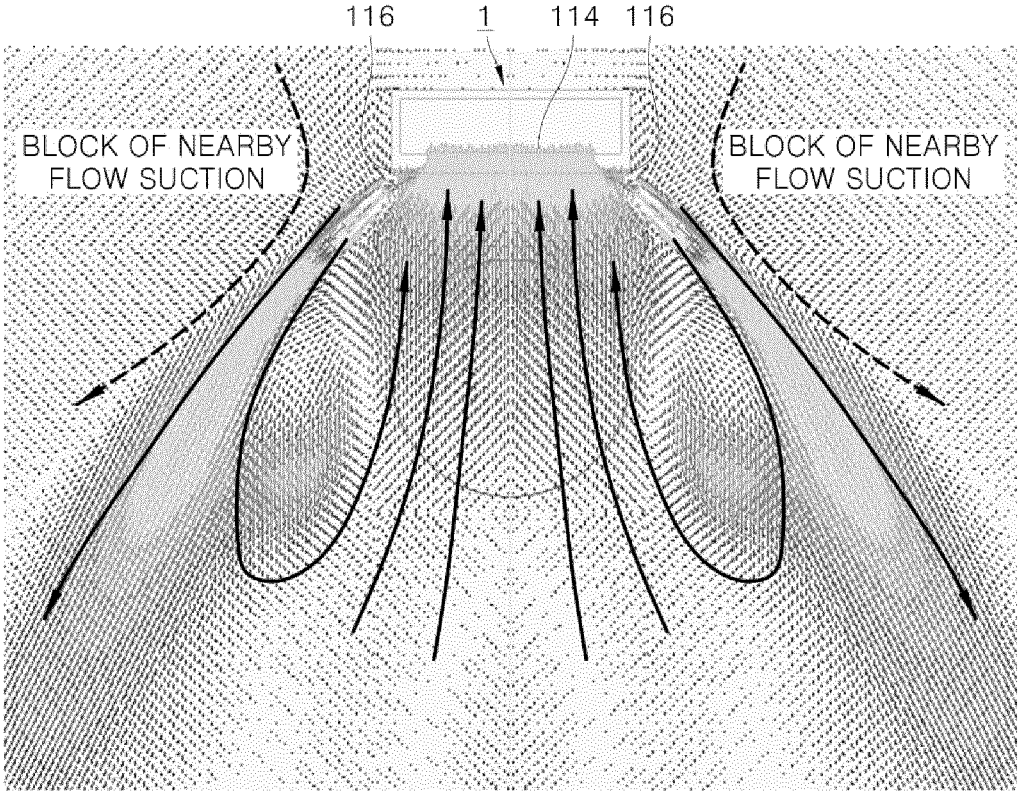
FIG. 19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BLOCK OF NEARBY FLOW SUCTION

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2021/019863

A. CLASSIFICATION OF SUBJECT MATTER

F24C 15/20(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)

F24C 15/20(2006.01); B01D 46/00(2006.01); F04D 29/66(2006.01); F24F 12/00(2006.01); F24F 7/00(2006.01); F24F 7/06(2006.01); F24F 9/00(2006.01)

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

Korean utility models and applications for utility models: IPC as above
Japanese utility models and applications for utility models: IPC as above

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

eKOMPASS (KIPO internal) & keywords: 이동식 후드(portable hood), 제1팬(first fan), 제2팬(second fan), 커버(cover), 루버(louver)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KR 10-2018-0058047 A (COWAY CO., LTD.) 31 May 2018 (2018-05-31) See paragraphs [0037]-[0045] and figures 1-4.	1-10
Y	KR 20-0472445 Y1 (JIN, Dohyun) 07 May 2014 (2014-05-07) See paragraphs [0026]-[0036] and figures 2-3.	1-10
Y	KR 10-0677289 B1 (LG ELECTRONICS INC.) 02 February 2007 (2007-02-02) See figure 9.	4
A	KR 10-2317436 B1 (CHO, Seong Eun) 25 October 2021 (2021-10-25) See claim 1 and figures 2-8.	1-10
A	CN 210241707 U (ZHONGSHAN O-BEKO ELECTRIC APPLIANCES CO., LTD.) 03 April 2020 (2020-04-03) See figures 1-6.	1-10

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

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Date of the actual completion of the international search	Date of mailing of the international search report
30 August 2022	**30 August 2022**
Name and mailing address of the ISA/KR **Korean Intellectual Property Office** **Government Complex-Daejeon Building 4, 189 Cheongsa-ro, Seo-gu, Daejeon 35208** Facsimile No. **+82-42-481-8578**	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/KR2021/019863

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
KR 10-2018-0058047 A	31 May 2018	None	
KR 20-0472445 Y1	07 May 2014	None	
KR 10-0677289 B1	02 February 2007	EP 1757866 A2	28 February 2007
KR 10-2317436 B1	25 October 2021	None	
CN 210241707 U	03 April 2020	None	

Form PCT/ISA/210 (patent family annex) (July 2019)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- KR 102059802 **[0019] [0062]**
- KR 101891256 **[0045] [0062]**