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(54) VENTILATION SYSTEM AND PRESSURE INTENSIFYING APPARATUS

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(57) **ABSTRACT**

A ventilation system and a pressure intensifying apparatus can smoothly supply air to an indoor room by increasing required air volume and external static pressure. The ventilation system includes: a duct branched into at least rooms; a ventilator connected to the duct, for selectively or simultaneously exhausting indoor air and supplying outdoor air; and a pressure intensifying apparatus including a case in which air supply unit/air exhaust unit connected to the duct are formed, and a fan for increasing static pressure of air supplied/exhausted through the duct.

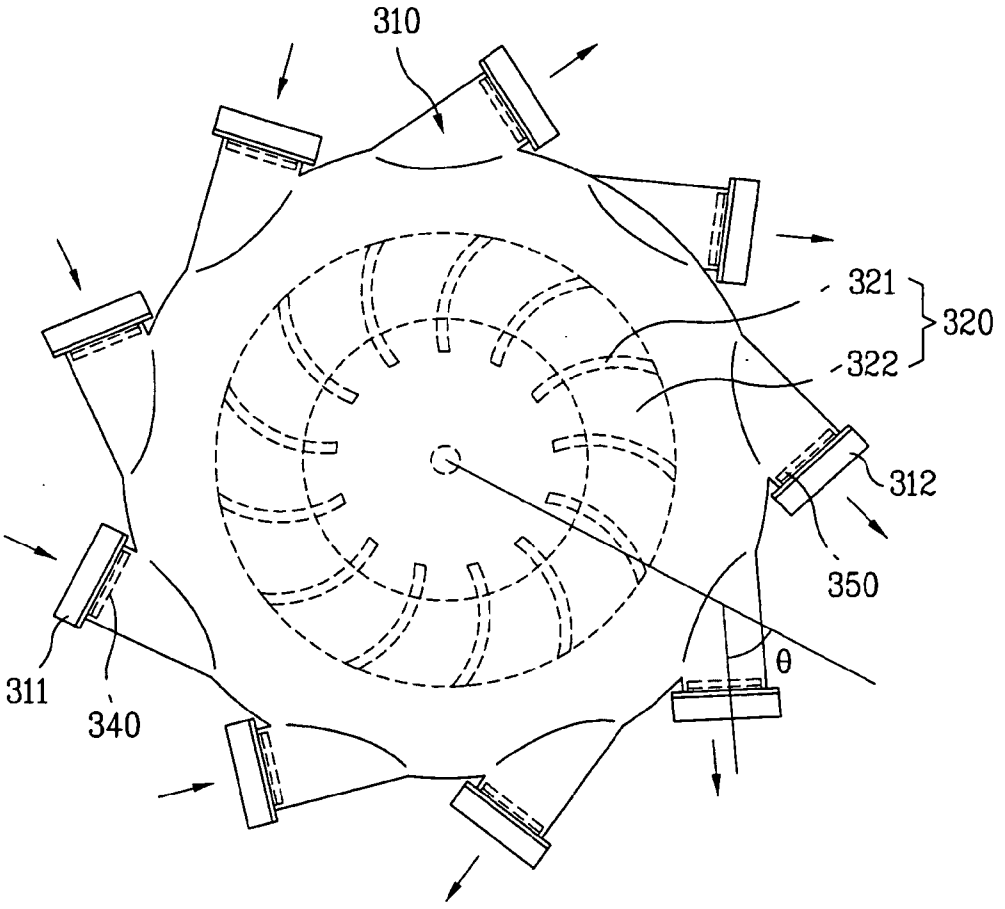


FIG. 1

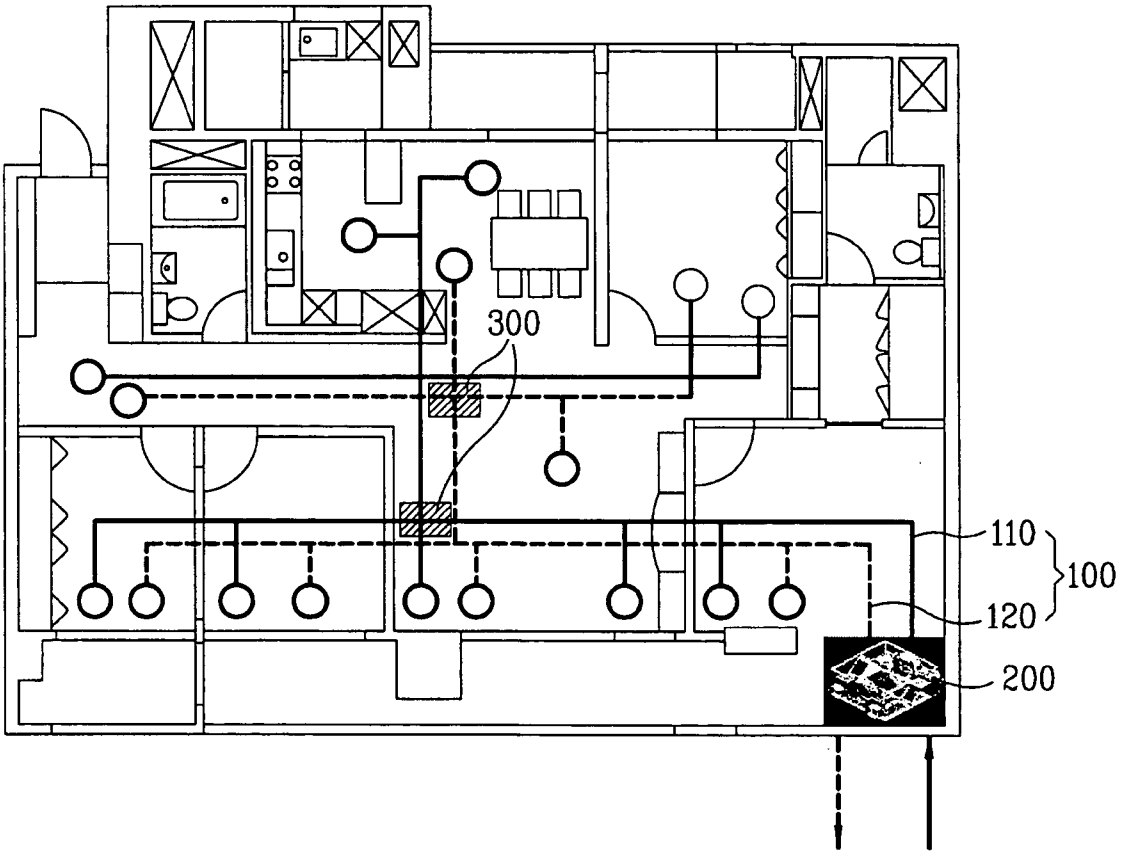


FIG. 2

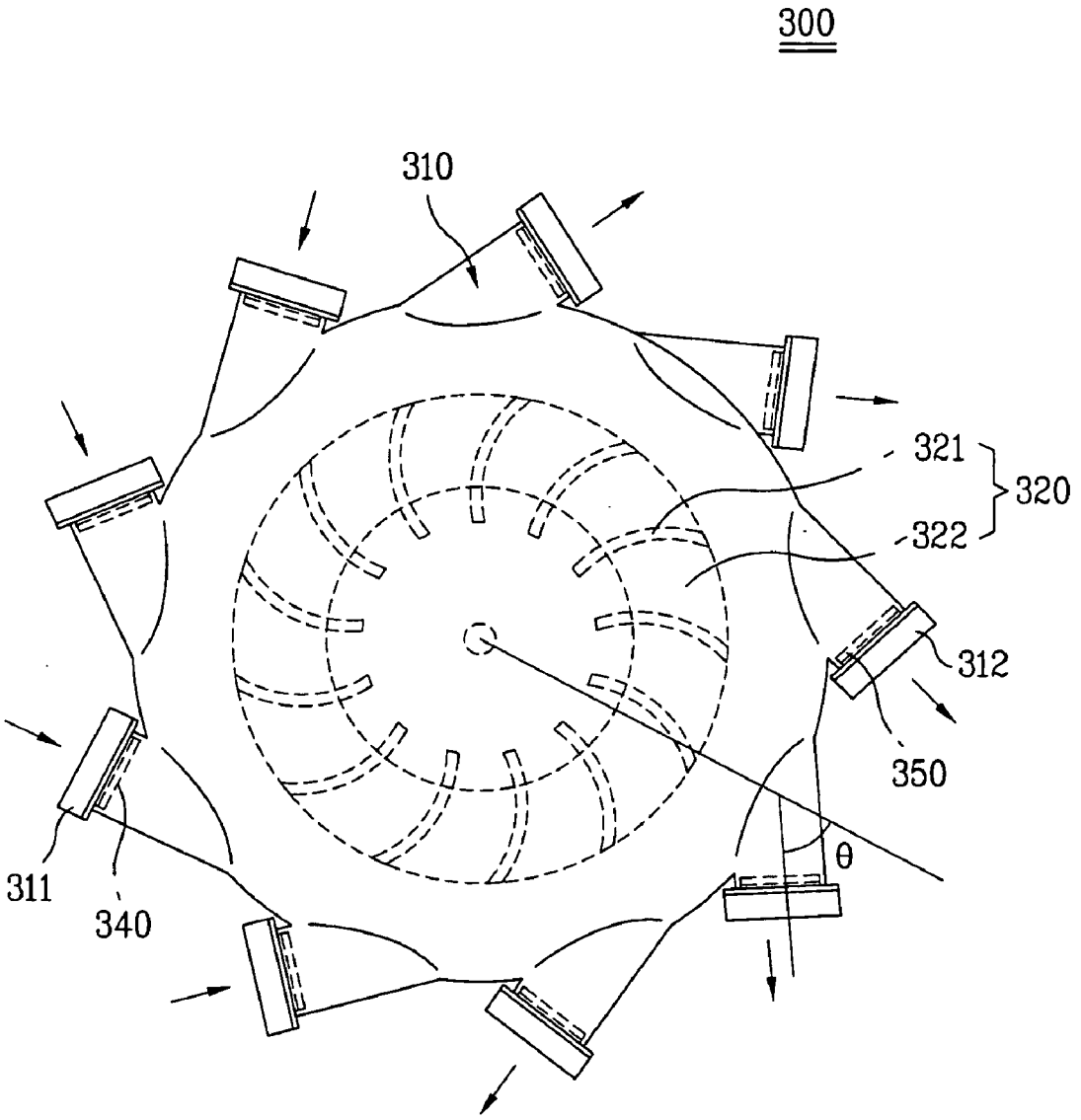


FIG. 3

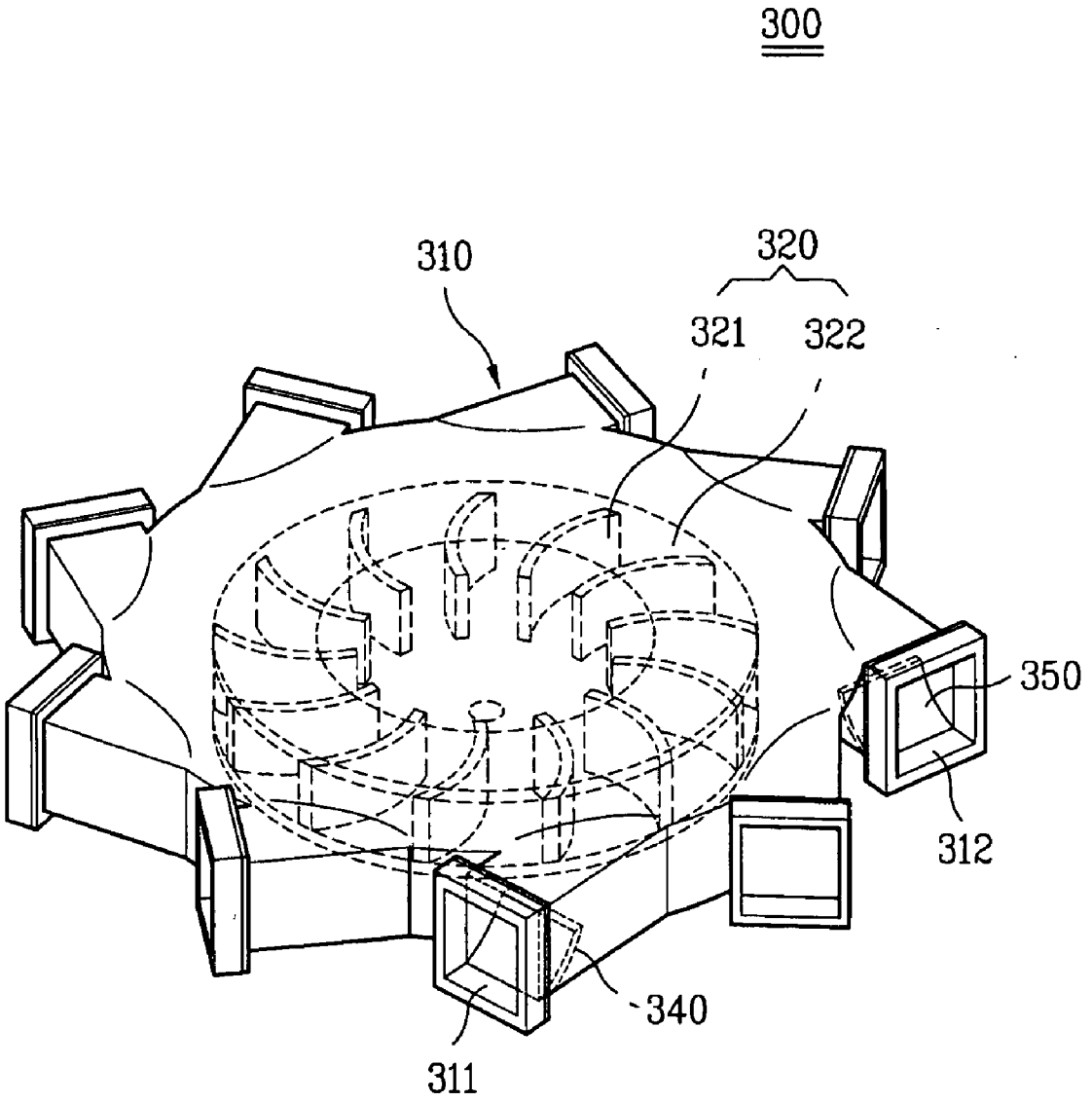


FIG. 4

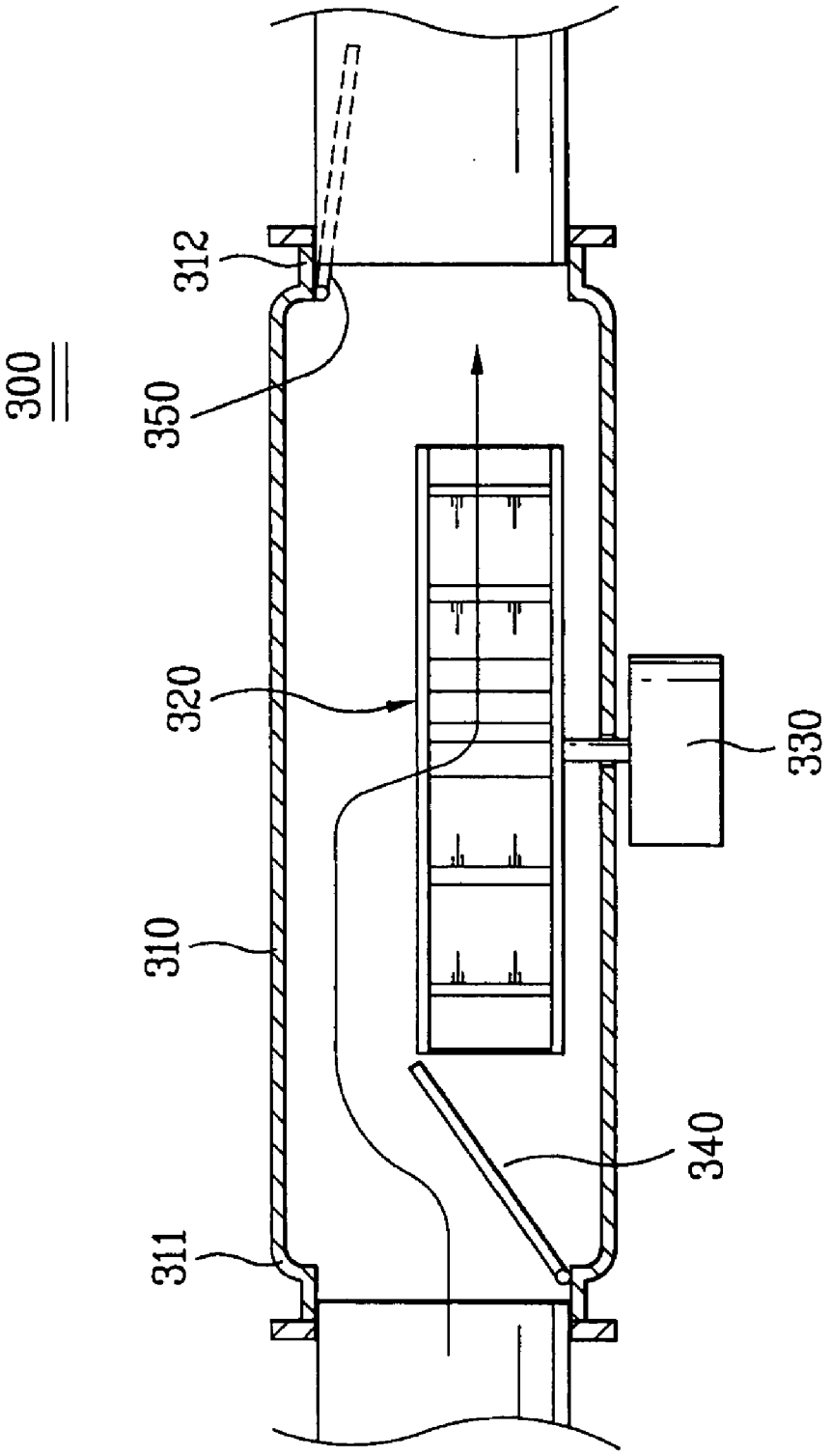


FIG. 5

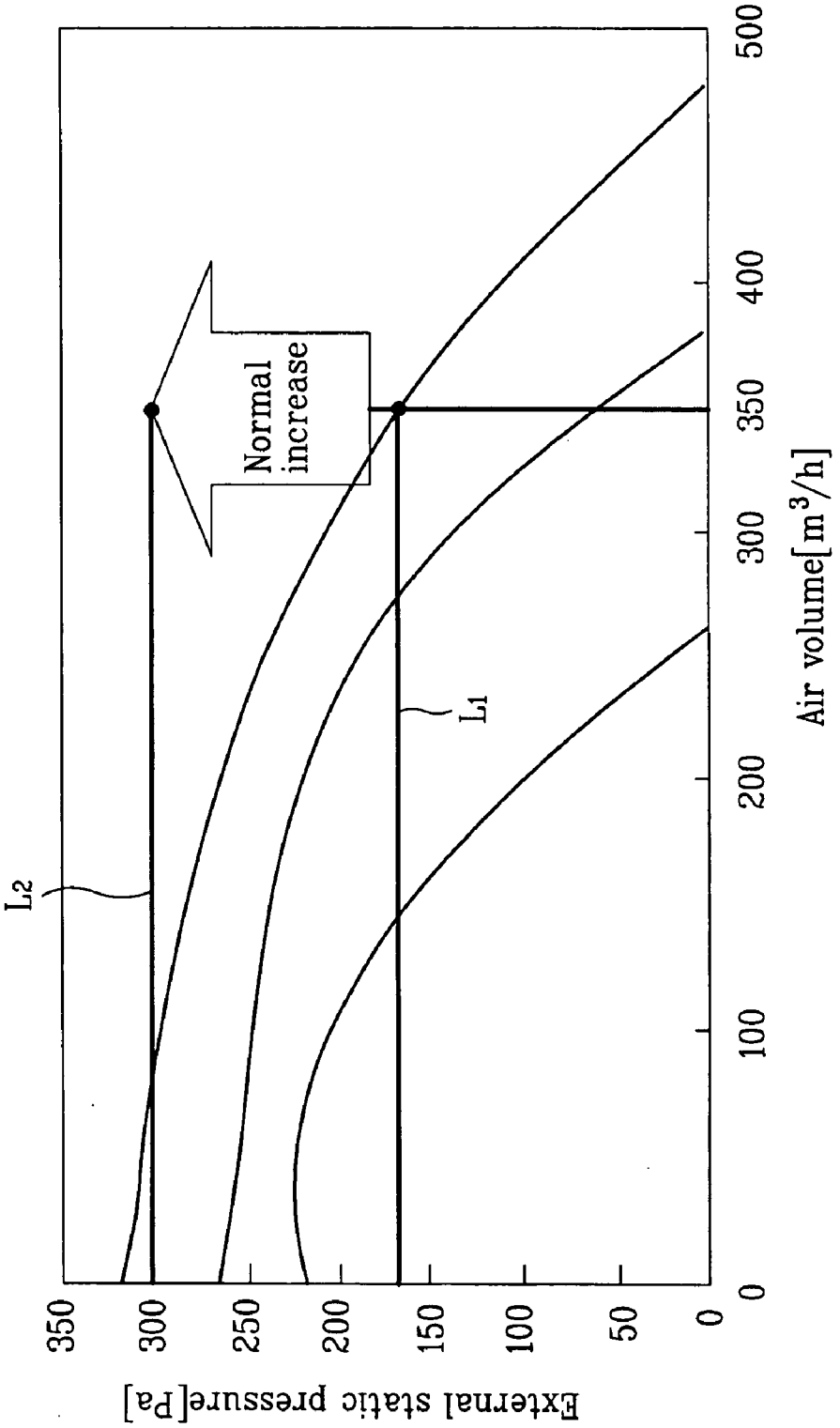

External static pressure[Pa]
350
300
250
200
150
100
50
0
Air volume[m³/h]
0
100
200
300
350
400
500
Normal increase
L1
L2

FIG. 6

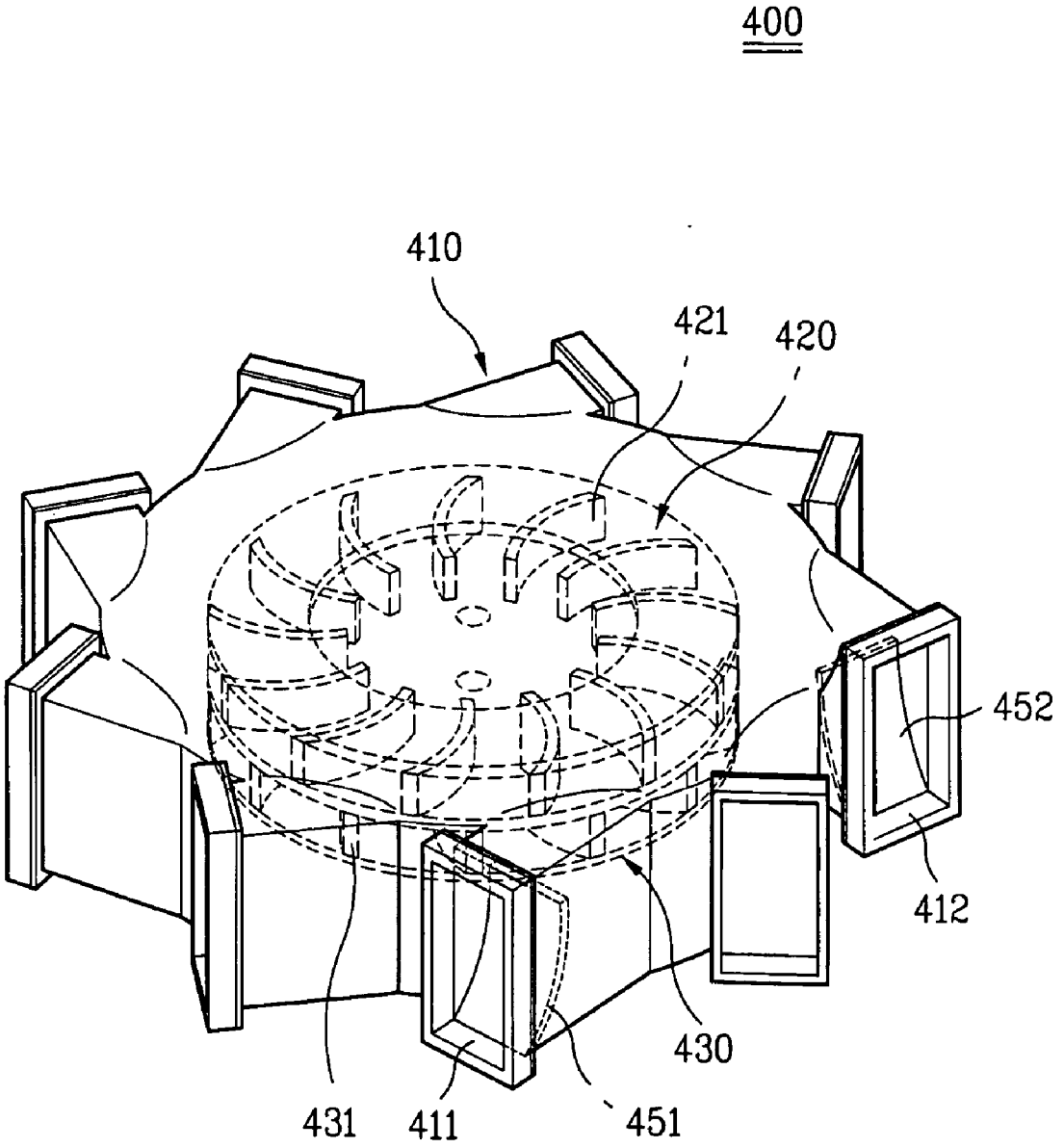


FIG. 7

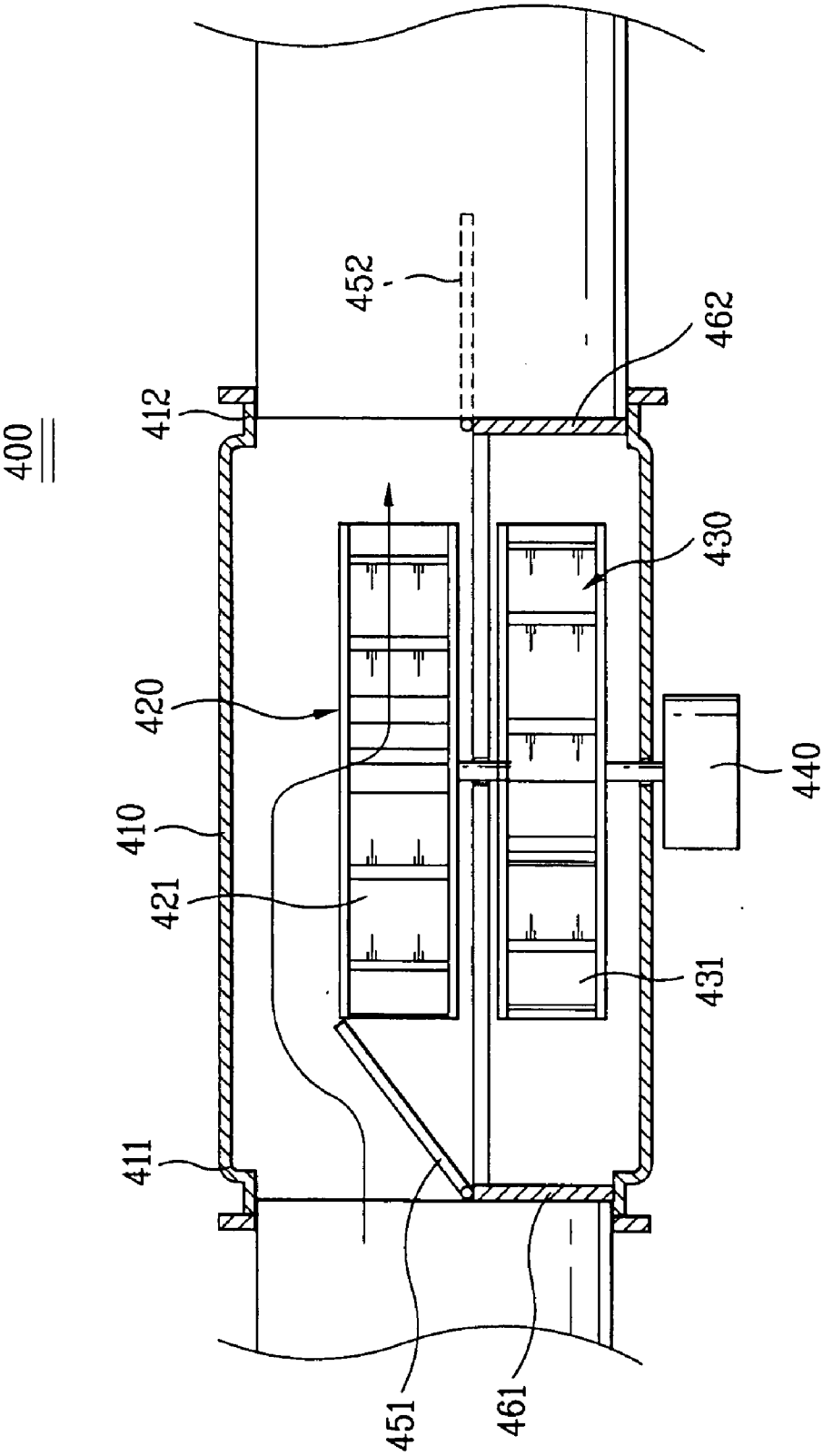
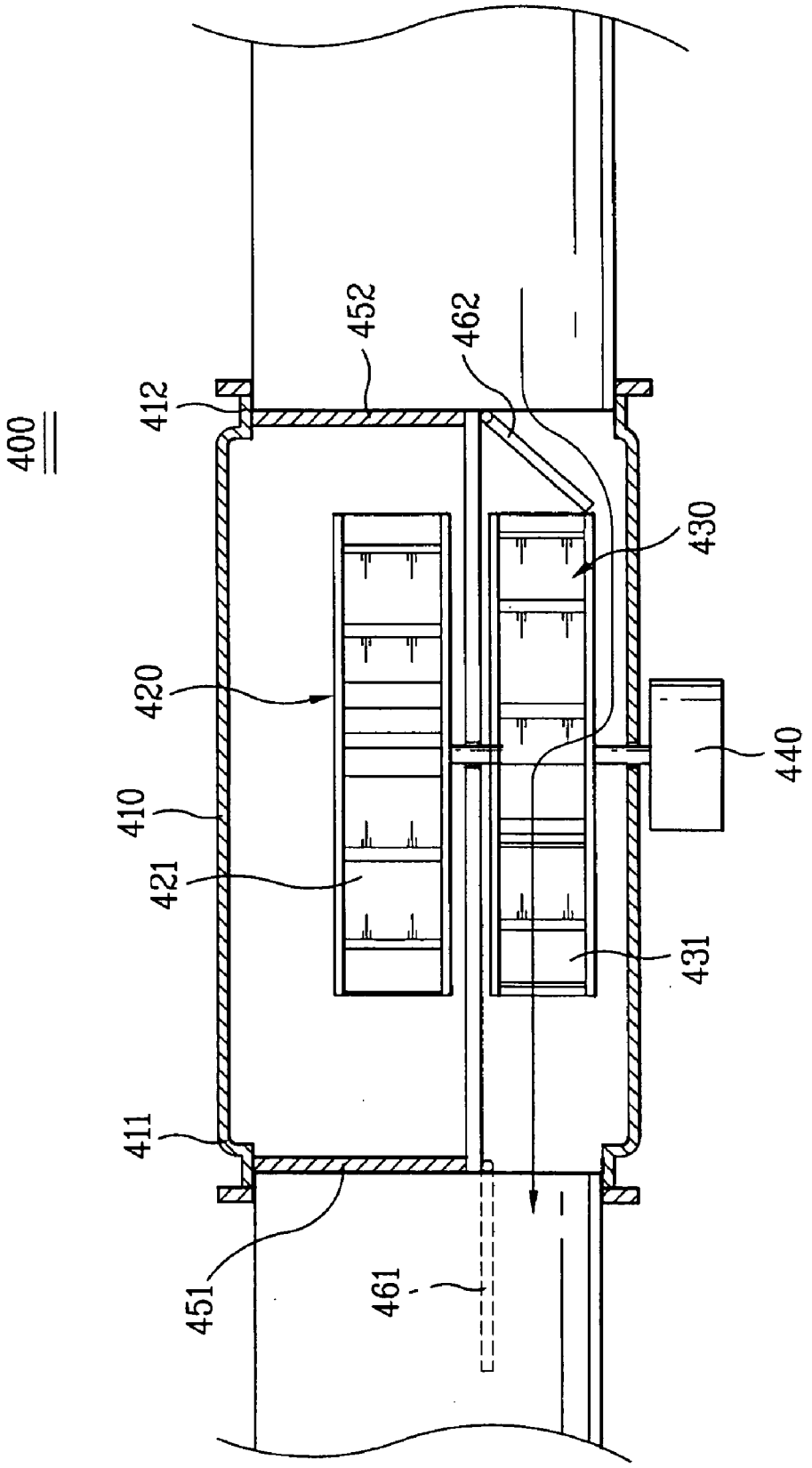


FIG. 8



VENTILATION SYSTEM AND PRESSURE INTENSIFYING APPARATUS

[0001] This application claims the benefit of the Korean Application No. P2005-12319 filed on Feb. 15, 2005, which is hereby incorporated by reference.

BACKGROUND OF THE INVENTION

[0002] 1. Field of the Invention

[0003] The present invention relates to a ventilation system, and more particularly, to a ventilation system, a pressure intensifying apparatus, and a method for controlling the same, in which air volume and external static pressure can be increased.

[0004] 2. Discussion of the Related Art

[0005] Due to persons' breathes and the like, air in the closed room is gradually polluted with the lapse of time. A ventilation system is used to replace polluted indoor air with fresh outdoor air.

[0006] A general ventilation system includes an air supply fan for supplying an outdoor air into a room, an air supply duct for guiding an outdoor air into the room, an air exhaust fan for exhausting an indoor air out of the room, and an air exhaust duct for guiding the indoor air out of the room.

[0007] In order to supply air into the room through the duct, the ventilation system must have required air volume and external static pressure. For example, when air is supplied through a circular duct in an about 231-m^2 indoor space by ventilation of 350 CMH, an external static pressure of about 300 Pa is required. At this point, airflow resistance of a duct is an important factor in determining the required air volume and external static pressure. As the indoor space is wide, a length of the duct becomes longer. As the number of the partitioned spaces is increasing, the branches of the duct increase. Consequently, the airflow resistance increases and the required air volume and external static pressure increases. However, it is difficult to increase a capacity of the ventilation system so large as to form sufficient air volume and external static pressure. Thus, the ventilation is not performed smoothly.

[0008] Also, the general ventilation system is installed in a ceiling. However, since the ventilation system is designed considering spatial efficiency and economic efficiency, there is a limit in a distance between a bottom of a lower floor and a bottom of an upper floor. Thus, it is difficult to secure sufficient space for installing the ventilation system. Accordingly, in order to solve the problem, the ventilation system needs to be designed to be small-sized.

SUMMARY OF THE INVENTION

[0009] Accordingly, the present invention is directed to a ventilation system and a pressure intensifying apparatus that substantially obviate one or more problems due to limitations and disadvantages of the related art.

[0010] An object of the present invention is to provide a ventilation system, a pressure intensifying apparatus, and a method for controlling the same, in which external static pressure is formed so high that a wide indoor space can be ventilated.

[0011] Another object of the present invention is to provide a small-sized ventilation system and a pressure intensifying apparatus, which can be installed in a narrow space.

[0012] Additional advantages, objects, and features of the invention will be set forth in part in the description which follows and in part will become apparent to those having ordinary skill in the art upon examination of the following or may be learned from practice of the invention. The objectives and other advantages of the invention may be realized and attained by the structure particularly pointed out in the written description and claims hereof as well as the appended drawings.

[0013] To achieve these objects and other advantages and in accordance with the purpose of the invention, as embodied and broadly described herein, there is provided a ventilation system including: a duct branched into at least rooms; a ventilator connected to the duct, for selectively or simultaneously exhausting indoor air and supplying outdoor air; and a pressure intensifying apparatus including: a case in which air supply unit/air exhaust unit connected to the duct are formed; and a fan for intensifying static pressure of air supplied/exhausted through the duct.

[0014] The pressure intensifying apparatus may include: at least two air supply units and at least two air exhaust units connected to the duct; a fan disposed inside the case, for supply/exhaust air by rotation thereof; and a drive motor disposed inside the case, for rotating the fan. The pressure intensifying apparatus may further include a damper for opening/closing the air supply unit and the air exhaust unit.

[0015] The case may be formed evenly, and the air supply unit and the air exhaust unit may be arranged at a periphery of the case. The case may have top and bottom surfaces formed in a circular shape. Also, the case may be installed in a ceiling.

[0016] The air supply unit and the air exhaust unit may be inclined with respect to a rotational radius of the fan. The air supply unit may further include a damper for opening/closing to guide air sucked inside the case in an axial direction of the fan.

[0017] The pressure intensifying apparatus may be arranged in a position where the duct is branched. The duct may include an air supply duct and an air discharge duct. The pressure intensifying apparatus may be installed in each of the air supply duct and the air exhaust duct.

[0018] The ventilation system may further include a controller for controlling the ventilator and/or the pressure intensifying apparatus according to user's input information.

[0019] In another aspect of the present invention, there is provided a pressure intensifying apparatus including: at least two branched ducts; a case divided into an upper space and a lower space; an air supply unit and an air exhaust unit for communicating the upper and lower spaces of the case with the duct; a fan disposed inside the case, for sucking air through the air supply unit and exhausting air through the air exhaust unit, or for sucking air through the air exhaust unit and exhausting air through the air supply unit; and a drive motor, disposed inside the case, for rotating the fan.

[0020] The case may be formed evenly, and at least two air supply units and at least two air exhaust units may be arranged at a periphery of the case.

[0021] The fan may be configured to suck air in an axial direction and exhaust air in a radial direction. The fan may be a double suction fan having an air supply fan and an air exhaust fan arranged up and down, the air supply fan being configured to suck air toward in an inside of the case through the air supply unit and exhaust the sucked air to the air exhaust unit, the air exhaust fan being configured to suck air through the air exhaust unit and exhaust the sucked air to the air supply unit.

[0022] The air supply unit may further include: an air supply damper for opening/closing to guide air sucked inside the case in an axial direction; and an air exhaust damper for opening/closing to guide air exhausted from the fan toward the duct. The air supply damper may include a first air supply damper for guiding air sucked in the air supply unit in an axial direction of the fan, and a second air supply damper for preventing air from being exhausted to the air supply unit when the first air supply damper, and the air exhaust damper includes a first air exhaust damper for guiding air exhausted from the fan to the air exhaust unit, and a second air exhaust damper for preventing air from being sucked into the fan. The air exhaust damper and the air supply damper may alternately open the air supply unit and the air exhaust unit.

[0023] The case may be separated into a space where the air supply fan is received and a space where the air exhaust fan is received.

[0024] In a further another aspect of the present invention, there is provided a method for controlling a ventilation system, including the steps of: selecting a predetermined input information; driving a ventilator; driving a pressure intensifying apparatus so as to increase an inner pressure of a duct connected to the ventilator; and increasing a static pressure of the duct by opening a damper, the damper being openable/closable according to the input information and provided at a position where the pressure intensifying apparatus and the duct are connected.

[0025] In a still further another aspect of the present invention, there is provided a method for controlling a pressure intensifying apparatus, including the steps of: selecting a predetermined input information; rotating a fan of a pressure intensifying apparatus, the fan being provided to increase an inner pressure of a duct; and increasing a static pressure of the duct by opening a damper, the damper being openable/closable according to the input information and provided at a position where the pressure intensifying apparatus and the duct are connected.

[0026] It is to be understood that both the foregoing general description and the following detailed description of the present invention are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0027] The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this application, illustrate embodiment(s) of the invention and together with the description serve to explain the principle of the invention. In the drawings:

[0028] **FIG. 1** is a schematic view for explaining a ventilation system according to an embodiment of the present invention;

[0029] **FIG. 2** is a view of a pressure intensifying apparatus shown in **FIG. 1**;

[0030] **FIG. 3** is a perspective view of the pressure intensifying apparatus shown in **FIG. 2**;

[0031] **FIG. 4** is a side view illustrating an operation of the pressure intensifying apparatus shown in **FIG. 2**;

[0032] **FIG. 5** is a graph of a relationship between an air volume and an external static pressure in the ventilation system shown in **FIG. 1**;

[0033] **FIG. 6** is a perspective view of a pressure intensifying apparatus according to a second embodiment of the present invention;

[0034] **FIG. 7** is a side view illustrating an operation of the pressure intensifying apparatus shown in **FIG. 6** when air is guided from an air supply unit to an air exhaust unit; and

[0035] **FIG. 8** is a side view illustrating an operation of the pressure intensifying apparatus shown in **FIG. 6** when air is guided from an air exhaust unit to an air supply unit.

DETAILED DESCRIPTION OF THE INVENTION

[0036] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers will be used throughout the drawings to refer to the same or like parts.

[0037] **FIG. 1** is a view for explaining a ventilation system according to an embodiment of the present invention.

[0038] Referring to **FIG. 1**, the ventilation system includes a duct **100** spatially branched into at least two indoor spaces, a ventilator **200** connected to the duct **100** to selectively or simultaneously exchange indoor air with outdoor air through the duct **100**, and a pressure intensifying apparatus **300** having a fan (**320** in **FIG. 2**) for increasing a static pressure of air supplied/exhausted through the duct **100**.

[0039] The duct **100** is branched such that the indoor air is exchanged with outdoor air in the partitioned indoor spaces. The duct **100** includes an air supply duct **110** for supplying the outdoor air into the indoor spaces, and an air exhaust duct **120** for exhausting the indoor air to an exterior. The ventilation system installed in a wide indoor space is exemplarily shown in **FIG. 1**. The air supply duct **110** is indicated by a solid line and the exhaust duct **120** is indicated by a dotted line. An air supply diffuser and an air exhaust diffuser are connected to indoor end portions of the air supply duct **110** and the air exhaust duct **120**, respectively. In **FIG. 1**, the diffusers are indicated by circles. Meanwhile, the duct may be configured with only one of the air supply duct and the air exhaust duct.

[0040] Also, the ducts **110** and **120** can be circular or polygonal. Because the pressure intensifying apparatus **300** increases a static pressure in the duct **100**, the polygonal duct having a relatively large airflow resistance can be used. It is apparent that the circular duct is advantageous to reduce airflow resistance. Such a duct is buried in a ceiling.

[0041] The ventilator **200** includes a total heat exchanger (not shown) for exchanging heat between the indoor air and

the outdoor air, and a blower fan (not shown) for blowing the indoor air and the outdoor air. The total heat exchanger may not be installed in the ventilator **200**. Also, it is preferable to install a filter (not shown) that filters out foreign particles contained in the supplied outdoor air.

[**0042**] In addition, it is preferable to install the pressure intensifying apparatus **300** in the air supply duct **110** and the air exhaust duct. It is apparent that the pressure intensifying apparatus **300** can be installed in only one of the air supply duct and the air exhaust duct. Further, it is preferable that the pressure intensifying apparatus **300** is buried in a ceiling. It is also apparent that two or more pressure intensifying apparatuses can be respectively installed in the air supply duct and the air exhaust duct

[**0043**] The pressure intensifying apparatus will now be described with reference to FIGS. **2** to **4**.

[**0044**] The pressure intensifying apparatus **300** includes a case **310** installed in the ducts **110** and **120**, air supply units **311** connected to the ducts **110** and **120** to guide air of at least the ducts **110** and **120** into the case **310**, air exhaust units **312** for guiding an inside air of the case **310** to the ducts **110** and **120**, a fan **320** installed inside the case **310** to rotate to supply/exhaust air, and a drive motor **330** for rotating the fan **320**.

[**0045**] It is preferable that the case **310** is formed evenly. Also, it is preferable that at least two air supply units **311** and at least two air exhaust units **312** are provided at a periphery of the case **310**. The case **310** is formed evenly for the purpose of enabling it to be buried. Also, the air supply unit **311** and the air exhaust unit **312** are provided at the periphery of the case for the purpose of enabling the branched ducts **110** and **120** to be connected from all directions.

[**0046**] For example, the case **310** has top and bottom surfaces formed in a circular shape. On the periphery of the case **310**, the air supply unit **311** and the air exhaust duct **312** are formed spaced apart from each other at predetermined intervals. It is apparent that the case **310** can be made in a polygonal shape. The case **310** having the top and bottom surfaces formed in the circular shape is advantageous to reduce airflow resistance.

[**0047**] As shown in **FIG. 4**, the fan **320** may be a turbo fan **320** that sucks air in an axial direction and discharges air in a radial direction. The turbo fan **320** includes a plurality of blades **321** radially arranged and a donut-shaped shroud **322** fixed to one side (an upper side in **FIG. 3**) of the blade **321**. Accordingly, the sucked air passes through the central portion of the shroud **322** and is then discharged in the radial direction as the blades **321** are rotating. A high static pressure is formed inside the case **310**, such that air is discharged.

[**0048**] Because the turbo fan **320** is advantageous to increase the static pressure, the turbo fan **320** is installed so as to increase the static pressure in the duct **100**. If the turbo fan **320** is used, the height of the case **310** is lowered, such that the pressure intensifying apparatus can be easily buried in the ceiling.

[**0049**] As shown in **FIG. 2**, it is preferable that the air supply unit **311** and the air exhaust unit **312** are inclined by a predetermined angle (e) with respect to a rotational radius of the turbo fan **320**. It aims to reduce airflow resistance because the supplied/exhausted air flows obliquely with respect to the rotational radius of the fan **320**.

[**0050**] The pressure intensifying apparatus **300** may further include dampers **340** and **350** for opening/closing the air supply unit **311** and the air exhaust unit **312**. When the damper **340** disposed at the air supply unit **311** is opened, air sucked inside the case **310** is guided in an axial direction (toward an upper portion) of the turbo fan **320**. As shown in **FIG. 4**, the damper **340** is installed to be rotatable about a lower end thereof. Accordingly, in the case of the damper **340**, a separate guide for guiding air in the axial direction of the turbo fan **320** need not be installed.

[**0051**] The ventilator **200** and/or the pressure intensifying apparatus **300** may further include a controller (not shown) for controlling it depending on user's input information. The controller (not shown) for the pressure intensifying apparatus **300** controls the static pressure of air passing through the intensifying apparatus **300** by selectively opening/closing the damper **340** depending on the input information.

[**0052**] The pressure intensifying apparatus **300** can be applied to gas circulating devices, such as a ventilation system and an air conditioner.

[**0053**] An operation of the ventilation system and the pressure intensifying apparatus according to the present invention will now be described.

[**0054**] A ventilation mode is started according to a user's selection. At this point, an air supply stroke and an air exhaust stroke can be done at the same time, or only one stroke of them can be done. The former case will be described below.

[**0055**] When the ventilator **200** operates, an outdoor air flows along the air supply duct **110** and a polluted indoor air flows along the air exhaust duct **120** due to pressure of the ventilator **200**. The static pressure in the duct is greatly reduced due to airflow resistance generated while the indoor and outdoor air flows through the ducts **110** and **120**.

[**0056**] In such a state, as shown in **FIG. 4**, the pressure intensifying apparatus **300** opens the dampers **340** and **350** such that air flowing through the ducts **110** and **120** is distributed to the branched ducts. At this point, the damper **340** disposed at the air supply unit **311** is opened in an inclined manner such that an upper portion of the air supply unit **311** is opened. Accordingly, air introduced in the air supply unit **311** is guided toward the central portion of the turbo fan **320** by the damper **340**.

[**0057**] As the turbo fan **320** rotates, the guided air flows in a radial direction. This operation of the turbo fan **320** causes airflow pressure to increase greatly in the inner periphery of the case **310**. Accordingly, air discharged through the air exhaust unit **312** is in a state of very high pressure and is exhausted to the ducts **110** and **120** connected to the air exhaust unit **312**. Consequently, the static pressure in the ducts **110** and **120** can increase greatly.

[**0058**] **FIG. 5** is a graph of a test result when the pressure intensifying apparatus **300** is installed in an about 231-m^2 indoor space. When the pressure intensifying apparatus **300** is not installed, the static pressure in the ducts **110** and **120** is about 170 Pa (L_1). On the contrary, when the pressure intensifying apparatus **300** is installed, the static pressure in the ducts **110** and **120** is about 300 Pa (L_2), which is two

times as high as the former case. Accordingly, the pressure intensifying apparatus **300** can supply/exhaust sufficient air to/from the indoor space.

[**0059**] FIGS. **6** to **8** are views of a pressure intensifying apparatus **400** according to a second embodiment of the present invention.

[**0060**] The pressure intensifying apparatus **400** includes a case **410**, an air supply unit **411**, an air exhaust unit **412**, an air supply fan **420**, and an air exhaust fan **430**. The case **410** is installed in at least two branched ducts **110** and **120** and is divided into an upper space and a lower space. The air supply unit **411** and the air exhaust unit **412** communicate the upper and lower spaces of the case **410** with the ducts **110** and **120**. The air supply fan **420** and the air exhaust fan **430** are installed inside the case **410** and are coaxially connected with a drive motor **440**.

[**0061**] The case **410** has top and bottom surfaces formed in a circular shape. On the periphery of the case **410**, the air supply unit **411** and the air exhaust unit **412** are formed spaced apart from each other at predetermined intervals. The case **310** having the top and bottom surfaces formed in the circular shape is advantageous to reduce the airflow resistance. Also, an entire height of the case **410** can be reduced.

[**0062**] The air supply fan **420** sucks air through the air supply unit **411** and exhausts it to the air exhaust unit **412**. The air exhaust fan **412** sucks air through the air exhaust unit **412** and exhausts it to the air supply unit **411**. It is preferable that the fans **420** and **430** are a double suction fan in which the air supply fan **420** and the air exhaust fan **430** are coaxially connected to the drive motor **440**.

[**0063**] The case **410** is partitioned to separate the spaces where the air supply fan **420** and the air exhaust fan **430** are installed.

[**0064**] The air supply unit **411** includes a first air supply damper **451** for guiding the sucked air in an axial direction of the air supply fan **420**, and a second air supply damper **461** for preventing the air from being exhausted from the air exhaust fan **430** to the air supply unit **411** when the first air supply damper **451** is opened. The air exhaust unit **412** includes a first air exhaust damper **452** for guiding the air exhausted from the air supply fan **420** to the air exhaust unit **412** toward the air exhaust duct **120**, and a second air exhaust damper **462** for preventing air from being sucked to the air exhaust fan **430** when the first air exhaust damper **452**.

[**0065**] As shown in FIGS. **6** or **7**, the air supply dampers **451** and **461** and the air exhaust dampers **452** and **462** are installed up and down such that they are rotatable about a partition plate that separates the air supply fan **420** and the air exhaust fan **430**. Also, the first air supply damper **451** is opened in an inclined manner such that an upper surface of the air supply fan **420** is opened. The second air supply damper **462** is opened in an inclined manner such that a lower portion of the air exhaust fan **430** is opened. Accordingly, if the dampers **451** and **462** are applied, a separate guide for guiding air in an axial direction of the fan need not be installed.

[**0066**] In the operation of the air supply dampers **451** and **461** and the air exhaust dampers **452** and **462**, when the first air supply damper **451** and the first air exhaust damper **452** are opened, the air supply fan **420** operates to increase the static pressure of air supplied from the air supply unit **411** to the air exhaust unit **412**. When the second air exhaust damper **462** and the second air supply damper **461** are opened, the air exhaust fan **430** operates to increase the static pressure of air supplied from the air exhaust unit **412** to the air supply unit **411**. At this point, the dampers can be selectively opened/closed.

[**0067**] As described above, in the case of the double suction fan, the static pressure of the ducts **110** and **120** can be increased at the same time by installing the pressure intensifying apparatus **400** in the intersection between the air supply duct **110** and the air exhaust duct **120**, not in each of the air supply duct and the air exhaust duct **120**.

[**0068**] Also, the air supply dampers **451** and **461** and the air exhaust dampers **452** and **462** are selectively opened and closed, such that the connection between the air supply unit **411** and the duct **110** and between the air exhaust unit **412** and the duct **120** can be modified. Also, air volume provided to the ducts **110** and **120** can be changed.

[**0069**] It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention. Thus, it is intended that the present invention covers the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A ventilation system comprising:

a duct branched into at least rooms;

a ventilator connected to the duct, for selectively or simultaneously exhausting indoor air and supplying outdoor air; and

a pressure intensifying apparatus including:

a case in which air supply unit/air exhaust unit connected to the duct are formed; and

a fan for increasing static pressure of air supplied/exhausted through the duct.

2. The ventilation system of claim 1, wherein the pressure intensifying apparatus includes:

at least two air supply units and at least two air exhaust units connected to the duct;

a fan disposed inside the case, for supply/exhaust air by rotation thereof; and

a drive motor disposed inside the case, for rotating the fan.

3. The ventilation system of claim 1, wherein the pressure intensifying apparatus further includes a damper for opening/closing the air supply unit and the air exhaust unit.

4. The ventilation system of claim 1, wherein the case is formed evenly, and the air supply unit and the air exhaust unit are arranged at a periphery of the case.

5. The ventilation system of claim 1, wherein the case has top and bottom surfaces formed in a circular shape.

6. The ventilation system of claim 1, wherein the case is installed in a ceiling.

7. The ventilation system of claim 1, wherein the fan is a turbo fan that sucks air in an axial direction and exhausts air in a radial direction.

8. The ventilation system of claim 1, wherein the air supply unit and the air exhaust unit are inclined with respect to a rotational radius of the fan.

9. The ventilation system of claim 8, wherein the air supply unit further includes a damper for opening/closing to guide air sucked inside the case in an axial direction of the fan.

10. The ventilation system of claim 1, wherein the pressure intensifying apparatus is arranged in a position where the duct is branched.

11. The ventilation system of claim 1, wherein the duct includes an air supply duct and an air discharge duct.

12. The ventilation system of claim 11, wherein the pressure intensifying apparatus is installed in each of the air supply duct and the air exhaust duct.

13. The ventilation system of claim 1, further comprising a controller for controlling the ventilator and/or the pressure intensifying apparatus according to user's input information.

14. A pressure intensifying apparatus comprising:

at least two branched ducts;

a case divided into an upper space and a lower space;

an air supply unit and an air exhaust unit for communicating the upper and lower spaces of the case with the duct;

a fan disposed inside the case, for sucking air through the air supply unit and exhausting air through the air exhaust unit, or for sucking air through the air exhaust unit and exhausting air through the air supply unit; and

a drive motor, disposed inside the case, for rotating the fan.

15. The pressure intensifying apparatus of claim 14, wherein the case is formed evenly, and at least two air supply units and at least two air exhaust units are arranged at a periphery of the case.

16. The pressure intensifying apparatus of claim 14, wherein the fan is configured to suck air in an axial direction and exhaust air in a radial direction.

17. The pressure intensifying apparatus of claim 14, wherein the fan is a double suction fan having an air supply fan and an air exhaust fan arranged up and down, the air supply fan being configured to suck air toward in an inside of the case through the air supply unit and exhaust the sucked air to the air exhaust unit, the air exhaust fan being configured to suck air through the air exhaust unit and exhaust the sucked air to the air supply unit.

18. The pressure intensifying apparatus of claim 14, wherein the air supply unit further includes:

an air supply damper for opening/closing to guide air sucked inside the case in an axial direction; and

an air exhaust damper for opening/closing to guide air exhausted from the fan toward the duct.

19. The pressure intensifying apparatus of claim 18, wherein the air supply damper includes a first air supply damper for guiding air sucked in the air supply unit in an axial direction of the fan, and a second air supply damper for preventing air from being exhausted to the air supply unit when the first air supply damper, and

the air exhaust damper includes a first air exhaust damper for guiding air exhausted from the fan to the air exhaust unit, and a second air exhaust damper for preventing air from being sucked into the fan.

20. The pressure intensifying apparatus of claim 19, wherein the air exhaust damper and the air supply damper alternately open the air supply unit and the air exhaust unit.

21. The pressure intensifying apparatus of claim 14, wherein the case is separated into a space where the air supply fan is received and a space where the air exhaust fan is received.

22. A method for controlling a ventilation system, comprising the steps of:

selecting a predetermined input information;

driving a ventilator;

driving a pressure intensifying apparatus so as to increase an inner pressure of a duct connected to the ventilator; and

increasing a static pressure of the duct by opening a damper, the damper being openable/closable according to the input information and provided at a position where the pressure intensifying apparatus and the duct are connected.

23. A method for controlling a pressure intensifying apparatus, comprising the steps of:

selecting a predetermined input information;

rotating a fan of a pressure intensifying apparatus, the fan being provided to increase an inner pressure of a duct; and

increasing a static pressure of the duct by opening a damper, the damper being openable/closable according to the input information and provided at a position where the pressure intensifying apparatus and the duct are connected.

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