

DESCRIPTION

AIR FLOW ENVIRONMENT SYSTEM

5 TECHNICAL FIELD

[0001] The present disclosure relates to an air flow environment system that forms an air flow in an environmental space.

BACKGROUND ART

10 [0002] As a conventional example, air cleaner 100 described in Patent Literature 1 will be described with reference to Fig. 6. Fig. 6 is an external perspective view illustrating a structure of conventional air cleaner 100. As illustrated in Fig. 6, conventional air cleaner 100 includes smoking seat 101 serving as an open space, furniture 102 disposed in front of smoking seat 101, and air intake unit 103 disposed on smoking seat 101 side with respect
15 to furniture 102. In air cleaner 100, air flow 105 discharged from exhaust port 104 of furniture 102 having an air discharge unit built therein flows obliquely upward toward air intake opening 106 of air intake unit 103 and is taken into air intake opening 106. According to such air cleaner 100, smoke of cigarettes or the like is caught by air flow 105 directed obliquely upward. Therefore, an outer space (on the side opposite to smoking seat
20 101 with respect to furniture 102) serving as a non-smoker's area and an inner space (on the side of smoking seat 101 with respect to furniture 102) serving as a smoker's area are blocked from each other, and thus, it is possible to suppress diffusion of tobacco smoke or the like from the inner space to the outer space.

Citation List

25 Patent Literature

[0003] PTL 1: Unexamined Japanese Patent Publication No. H9-010528

SUMMARY OF THE INVENTION

30 [0004] According to conventional air cleaner 100, an air flow directed obliquely upward enables an air flow to be suppressed between the outer space and the environmental space which is the inner space. However, in conventional air cleaner 100, there is room for air to flow in and out on a side part of smoking seat 101. Therefore, it is not sufficient to confine the flow of air in the environmental space and improve comfort (air flow feeling, cool

feeling, clean feeling, and the like) for a user who uses the environmental space. In other words, it is demanded to improve user's comfort in the environmental space.

[0005] An object of the present disclosure is to provide an air flow environment system enabling improvement of user's comfort in an environmental space.

- 5 [0006] An air flow environment system according to the present disclosure includes: a housing in which a specific space is formed and an open face opened to an external space is provided on a front side; a discharge port that is provided on a lower surface side in the housing, and on a back side opposite to the front side in the housing, discharges an air flow flowing along a specific direction to the specific space; and a reflection part provided on an
10 upper surface side opposite to the lower surface side in the housing so as to be opposed to the discharge port in the specific direction, and configured to have the air flow flowing along the specific direction hit. The reflection part makes the air flow that has hit the reflection part flow back from the upper surface side in the housing to the lower surface side in the housing so as to cross the open face.
- 15 [0007] According to the present disclosure, an air flow environment system enabling improvement of user's comfort in an environmental space can be obtained.

BRIEF DESCRIPTION OF THE DRAWINGS

- [0008] Fig. 1 is an external perspective view of an air flow environment system according
20 to a first exemplary embodiment of the present disclosure.

Fig. 2 is a block diagram showing a configuration of a blower system in the air flow environment system according to the first exemplary embodiment.

Fig. 3 is a schematic view for explaining an air flow formed by the air flow environment system according to the first exemplary embodiment.

- 25 Fig. 4 is a view schematically showing a configuration of an air flow environment system according to a second exemplary embodiment of the present disclosure.

Fig. 5 is a view schematically showing a configuration of an air flow environment system according to a third exemplary embodiment of the present disclosure.

- 30 Fig. 6 is an external perspective view showing a structure of a conventional air cleaner.

DESCRIPTION OF EMBODIMENT

[0009] An air flow environment system according to the present disclosure includes: a

housing in which a specific space is formed and an open face opened to an external space is provided on a front side; a discharge port that is provided on a lower surface side in the housing, and on a back side opposite to the front side in the housing, discharges an air flow flowing along a specific direction to the specific space; and a reflection part provided on an upper surface side opposite to the lower surface side in the housing to be opposed to the discharge port in the specific direction, and configured to have the air flow flowing along the specific direction hit. The reflection part makes the air flow that has hit the reflection part flow back from the upper surface side in the housing to the lower surface side in the housing so as to cross the open face.

[0010] According to such a configuration, an air flow reflected by the reflection part flows back to the lower surface side of the specific space to cross the open face on the front side of the specific space. This enables a flow of air to be confined in the specific space. Then, an air flow from the front side to the back side in the specific space is generated by an air flow (induced air flow) induced by an air flow flowing along the specific direction on the back side of the specific space. Therefore, it is possible to make a user who uses the specific space feel the air flow. Specifically, user's comfort in the specific space can be improved as compared with a case of using a conventional air cleaner. In other words, an air flow environment system is allowed to improve user's comfort in a specific space.

[0011] Further, in the air flow environment system according to the present disclosure, a seat part configured to allow a user to sit while facing the open face may be provided in the housing. The discharge port discharges the air flow flowing in the specific direction to the specific space on the back side of the seat part in the housing. As a result, an air flow reflected by the reflection part flows back to the lower surface side of the seat part so as to cross the open face on the front side of the seat part. Therefore, the flow of air can be confined in the specific space. Then, an air flow from the front side to the back side in the specific space is generated by an air flow (induced air flow) induced by an air flow flowing along the specific direction on the back side of the seat part. This enables a user who uses the seat part to feel the air flow. Specifically, comfort of a user who uses the seat part in a specific space can be improved as compared with a case of using a conventional air cleaner.

[0012] Further, in the air flow environment system according to the present disclosure, the discharge port may be provided at a position lower than a position of a head of the user seated on the seat part with respect to the lower surface side in the housing to cause the air

flow flowing along the specific direction to flow between the user seated on the seat part and a wall surface exposed on a back side of the user in the housing. This generates an induced air flow on the back side including the head of the user. Therefore, it is possible to make the user feel the flow of air from the front side toward the back side in the specific space more reliably. In other words, it is possible to effectively improve user's comfort in the specific space.

[0013] The air flow environment system according to the present disclosure may further include an intake port provided in the seat part to take in air of the specific space. The discharge port discharges air taken in from the intake port as the air flow flowing along the specific direction. As a result, since an air flow reflected by the reflection part is taken in by the intake port, the air flow can be more reliably confined in the specific space. Then, a flow of air (induced air flow) formed in the specific space can be generated more stably.

[0014] In addition, the air flow environment system according to the present disclosure may further include a functional unit that applies an additional element to the air flow discharged from the discharge port to the specific space. The additional element includes at least one of aroma, air purification, humidity change, and temperature change. As a result, the additional element can be applied to an air flow to fill the specific space with the additional element. Then, diffusion of the additional element to the outside of the specific space is suppressed by an air flow reflected by the reflection part. Therefore, this makes it easy to maintain a situation in which the specific space is filled with the additional element. In other words, it is possible to further improve user's comfort in a specific space.

[0015] The air flow environment system according to the present disclosure may further include a centralized air conditioning chamber that introduces air of the external space and applies an additional element; and a duct that allows the centralized air conditioning chamber and the discharge port to communicate with each other. The additional element includes at least one of aroma, air purification, humidity change, and temperature change. The discharge port discharges air introduced from the centralized air conditioning chamber as the air flow flowing along the specific direction. Accordingly, since air (air to which an additional element is applied) is supplied from the centralized air conditioning chamber to the air flow environment system, the present disclosure can be easily applied to an air flow environment system having a plurality of independent specific spaces.

[0016] Hereinafter, exemplary embodiments of the present disclosure will be described with reference to the drawings. Note that the following exemplary embodiments are

examples embodying the present disclosure, and do not limit the technical scope of the present disclosure. Each of the drawings described in the following exemplary embodiments is a schematic view, and a ratio of a size and a thickness of each constituent element in each drawing does not necessarily reflect the actual dimensional ratio.

5 **[0017]** (First exemplary embodiment)

First, an outline of air flow environment system 1 according to a first exemplary embodiment will be described with reference to Figs. 1 to 3. Fig. 1 is an external perspective view of air flow environment system 1 according to the first exemplary embodiment of the present disclosure. Fig. 2 is a block diagram showing a configuration of
10 blower system 2 in air flow environment system 1 according to the first exemplary embodiment. Fig. 3 is a schematic view for explaining an air flow formed by air flow environment system 1 according to the first exemplary embodiment.

[0018] Note that in the following description, recitation may be made as follows. Specifically, a vertical direction in a state where air flow environment system 1 is viewed
15 from the front (in a state of facing seat part 3 of air flow environment system 1) may be referred to as "upper side" or "lower side" of an up-down direction. Note that the upper side may be referred to as "ceiling surface side" or "upper surface side", and the lower side may be referred to as "floor surface side" or "lower surface side". In addition, a left-right direction in a state where air flow environment system 1 is viewed from the front may be
20 referred to as "left side" or "right side". In addition, a front-back direction in a state where air flow environment system 1 is viewed from the front may be referred to as "near side" or "far side". The near side may be referred to as a "front side", and the far side may be referred to as a "back side".

[0019] Air flow environment system 1 is installed as, for example, private room unit 10
25 also serving as a rest room, a waiting room, or the like. Air flow environment system 1 is a system configured to form an air flow (flow of air) comfortable for user U (see Fig. 3) who uses specific space SP1 formed in private room unit 10. Specific space SP1 is also referred to as an environmental space.

[0020] As shown in Fig. 1, air flow environment system 1 includes box-type private room
30 unit 10, seat part 3 including blower system 2, and reflection part 4.

[0021] Private room unit 10 is surrounded by left wall surface 10a, right wall surface 10b, floor surface side wall surface 10c, ceiling surface side wall surface 10d, and back side wall surface 10e, has specific space SP1 formed therein and has open face X in which a

front side of seat part 3 is opened to external space SP2. “Open face X” is a virtual face without entity, and is a virtual plane surrounded by front side end portions of left wall surface 10a, right wall surface 10b, floor surface side wall surface 10c, and ceiling surface side wall surface 10d. Inside private room unit 10, seat part 3 including blower system 2 is installed on a floor surface side, and reflection part 4 is installed on a ceiling surface side.

[0022] Seat part 3 including blower system 2 is installed on floor surface side wall surface 10c in specific space SP1. Blower system 2 discharges air flow A1 (see Fig. 3) flowing along a first direction (a direction indicated by an arrow indicating air flow A1 in Fig. 3), which is a specific direction, to specific space SP1.

[0023] Reflection part 4 is provided at a position opposed to blower system 2 such that air flow A1 flowing along the first direction hits ceiling surface side wall surface 10d in specific space SP1. In specific space SP1, reflection part 4 is configured to have air flow A1 that has hit flow back from the ceiling surface side to the floor surface side (a direction indicated by an arrow indicating air flow A3 in Fig. 3) as air flow A2.

[0024] Next, seat part 3 including blower system 2 will be described.

[0025] Seat part 3 has a pedestal on which user U can sit and a backrest part. Specifically, seat part 3 is configured such that user U can sit so as to face open face X inside private room unit 10. Seat part 3 serves also as a member constituting an outer frame of blower system 2. Seat part 3 includes blower system 2, discharge port 5, and intake port 6.

[0026] Discharge port 5 is disposed on an upper surface of the backrest part of seat part 3. Discharge port 5 is configured by, for example, a slit-shaped opening or a plurality of holes in a range from left wall surface 10a to right wall surface 10b. Discharge port 5 is configured to communicate with blower system 2 via an internal space (not illustrated) of seat part 3, and discharges the air blown from blower system 2 to specific space SP1 as air flow A1 flowing along the first direction. Discharge port 5 is provided at a position lower than a position of a head of user U seated on seat part 3 with respect to a lower surface side (floor surface side) in private room unit 10 so that air flow A1 flowing along the first direction flows between user U and wall surface 10e exposed behind user U (a back side of private room unit 10 with respect to user U) (see Fig. 3). Here, the position of the head of user U represents a position of a head in a state where user U having at least a standard sitting height is seated on seat part 3 in a correct posture.

[0027] Intake port 6 is disposed on the front of, on the floor surface side, the pedestal of seat part 3. Intake port 6 includes, for example, a plurality of slit-shaped holes elongated in

the up-down direction. Intake port 6 is configured to communicate with blower system 2 via the internal space (not illustrated) of seat part 3, and takes in air from specific space SP1 into the internal space in accordance with air blowing operation of blower system 2.

[0028] As described above, blower system 2 is configured to be accommodated (held) inside seat part 3. Blower system 2 is communicably connected to discharge port 5 and intake port 6 in the internal space of seat part 3. Then, the air in specific space SP1 is supplied from intake port 6 to blower system 2 and discharged from discharge port 5 to specific space SP1.

[0029] As illustrated in Fig. 2, blower system 2 includes a blower device 2a, a functional unit 2b, and a control unit 2c.

[0030] Blower device 2a is an apparatus that takes in air of specific space SP1 from intake port 6 under the control of control unit 2c, generates air flow A1 flowing along the first direction, and sends the air flow to discharge port 5. Blower device 2a is, for example, a sirocco fan that generates an air flow containing more rectilinear components than swirl components. Here, although a material of blower device 2a is not particularly limited, it desirably has durability not affected by an additional element applied by functional unit 2b to be described later to air flow A1 discharged from discharge port 5 into specific space SP1.

[0031] Functional unit 2b is an apparatus that applies an additional element to air flow A1 discharged from discharge port 5 into specific space SP1 under control of control unit 2c. The additional element includes at least one of aroma, air purification, humidity change, and temperature change.

[0032] When the additional element includes aroma, functional unit 2b is accommodated in seat part 3. The additional element has, for example, a scent presentation device (not illustrated) including a fragrance. Scent vaporized from the fragrance mixes with an air flow flowing from blower device 2a to discharge port 5. As a result, it is possible to provide user U who uses specific space SP1 with air having a high-quality scent.

[0033] In a case where the additional element includes air purification, functional unit 2b has, for example, an air cleaner (not illustrated). The air cleaner is accommodated in seat part 3. The air cleaner has a dust collecting filter that collects fine particles such as pollen in the air taken in from intake port 6, a deodorizing filter, and the like. Air purified by the air cleaner is discharged upward from discharge port 5 as air flow A1 by blower device 2a. As a result, the purified air can be provided to user U who uses specific space SP1.

[0034] Further, in a case where the additional element includes air purification, functional unit 2b may have, for example, a space sterilization and deodorization apparatus (not illustrated). The space sterilization and deodorization apparatus is accommodated in seat part 3. The space sterilization and deodorization apparatus is configured to generate hypochlorous acid and mix the hypochlorous acid into the air flow generated by blower device 2a. Air flow A1 containing hypochlorous acid is discharged upward from discharge port 5 to sterilize specific space SP1. As a result, the purified air can be provided to user U who uses specific space SP1.

[0035] When the additional element includes humidity change, functional unit 2b has, for example, a dehumidifying and humidifying device (not illustrated). The dehumidifying and humidifying device is accommodated in seat part 3. Air conditioned (dehumidified or humidified) by the dehumidifying and humidifying device is discharged upward from discharge port 5 as air flow A1 by blower device 2a. As a result, air having comfortable humidity can be provided to user U who uses specific space SP1.

[0036] In a case where the additional element includes temperature change, functional unit 2b has, for example, an air conditioner (not illustrated). The air conditioner has a compressor, and cool air or warm air generated by the air conditioner is discharged upward from discharge port 5 as air flow A1 by blower device 2a. As a result, air having a comfortable temperature can be provided to user U who uses specific space SP1.

[0037] In a case where functional unit 2b has the air cleaner, the space sterilization and deodorization apparatus, the dehumidifying and humidifying device, or the air conditioner described above, turning on/off of power supply thereof, adjustment of various parameters, and the like can be executed by operating an operation panel (not illustrated), for example. The operation of functional unit 2b may be controlled in conjunction with operation of blower device 2a under the control of control unit 2c.

[0038] Since functional unit 2b is provided in blower system 2, an additional element can be easily applied to air flow A1.

[0039] Next, the reflection part 4 will be described with reference to Fig. 3.

[0040] As illustrated in Fig. 3, reflection part 4 is installed on ceiling surface side wall surface 10d of private room unit 10. Then, reflection part 4 is disposed so as to be opposed to discharge port 5 in the first direction, and a lower surface of reflection part 4 has curved surface 4a having a substantially semi-cylindrical shape with its central portion recessed. Specifically, substantially semi-cylindrical curved surface 4a has an axial direction

substantially parallel to open face X and floor surface side wall surface 10c, and is curved in an arc shape so as to protrude toward the ceiling surface side when viewed along the axial direction.

[0041] In reflection part 4, air flow A1 discharged from discharge port 5 hits curved surface 4a of reflection part 4 during operation of blower system 2. Then, air flow A1 that has hit curved surface 4a is reflected in a second direction (a direction from the back side to the front side) that is a reflection direction along curved surface 4a, and flows as air flow A2 flowing in the second direction. Further, air flow A2 flowing in the second direction is discharged as air flow A3 from an end portion of curved surface 4a on the front side toward the floor surface side (the direction indicated by the arrow indicating air flow A3 in Fig. 3). In other words, the reflection part 4 is configured such that air flow A1 flowing along the first direction hits the reflection part, hit air flow A1 is blown as air flow A2, and blown air flow A2 flows back to a floor surface side of seat part 3 as air flow A3 so as to cross open face X on the front side of seat part 3 in the up-down direction.

[0042] Next, an air flow of air flow environment system 1 will be described with reference to Fig. 3.

[0043] In air flow environment system 1, as described above, air flow A1 flowing along the first direction is discharged from discharge port 5 by blower system 2. Here, air flow A1 discharged from discharge port 5 flows along wall surface 10e by an induction phenomenon due to the Coanda effect, i.e., a phenomenon in which a negative pressure region is generated between blown-out air flow A1 and wall surface 10e, and blown-out air flow A1 is induced to the negative pressure region side.

[0044] Air flow A1 discharged from discharge port 5 hits curved surface 4a at an end portion on a back side of curved surface 4a in reflection part 4. Air flow A1 that has hit curved surface 4a flows as air flow A2 so as to be reflected in the second direction along curved surface 4a. Air flow A2 flowing in the second direction is discharged from the front side end portion of curved surface 4a toward the floor surface side as air flow A3 flowing in a third direction (a direction from the ceiling surface side toward the floor surface side). Discharged air flow A3 flows to the floor surface side across open face X of private room unit 10 in the up-down direction (the direction from the ceiling surface side toward the floor surface side). Air flow A3 that has flowed to the floor surface side flows in a fourth direction (a direction from the front side to the back side) along wall surface 10c as air flow A4, and is taken in from intake port 6 of seat part 3. Taken in air flow A4 is

discharged again as air flow A1 flowing along the first direction by blower system 2. In this way, a series of air flows (air flows A1 to A4) in specific space SP1 is formed.

[0045] Then, in air flow environment system 1, air flow A3 crossing open face X in the up-down direction functions as an air curtain. Therefore, a flow of air between specific space SP1 and external space SP2 is suppressed. At this time, inflow of air into private room unit 10 or outflow of air to the outside of private room unit 10 is suppressed by left wall surface 10a and right wall surface 10b. As a result, the air flow is confined in specific space SP1.

[0046] In air flow environment system 1, on the back side of seat part 3, induced air flow B1 (see Fig. 3) is induced and generated by air flow A1 flowing along the first direction. Furthermore, a flow of induced air flow B1 generates induced air flow B2 (see Fig. 3) as a flow of air from the front side toward the back side in specific space SP1. As a result, an induced air flow (induced air flow B1 and induced air flow B2) directed from the front side to the back side is generated in specific space SP1 by a series of air flows (air flows A1 to A4). In other words, user U who uses seat part 3 can feel such an air flow.

[0047] As described in the foregoing, air flow environment system 1, in specific space SP1 in which the front side of private room unit 10 is open face X opened to external space SP2, enables air to be confined in specific space SP1 and enables an air flow to be generated in specific space SP1.

[0048] According to air flow environment system 1 of the first exemplary embodiment described above, the following effects can be obtained.

[0049] (1) Air flow environment system 1 according to the present disclosure includes: private room unit 10 in which specific space SP1 is formed and open face X opened to external space SP2 is provided on a front side; a discharge port 5 that is provided on a lower surface side in private room unit 10, and on a back side opposite to the front side in private room unit 10, discharges air flow A1 flowing along the first direction to specific space SP1; and a reflection part 4 provided on an upper surface side opposite to the lower surface side in private room unit 10 so as to be opposed to discharge port 5 in the first direction, and configured to have air flow A1 flowing along the first direction hit.

Reflection part 4 makes hit air flow A1 flow back from the upper surface side in private room unit 10 to the lower surface side in private room unit 10 so as to cross open face X.

[0050] According to such a configuration, air flow A3 reflected by reflection part 4 flows back to a lower surface side of specific space SP1 (the floor surface side of seat part 3) so

as to cross open face X on the front side of seat part 3. This enables the air flow to be confined in specific space SP1. Then, a flow of air (induced air flow B2) directed from a front side to a back side in specific space SP1 is generated by a flow of air (induced air flow B1) induced by air flow A1 flowing along the first direction on a back side of seat part 3. Therefore, it is possible to make user U who uses seat part 3 feel the air flow. That is, comfort of user U in specific space SP1 can be improved as compared with a case of using a conventional air cleaner. In other words, air flow environment system 1 is allowed to improve the comfort of user U in specific space SP1.

[0051] (2) In air flow environment system 1, discharge port 5 is provided at a position lower than a position of a head of user U seated on seat part 3 with respect to the lower surface side in private room unit 10 such that air flow A1 flowing along the first direction flows between user U seated on seat part 3 and a wall surface (wall surface 10e) exposed on a back side of user U in private room unit 10. This generates induced air flow B1 on the back side including the head of user U. Therefore, it is possible to make user U feel the flow of air (induced air flow B2) from the front side toward the back side in specific space SP1 more reliably. In other words, it is possible to effectively improve the comfort of user U in specific space SP1.

[0052] (3) Air flow environment system 1 includes intake port 6 provided in seat part 3 to take in air of specific space SP1. Discharge port 5 discharges air (air including air flow A4) taken in from intake port 6 as air flow A1 flowing along the first direction. As a result, since air flow A3 (air flow A4 to follow) reflected by reflection part 4 is taken in by intake port 6, the air flow can be more reliably confined in specific space SP1. Then, the flow of air (induced air flow B1 and induced air flow B2) formed in specific space SP1 can be generated more stably.

[0053] (4) Air flow environment system 1 includes functional unit 2b that applies an additional element to air flow A1 discharged from discharge port 5 to specific space SP1. The additional element includes at least one of aroma, air purification, humidity change, and temperature change. As a result, the additional element can be applied to air flow A1 to fill specific space SP1 with the additional element. Then, diffusion of the additional element to the outside of specific space SP1 (external space SP2) is suppressed by air flow A3 reflected by reflection part 4. Therefore, it is easy to maintain a situation in which specific space SP1 is filled with the additional element. In other words, the comfort of user U in specific space SP1 can be further improved.

[0054] (Second exemplary embodiment)

Fig. 4 is a view schematically showing a configuration of air flow environment system 1a according to a second exemplary embodiment of the present disclosure. Air flow environment system 1a according to the second exemplary embodiment of the present disclosure is different from that of the first exemplary embodiment in being configured to receive a supply of an air flow from centralized blower system 12 instead of a supply of an air flow from blower system 2. Other part of the configuration of air flow environment system 1a than this point is substantially the same as that of air flow environment system 1 according to the first exemplary embodiment. In the following, description of the contents already described in the first exemplary embodiment will be omitted as appropriate, and differences from the first exemplary embodiment will be mainly described.

[0055] Air flow environment system 1a according to the second exemplary embodiment will be described with reference to Fig. 4.

[0056] As shown in Fig. 4, air flow environment system 1a is connected to communicate with centralized blower system 12 via duct 11. Note that centralized blower system 12 corresponds to a "centralized air conditioning chamber" in the claims.

[0057] Duct 11 is connected to communicate with discharge port 5 via an internal space of seat part 13. Therefore, intake port 6 is not provided in seat part 13 of the second exemplary embodiment.

[0058] Centralized blower system 12 includes blower device 12a, functional unit 12b, and control unit 12c. Blower device 12a has substantially the same function as blower device 2a of the first exemplary embodiment, functional unit 12b has substantially the same function as functional unit 2b of the first exemplary embodiment, and control unit 12c has substantially the same function as control unit 2c of the first exemplary embodiment. Accordingly, centralized blower system 12 has substantially the same function as blower system 2 (blower device 2a, functional unit 2b, and control unit 2c).

[0059] Centralized blower system 12 is installed in an air conditioning chamber or the like away from air flow environment system 1a, and supplies air to air flow environment system 1a. Therefore, in centralized blower system 12, air outside specific space SP1 (air in external space SP2) is taken in and supplied to air flow environment system 1a. Meanwhile, centralized blower system 12 is connected to communicate also with air flow environment system 1b different from air flow environment system 1a. This allows air to be supplied to a plurality of air flow environment systems.

[0060] Also in air flow environment system 1a, similarly to air flow environment system 1, in specific space SP1 in which a front side of private room unit 10 is open face X opened to external space SP2, air can be confined in specific space SP1, and an air flow can be generated in specific space SP1. In air flow environment system 1a, air flow A3 flowing in a third direction diffuses along a floor surface side.

[0061] As described in the foregoing, according to air flow environment system 1a of the second exemplary embodiment, the following effects can be obtained.

[0062] (5) Air flow environment system 1a includes: centralized blower system 12 that introduces air of external space SP2 and applies an additional element; and a duct 11 that allows centralized blower system 12 and discharge port 5 to communicate with each other. The additional element includes at least one of aroma, air purification, humidity change, and temperature change. Discharge port 5 discharges air introduced from centralized blower system 12 as air flow A1 flowing along a first direction. Accordingly, since air (air to which an additional element is applied) is supplied from centralized blower system 12 to air flow environment system 1a, the present disclosure can be easily applied to air flow environment system 1b having specific space SP1 independent of air flow environment system 1a.

[0063] (Third exemplary embodiment)

Fig. 5 is a view schematically showing a configuration of air flow environment system 1c according to a third exemplary embodiment of the present disclosure. Air flow environment system 1c according to the third exemplary embodiment of the present disclosure is different from that of the first exemplary embodiment in including blower unit 3a having blower system 2 instead of seat part 3 having blower system 2. Other part of the configuration of air flow environment system 1c than this point is substantially the same as that of air flow environment system 1 according to the first exemplary embodiment. In the following, description of the contents already described in the first exemplary embodiment will be omitted as appropriate, and differences from the first exemplary embodiment will be mainly described.

[0064] Air flow environment system 1c according to the third exemplary embodiment will be described with reference to Fig. 5.

[0065] In air flow environment system 1c, as shown in Fig. 5, a seat part on which user U can sit is not installed inside box-shaped private room unit 10 having open face X. Therefore, user U uses private room unit 10 while standing.

[0066] As illustrated in Fig. 5, blower unit 3a is installed on floor surface side wall surface 10c at a position adjacent to back side wall surface 10e of specific space SP1.

Blower unit 3a discharges air flow A1 flowing along a first direction (a direction indicated by an arrow indicating air flow A1), which is a specific direction, into specific space SP1.

5 Reflection part 4 is installed at a position opposed to blower unit 3a in the first direction on ceiling surface side wall surface 10d in specific space SP1, and air flow A1 flowing along the first direction hits the reflection part. In specific space SP1, reflection part 4 is configured to make hit air flow A1 flow back to a floor surface side (a direction indicated by an arrow indicating air flow A3) as air flow A2 and air flow A3.

10 [0067] Next, blower unit 3a including blower system 2 will be described.

[0068] Blower unit 3a serves also as a member constituting an outer frame of blower system 2. Blower unit 3a includes blower system 2, discharge port 5a, and intake port 6a.

[0069] Discharge port 5a is disposed on an upper surface of blower unit 3a. Although not particularly illustrated, similarly to discharge port 5 of the first exemplary embodiment,

15 discharge port 5a is configured by a slit-shaped opening or a plurality of holes in a range from left wall surface 10a to right wall surface 10b. Discharge port 5a is configured to communicate with blower system 2 via an internal space (not illustrated) of blower unit 3a, and discharges air blown from blower system 2 to specific space SP1 as air flow A1 flowing along the first direction. A position (a height from the floor surface side) where
20 discharge port 5a is formed is substantially as high as a position where discharge port 5 of seat part 3 is formed in air flow environment system 1 of the first exemplary embodiment.

[0070] Intake port 6a is disposed on a front of blower unit 3a on the floor surface side.

Intake port 6a includes, for example, a plurality of slit-shaped holes elongated in the up-down direction. Intake port 6a is configured to communicate with blower system 2 via the

25 internal space (not illustrated) of blower unit 3a, and takes in air from specific space SP1 into the internal space in accordance with air blowing operation of air blower system 2.

[0071] As described above, blower system 2 is configured to be accommodated (held) inside blower unit 3a. Blower system 2 is communicably connected to discharge port 5a and intake port 6a in the internal space of blower unit 3a. Then, the air in specific space

30 SP1 is supplied from intake port 6a to blower system 2 and discharged from discharge port 5a to specific space SP1.

[0072] The air flow formed by air flow environment system 1c is similar to the air flow formed by air flow environment system 1, and thus description thereof is omitted.

[0073] As described in the foregoing, air flow environment system 1c, in specific space SP1 in which a front side of private room unit 10 is open face X opened to external space SP2, enables air to be confined in specific space SP1 and enables an air flow to be generated in specific space SP1.

5 **[0074]** As described in the foregoing, according to air flow environment system 1c of the third exemplary embodiment, the following effects can be obtained.

[0075] (6) Air flow environment system 1c includes: private room unit 10 in which specific space SP1 is formed and open face X opened to external space SP2 is provided on a front side; a discharge port 5a that is provided on a lower surface side in the private room
10 unit 10, and on a back side opposite to the front side in private room unit 10, discharges air flow A1 flowing along a first direction to specific space SP1; and a reflection part 4 provided on an upper surface side opposite to the lower surface side in private room unit 10 so as to be opposed to discharge port 5a in the first direction, and configured to have air flow A1 flowing along the first direction hit. Reflection part 4 makes hit air flow A1 flow
15 back from the upper surface side in private room unit 10 to the lower surface side in private room unit 10 so as to cross open face X.

[0076] According to such a configuration, air flow A3 reflected by reflection part 4 flows back to the lower surface side of specific space SP1 (the floor surface side of specific space SP1) so as to cross open face X on the front side of specific space SP1. This enables the air
20 flow to be confined in specific space SP1. Then, an air flow (induced air flow B2) directed from the front side to the back side in specific space SP1 is generated by an air flow (induced air flow B1) induced by air flow A1 flowing along the first direction on the back side of specific space SP1. Therefore, it is possible to make user U who uses specific space SP1 while standing feel an air flow. That is, comfort of user U in specific space SP1 can be
25 improved as compared with a case of using a conventional air cleaner.

[0077] Although the present disclosure has been described in the foregoing on the basis of the exemplary embodiments, the present disclosure is not limited to the above exemplary embodiments at all, and it can be easily inferred that various modifications and variations can be made without departing from the gist of the present disclosure.

30 **[0078]** Although in air flow environment system 1 according to the first embodiment, intake port 6 is provided in seat part 3 to circulate the air flow, the present disclosure is not limited thereto. For example, the air flow environment system may be configured such that air flow A3 flowing in the third direction is diffused along the floor surface side without

intake port 6. With such a configuration, the above described effects can be obtained as well.

[0079] Further, although in air flow environment system 1 according to the first exemplary embodiment, discharge port 5 is provided on the upper surface of the backrest part of seat part 3, the present disclosure is not limited thereto. For example, a gap may be provided between seat part 3 and wall surface 10e, and discharge port 5 may be disposed in the gap. This improves the degree of freedom in designing air flow environment system 1.

INDUSTRIAL APPLICABILITY

[0080] As described in the foregoing, the air flow environment system according to the present disclosure is useful because user's comfort can be improved in the environmental space.

REFERENCE MARKS IN THE DRAWINGS

- [0081] 1 air flow environment system
- 1a air flow environment system
- 1b air flow environment system
- 1c air flow environment system
- 2 blower system
- 2a blower device
- 2b functional unit
- 2c control unit
- 3 seat part
- 3a blower unit
- 4 reflection part
- 4a curved surface
- 5 discharge port
- 5a discharge port
- 6 intake port
- 6a intake port
- 10 private room unit
- 10a wall surface
- 10b wall surface

	10c	wall surface
	10d	wall surface
	10e	wall surface
	11	duct
5	12	centralized blower system
	12a	blower device
	12b	functional unit
	12c	control unit
	13	seat part
10	100	air cleaner
	101	smoking seat
	102	furniture
	103	intake unit
	104	exhaust port
15	105	air flow
	106	intake opening
	A1	air flow
	A2	air flow
	A3	air flow
20	A4	air flow
	B1	induced air flow
	B2	induced air flow
	U	user
	X	open face
25	SP1	specific space
	SP2	external space

CLAIMS

1. An air flow environment system, comprising:

a housing in which a specific space is formed and an open face opened to an

5 external space is provided on a front side of the housing;

a discharge port that is provided on a lower surface side in the housing, and on a back side opposite to the front side in the housing, discharges an air flow flowing along a specific direction to the specific space; and

a reflection part provided on an upper surface side opposite to the lower surface
10 side in the housing to be opposed to the discharge port in the specific direction, and configured to have the air flow flowing along the specific direction hit,

the reflection part being configured to have the air flow that has hit the reflection part flow back from the upper surface side in the housing to the lower surface side in the housing to cross the open face.

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2. The air flow environment system according to Claim 1, wherein

a seat part configured to allow a user to sit while facing the open face is provided in the housing, and

the discharge port discharges the air flow flowing in the specific direction to the
20 specific space on the back side of the seat part in the housing.

3. The air flow environment system according to Claim 2, wherein the discharge

port is provided at a position lower than a position of a head of the user seated on the seat part with respect to the lower surface side in the housing to cause the air flow flowing

25 along the specific direction to flow between the user seated on the seat part and a wall surface exposed on a back side of the user in the housing.

4. The air flow environment system according to Claim 2 or 3, further comprising an intake port provided in the seat part to take in air of the specific space,

30 wherein the discharge port discharges air taken in from the intake port as the air flow flowing along the specific direction.

5. The air flow environment system according to any one of Claims 1 to 4, further

comprising a functional unit that applies an additional element to the air flow discharged from the discharge port to the specific space,

wherein the additional element includes at least one of aroma, air purification, humidity change, and temperature change.

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6. The air flow environment system according to any one of Claims 1 to 3, further comprising:

a centralized air conditioning chamber that introduces air of the external space and applies an additional element; and

10 a duct that allows the centralized air conditioning chamber and the discharge port to communicate with each other,

wherein

the additional element includes at least one of aroma, air purification, humidity change, and temperature change, and

15 the discharge port discharges air introduced from the centralized air conditioning chamber as the air flow flowing along the specific direction.