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(54) **Ventilation box**

(57) Ventilation box of the type made up of a quad-rangular frame (1) which has in its interior a turbine (5) driven by its correspondent motor (6) which is positioned

in the cleared zone (8) in the face of the frame (1) where the outlet is located (2), enabling the ventilation box to operate in both a horizontal and a vertical position.

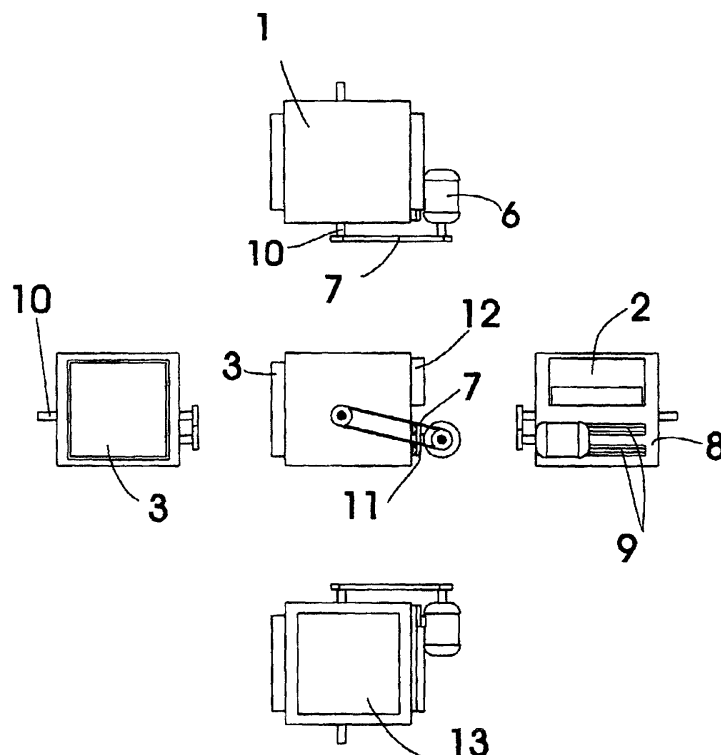


Fig. 1

Description

[0001] The objective of this invention, as expressed in the statement to this descriptive report, consists of a "VENTILATION SHAFT" of the type used to generate and direct the airflow in a ventilation or air-conditioning circuit.

[0002] Ventilation shafts generally consist of a quadrangular frame with two openings on different faces of the frame: one for taking in air; the other for discharging it. In the interior of the frame is a motor-driven turbine. In shafts where the motor is not submerged in the flow of air or gas, the turbine's motor is propelled by a belt or chain transmission system. Finally, the inner faces of the frame may be covered with insulating material to soundproof the device.

[0003] There are four types of ventilation shafts with this basic structure on the market, that is, with the same building design where the air inlet and outlet are opposite each other and the transmission mechanism on the right or left; or where the openings form an elbow or 90-degree angle, and the transmission mechanism is on the right or left. However, it is not possible to find a single ventilation shaft, where the motor is situated outside the flow of air or gas, that can adopt all four possible typologies.

[0004] This limitation prevents manufacturers from benefiting from economies of scale derived from the mass production of a single model that can accommodate all the aforementioned combinations.

[0005] This invention incorporates a series of innovations in such a way that it is possible to bring together the four combinations identified above in one ventilation shaft.

[0006] The first of these innovations involves installing the motor in the dead space of the face of the frame where the discharge outlet is located, where it is mounted on top of some bearings. The motor is coupled to the bearings by means of an intermediary fastening base in such a way that, when it is convenient to change the transmission from right to left, or vice versa, the motor can be separated from the frame at the intermediary base-level and reassembled on to the bearings, provided for this purpose, on the right or left of the same face of the frame. As the axle of the turbine of the new ventilation shaft protrudes from each side of the frame, transmission can be re-established.

[0007] Another novelty consists of incorporating two inlets, of the same size and shape, on adjacent faces of the frame, one of which is sealed with a cover while the other is fitted with an extractable holder for connecting the ventilation shaft to the installation's air intake tube.

[0008] These two inlets enable the ventilation shaft to operate in two positions. In one, the active inlet is opposite the outlet, generating a linear air flow. In this case the cover is fitted to the inlet that is perpendicular to the outlet, and the extractable holder is fitted to the active inlet.

[0009] The second operating position involves the active inlet being on a perpendicular plane to the outlet, generating a right-angled flow of air. In this position, the cover is fitted to the inlet that is opposite the outlet, and the extractable holder is fitted to the active inlet.

[0010] These two configurations can each give rise to two more combinations depending on whether the transmission system is positioned on the right or the left.

[0011] Taking into consideration all of these modifications, it is possible, with the same ventilation shaft, to generate a linear or right-angled flow of air and to have the transmission system positioned on the left or the right.

DESCRIPTION OF THE DIAGRAMS

[0012] To illustrate everything explained thus far, four pages of drawings are attached to this descriptive report, forming an integral part of it, representing the invention in a simplified and schematic way. These drawings are intended to be purely illustrative and are not an exhaustive representation of the practical possibilities of the invention.

[0013] In these diagrams, figure 1 is an elevation with views from above and below, and of the right and left profiles, of the operating position where the active inlet is opposite the outlet.

[0014] Figure 2 is an elevation with views from above and below, and of the right and left profiles, of the operating position where the active inlet is on a perpendicular plane to the outlet.

[0015] Figure 3 shows a cross-sectional view of the ventilation shaft in the operating position where the active inlet is opposite the outlet.

[0016] Figure 4 shows a cross-sectional view of the ventilation shaft in the operating position where the active inlet is on a perpendicular plane to the outlet.

DESCRIPTION OF A PRACTICAL EXAMPLE

[0017] This invention consists of a ventilation shaft made up of a frame (1) which has an outlet (2) and two inlets (3 and 4). In the interior of the frame (1) is a turbine (5) propelled by an electric motor (6) by means of a belt-transmission system (7).

[0018] The motor (6) is installed in the dead space (8) adjacent to the outlet (2) by means of a bearing made up of a set of guides (9) parallel to the turning axle of the turbine (10), which protrudes from the sides of the frame (1), and an intermediary plate (11).

[0019] The active inlet is attached to an extractable holder (12) while the inactive inlet is sealed with a cover (13).

[0020] Having established the concepts behind the invention, the note of claims is drafted next, thus establishing the inventions that are the subject matter of the claims.

Claims

1. **"VENTILATION SHAFT"** of the type made up of a quadrangular frame (1) which has in its interior a turbine (5) driven by a motor (6) by means of a transmission system (7), characterised essentially by the fact that the motor (6) is installed in the dead space (8) of the face of the frame where the outlet (2) is located, enabling the ventilation shaft to operate in both a horizontal and vertical position. 5 10
2. **"VENTILATION SHAFT"**, as per the claim above, **characterised by** the fact that the motor (6) is attached to the frame (1) by one or more bearings located on the right and left of it, enabling the motor (6) to be positioned on the right side or left side of the frame (1). 15
3. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that, preferably, the bearings are made up of guides (9) running parallel to the axle of the turbine (10), on to which an intermediary fastening plate (11) is attached, which, in turn, has the motor (6) assembled on it. 20 25
4. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that the axle of the turbine (10) protrudes from both sides of the frame (1), enabling the transmission system (7) of the motor (6) to be positioned on the right or left, according to the position of the motor in the device. 30
5. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that the frame (1) has two air inlets (3 and 4) situated on adjacent faces, one of which will be the active inlet while the other will be the inactive inlet, or vice versa, depending on the operating position of the ventilation shaft. 35
6. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that one of the air inlets (3) is opposite the outlet (2), while the other inlet (4) is perpendicular to the outlet (2). 40
7. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that the active inlet (3 or 4) is attached to an extractable holder (12) for connecting the ventilation shaft to the installation's air intake tube. 45 50
8. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that the inactive air inlet (3 or 4) has a cover to seal it with. 55
9. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that the air flow is linear when the active inlet is the one that is opposite the outlet (2).
10. **"VENTILATION SHAFT"**, as per the claims above, **characterised by** the fact that a right-angled flow of air is generated when the active inlet is the one that is perpendicular to the outlet (2).

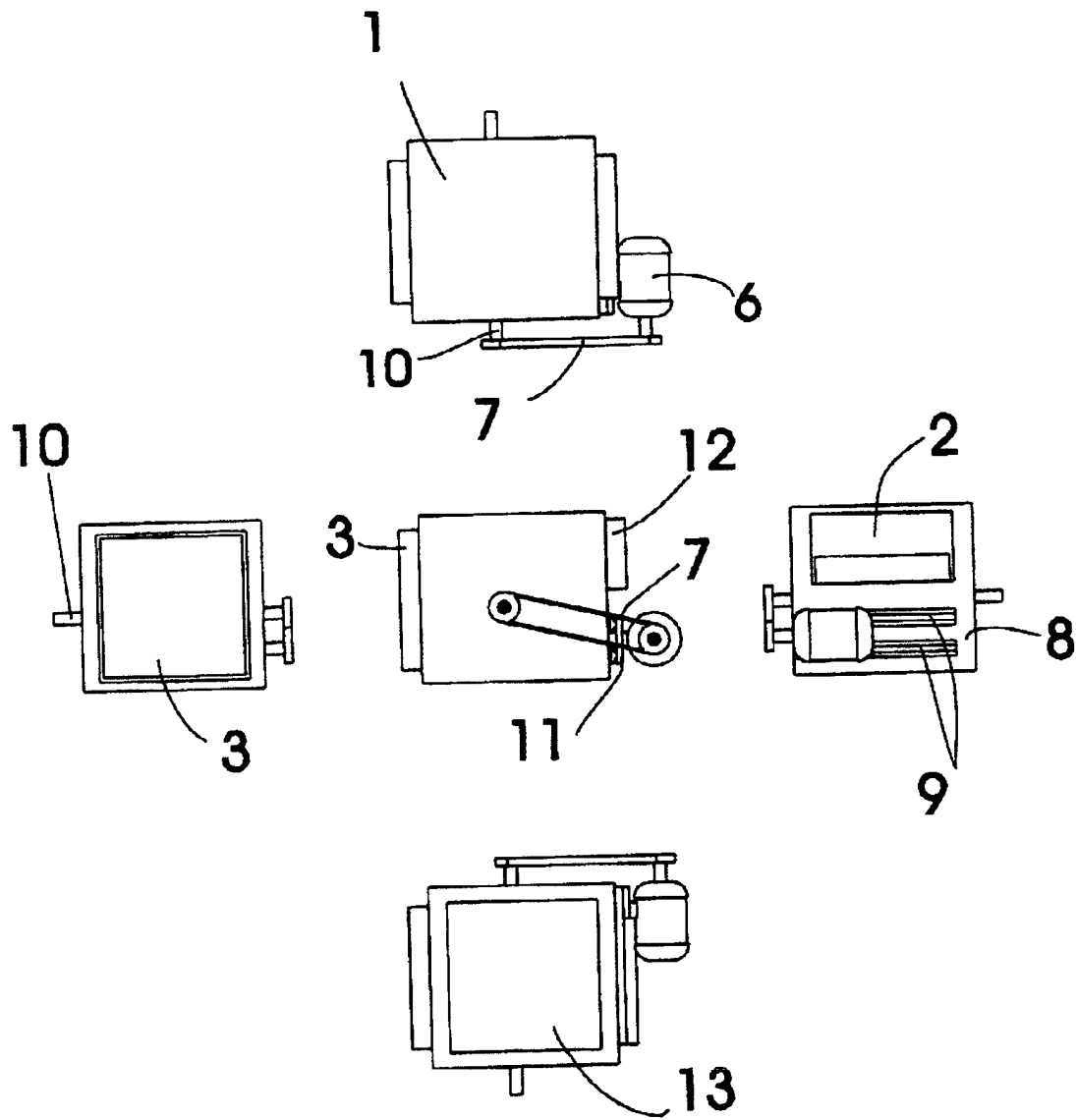


Fig. 1

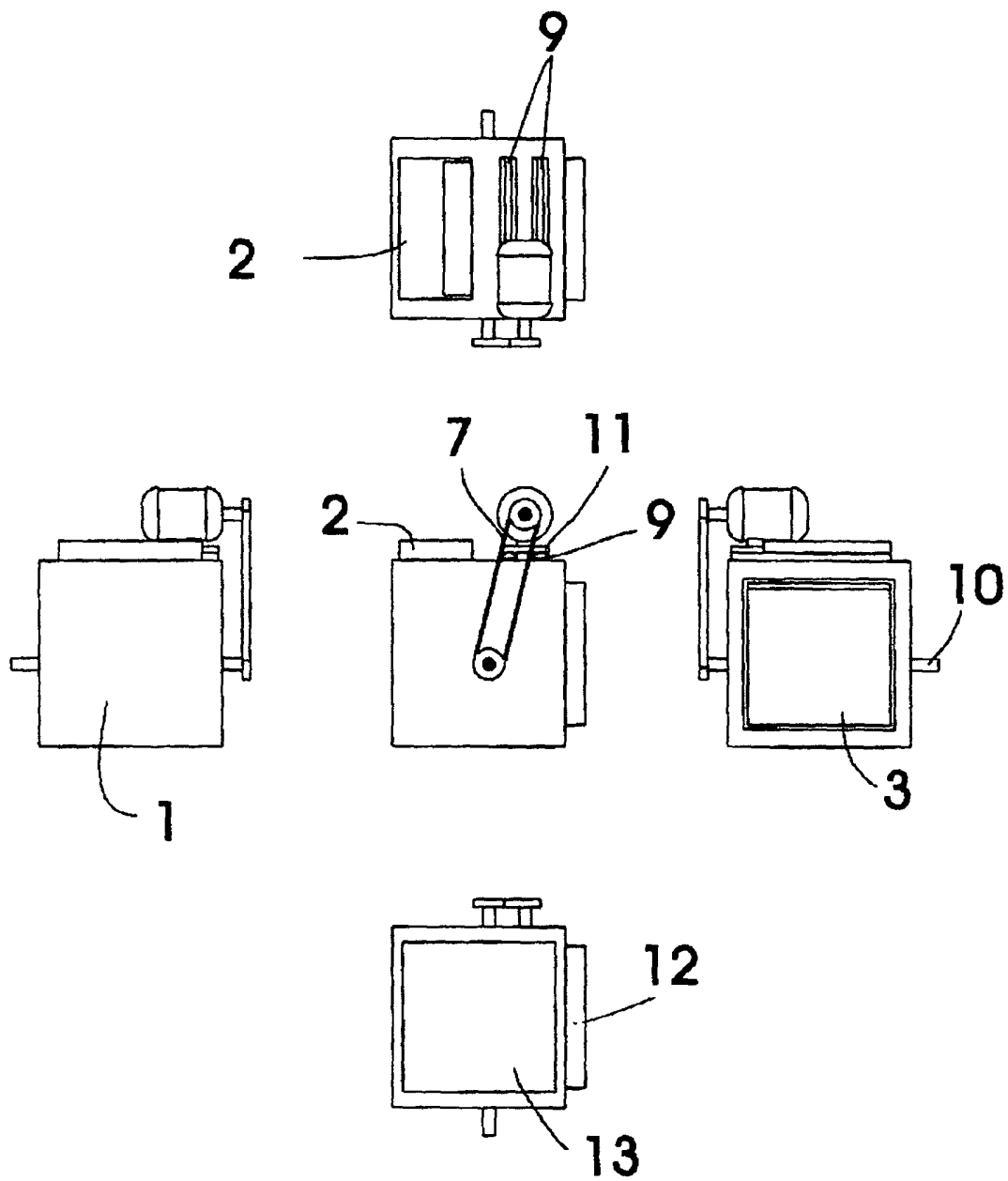


Fig. 2

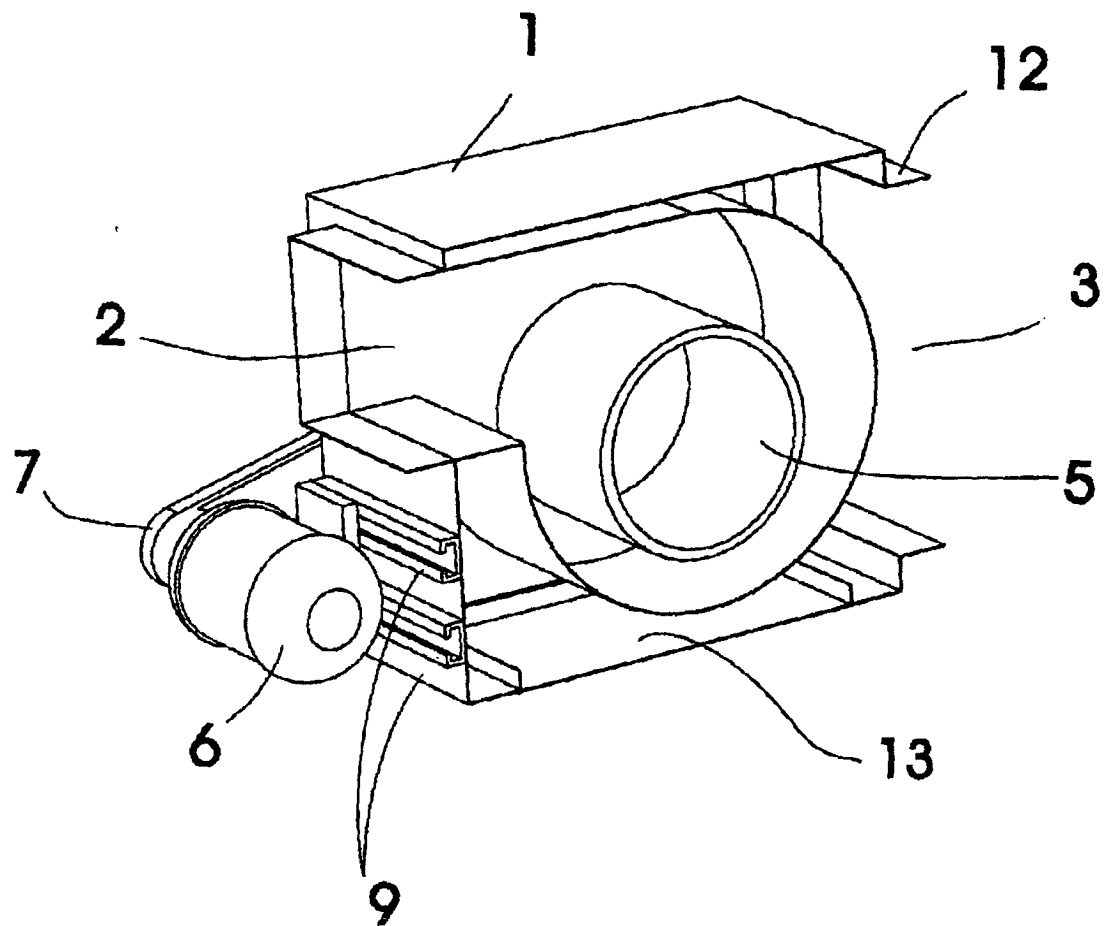


Fig 3

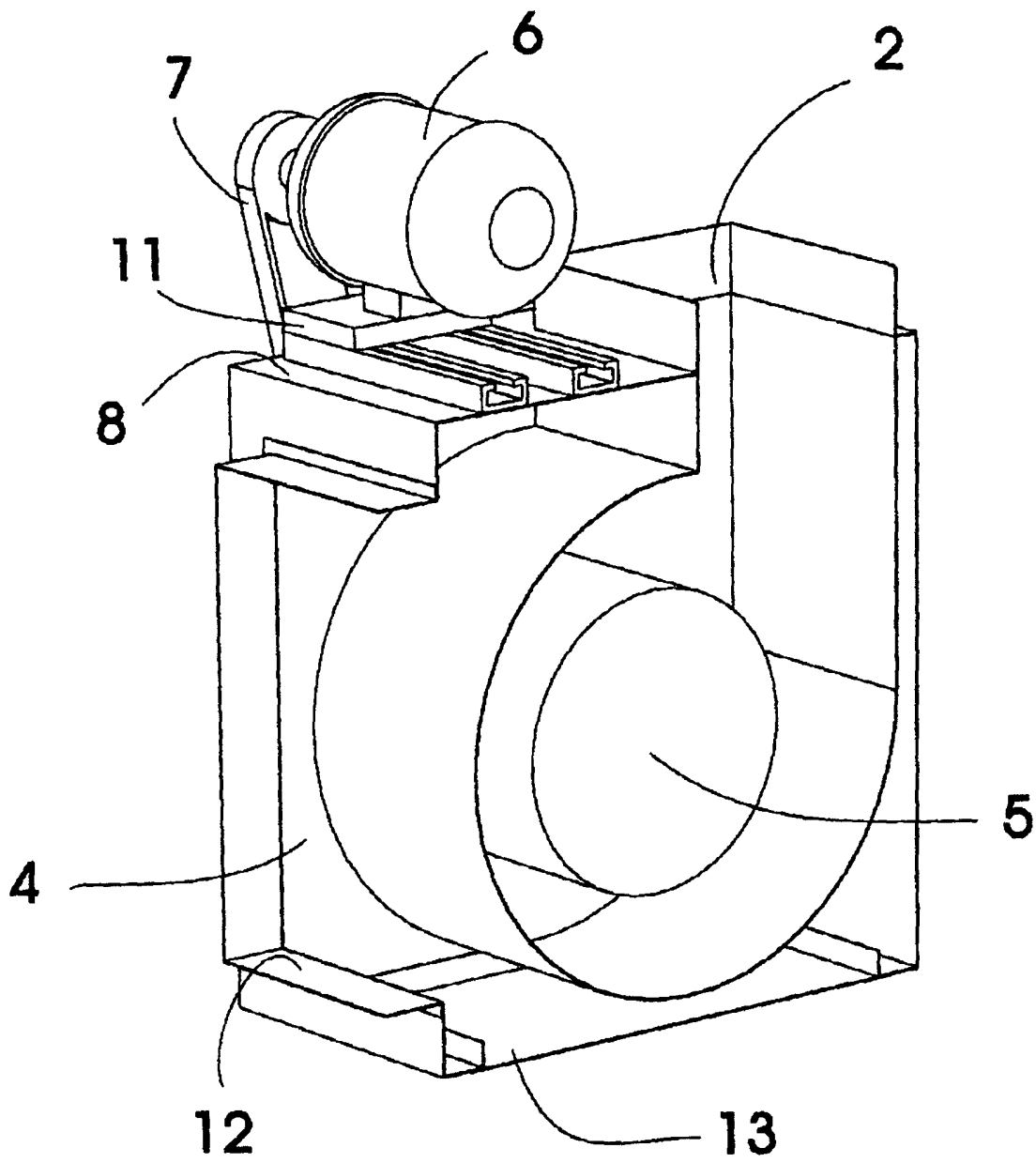


Fig. 4