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(54) **Method and system for ventilating a building**

(57) Building ventilation system, comprising a ventilation unit (4) mainly in the top area of the building, arranged for exchanging the air inside and outside the building, a central room (6), e.g. a stairwell or hall, via which several other rooms can be entered via inner doors; and ventilation means (8) in at least part of the inner doors arranged to enable air to move from the cen-

tral room to the relevant other room or vice versa. Preferably, the ventilation means are at least partially constituted by ventilators arranged to force air to move from and to the central room. Means (9) may be provided for setting climate parameters, measuring climate variables and controlling the speed and/or direction of the inner door ventilators.

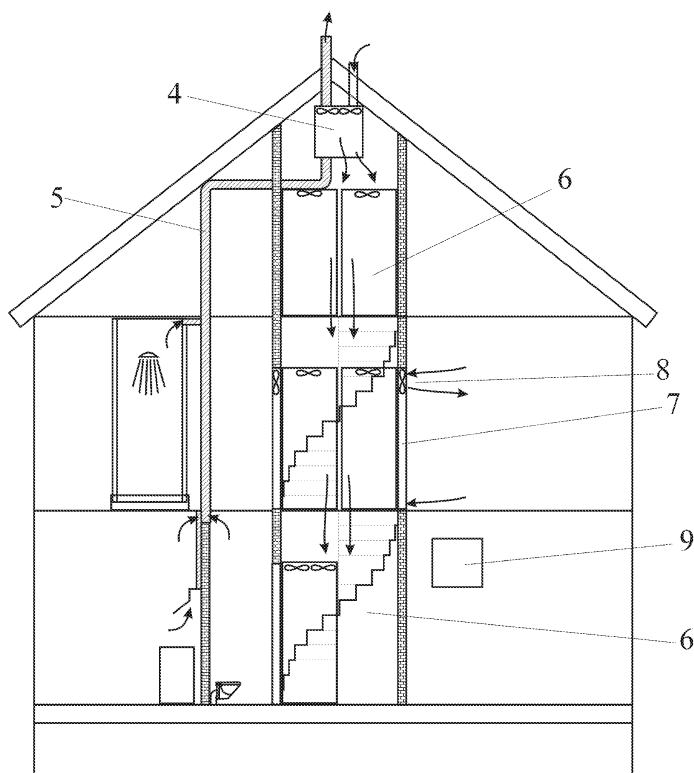


FIG. 2

Description

[0001] This invention refers to a method and system for ventilating a building, which building is provided with a ventilation unit which is arranged for exchanging the air inside and outside the building. Such a configuration is generally known. The ventilation unit may be constituted by a heat recovering ventilation unit comprising means for forced air movement from the outside to the inside and means for forced air movement from the inside to the outside of the building. Ducts are provided, leading to the various individual rooms in the building, for guiding fresh and exhaust air between the ventilation unit and the individual rooms. An example of such prior art system has been shown in figure 1.

[0002] One problem with the known configurations is that the air transportation ducts are susceptible for pollution, but will not be cleaned in practice.

[0003] According to the invention the method for ventilating a building, includes steps of:

- providing a ventilation unit mainly in the top area of the building, arranged for exchanging the air inside and outside the building;
- providing a central room, e.g. a stairwell or hall, via which several other rooms can be entered via inner doors;
- providing at least part of the inner doors with ventilation means arranged to enable air to move from the central room to the relevant other room or vice versa.

[0004] The invention is based on the understanding that stairwells, halls etc., besides their conventional function for offering, as a central room, access to other rooms at the same floor or at different floors, can additionally be used -as a multipurpose room- for the transportation of fresh air, fed to that central room by the central ventilation unit. In particular when the central room extends throughout the building from the ground floor to about the roof or the attic, there is no need for a fresh air supply duct, as the function of fresh supply duct is taken over by the central room, extending between the ventilation unit in the roof area and the other rooms, connected to the central room, via inner doors. By doing so, contamination or pollution of the fresh air ducts -which is a serious problem in the known ventilation systems- cannot occur. Contamination of the central room, acting as a fresh air supply duct, will be prevented by normal house cleaning activities.

[0005] To be able to supply the fresh air from the central room to the various other rooms in a well controllable way, the inner doors may be provided with ventilation means, e.g. ventilation grids or small ventilators to enable or to force air to flow into or out of the relevant room from or to the central room.

[0006] It may be preferred to provide means for setting indoor climate parameters, for measuring climate varia-

bles and for controlling the speed and/or direction of the inner door ventilators. Besides, it may be preferred to provide that the inner door ventilators only are energized at mainly closed inner doors.

[0007] Finally, the ventilation means in the inner doors -or the inner doors themselves- may include filter means for filtering the air moved from the central room to the relevant other rooms and/or vice versa. In this way aerosol dust, fibres and small particles etc. can be filtered out throughout the whole building, by which the inner climate is further improved.

Figure 1 shows an example of a prior art ventilation system;

Figure 2 shows configuration of building ventilation system according to the invention.

[0008] Figure 1 shows an example of a prior art ventilation system, comprising a heat recovering ventilation unit 1, which is connected to two duct systems, viz. a duct system 2 for collecting and transporting exhaust air from more or less temporarily damp rooms like the kitchen, toilet and bathroom, via the unit 1 to the outside, as well a duct system 3 arranged for distributing fresh air in living and bedrooms etc. As stated before, such a duct system 3 may cause(health) problems due to contamination at the inside of the duct, which can hardly be removed effectively.

[0009] Figure 2 schematically shows a configuration of building ventilation system according to the invention, including a ventilation unit 4 mainly in the top area of the building, arranged for exchanging the air inside and outside the building. The unit 4 may be similar to the unit 1 in the prior art configuration shown in figure 1. A duct system 5 is provided for exhausting air from the kitchen, toilet and bathroom. The duct system may be similar to the duct system 2 in figure 1.

[0010] Instead of a second duct system, like the duct system 3 in figure 1, a central room 6, e.g. an (existing or adapted) stairwell or hall, is used for transporting fresh air, supplied via the ventilation unit 4 towards other rooms, in particular living and bedrooms, which can be entered via inner doors 7. In the example the doors of several rooms open onto the stairwell 6, which runs from the ground floor to the attic. Ventilation means, formed by small low power and quiet ventilators in the inner doors 7 are provided to enable air to move from the central room 6 to the relevant other room or vice versa.

[0011] A control module 9 may be provided for setting indoor climate parameters, measuring climate variables and controlling the speed and/or direction of the inner door ventilators. The connections between the control module 9 and the ventilators 8 and the unit 4 may be wired or wireless.

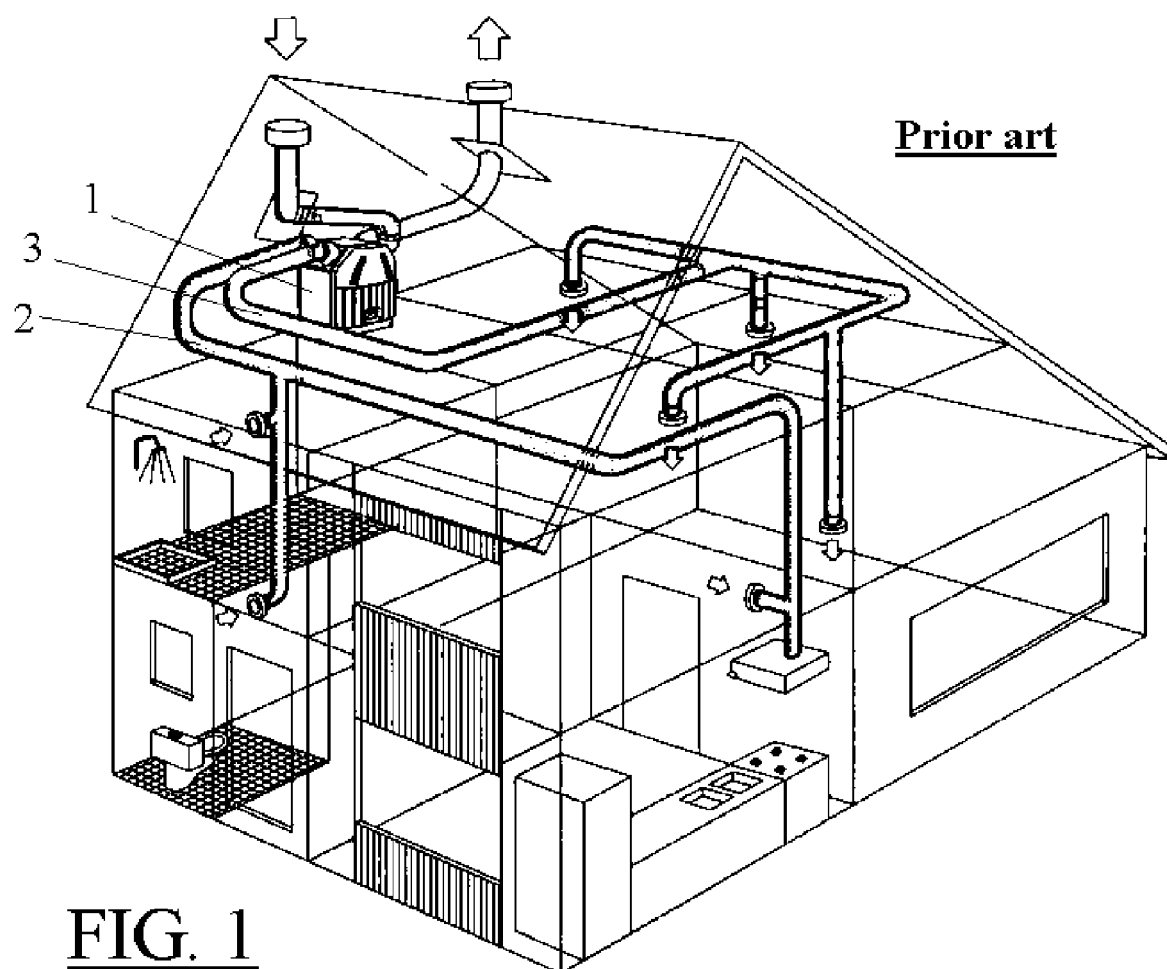
[0012] The inner doors 7 and/or door ventilators 8 may be provided with sensors, providing that the individual ventilators only are energized at mainly closed inner

doors.

9. System according to any of claims 5 - 8, wherein said ventilation means include filter means for filtering the air moved from the central room to the relevant other rooms and/or vice versa.

Claims

1. Method for ventilating a building, comprising steps of:
 - providing a ventilation unit (4) mainly in the top area of the building, arranged for exchanging the air inside and outside the building; 10
 - providing a central room (6), e.g. a stairwell or hall, via which several other rooms can be entered via inner doors (8);
 - providing at least part of said inner doors with ventilation means (8) arranged to enable air to move from the central room to the relevant other room or vice versa. 15
2. Method according to claim 1, including providing at least part of said inner doors with ventilators arranged to force air to move from the central room to the relevant other room or vice versa. 20
3. Method according to claim 2, comprising setting indoor climate parameters, measuring climate variables and controlling the speed and/or direction of the inner door ventilators. 25
4. Method according to claim 2 or 3, comprising that the inner door ventilators only are energized at mainly closed inner doors. 30
5. Building ventilation system, comprising a ventilation unit (4) mainly in the top area of the building, arranged for exchanging the air inside and outside the building, a central room (6), e.g. a stairwell or hall, via which several other rooms can be entered via inner doors; and ventilation means (8) in at least part of said inner doors arranged to enable air to move from the central room to the relevant other room or vice versa. 35 40
6. System according to claim 5, wherein said ventilation means in at least part of said inner doors are at least partially constituted by ventilators in at least part of said inner doors arranged to force air to move from the central room to the relevant other room or vice versa. 45 50
7. System according to claim 6, comprising means (9) arranged for setting climate parameters, measuring climate variables and controlling the speed and/or direction of the inner door ventilators. 55
8. System according to claim 6 or 7, comprising means providing that the inner door ventilators only are energized at mainly closed inner doors.



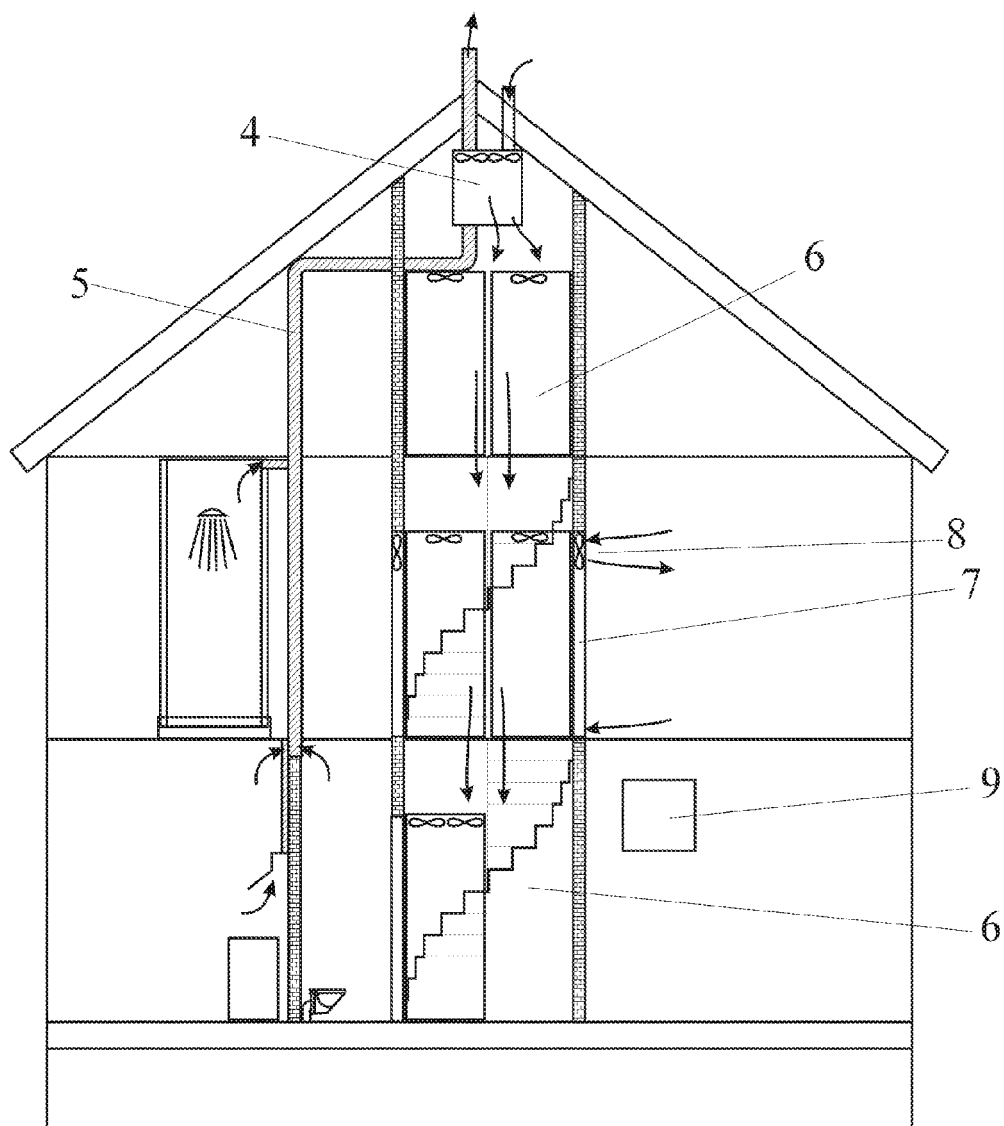


FIG. 2



EUROPEAN SEARCH REPORT

Application Number
EP 09 16 8252

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* paragraph [0014]; figure 1 *	2,6	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 14 October 2009	Examiner Vuc, Arianda
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 09 16 8252

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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