

[54] ARRANGEMENT AT VENTILATION
INSTALLATIONS IN ROOMS PROVIDED
WITH EXHAUST AIR WINDOWS AND
LIGHTED BY A NUMBER OF FITTINGS

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[51] Int. Cl. F21f 7/00, F21v 33/00
[58] Field of Search 237/50; 98/40 DL,
98/96; 240/9 A

[56] **References Cited**
UNITED STATES PATENTS

2,425,797 8/1947 Gillespie 237/50

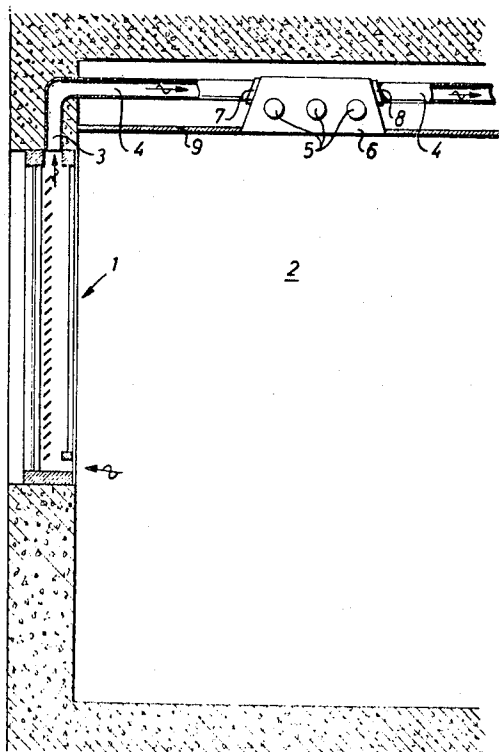
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Assistant Examiner—Peter D. Ferguson
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[57] **ABSTRACT**

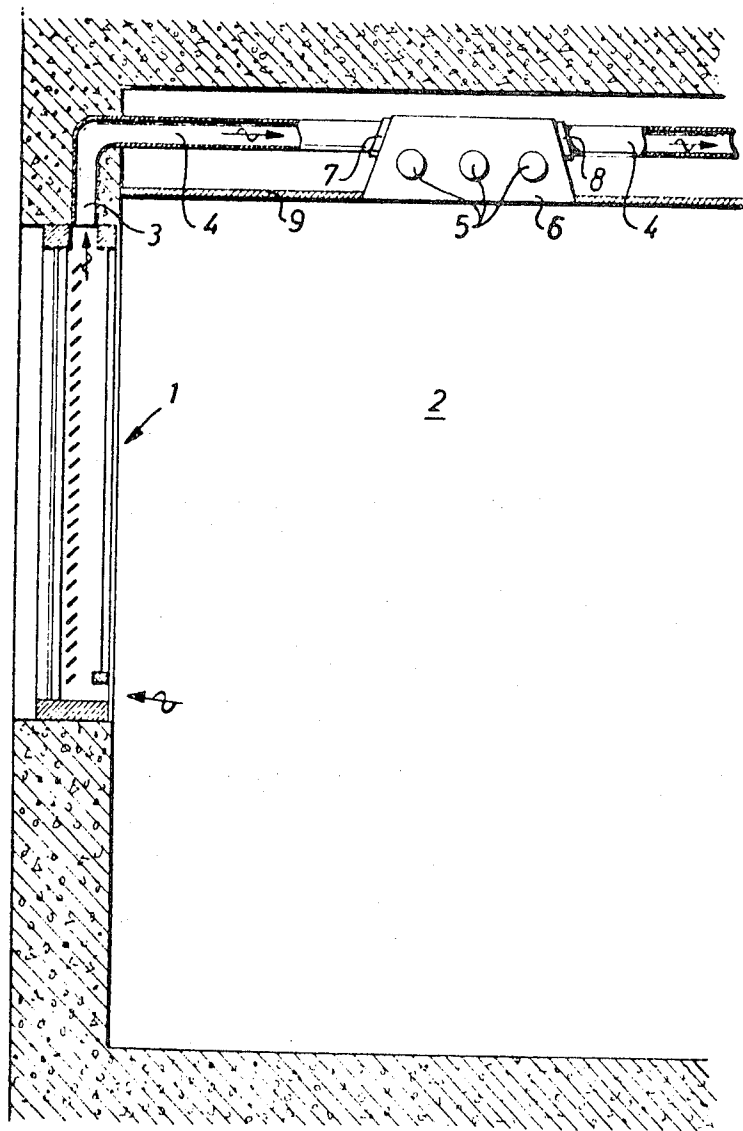
An arrangement at ventilation installations applied to rooms with exhaust air window and being lighted by fluorescent tubes in fittings or fixtures distributed over the ceiling, wherein the passageway for conducting away from the room, the exhaust air being collected adjacent the window surface, is connected to passageways preferably mounted in the ceiling of the room, each of said passageways passing through said fittings of the room for cooling the fluorescent tubes before said exhaust air is conducted away or recirculated to the room via a conditioning unit.

2 Claims, 1 Drawing Figure



PATENTED JUL 3 1973

3,742,837



ARRANGEMENT AT VENTILATION INSTALLATIONS IN ROOMS PROVIDED WITH EXHAUST AIR WINDOWS AND LIGHTED BY A NUMBER OF FITTINGS

This invention relates to a novel arrangement at ventilation installations applied in rooms with exhaust air windows, which rooms are lighted by a number of fluorescent tubes enclosed in fittings or fixtures and distributed over the ceiling surface of the room, by which arrangement the ventilation comfort can be improved by simple means and the operations costs for mechanical ventilation be reduced.

The modern building materials provide the possibility of a very effective insulation of the outer walls, and for partition walls usually the application of lightweight material, for example plaster boards on steel members. In many cases light-weight plaster boards also are used as material for sub-ceilings. As a result thereof, the heat storage in facade wall rooms of modern buildings is considerably less than it was the case at the earlier conventional heavy concrete structures. The windows of facade wall rooms therefore constitute a heat source to be regarded a source of sudden thermal disturbance. The relatively high heat radiation from fluorescent tubes with high lighting effects now installed to an ever increasing extent often constitutes a further heat source.

The invention has as its object to balance the disturbances from both said heat sources which often occur at random, and thereby to improve the ventilation comfort and reduce the costs of the entire installation such, that the advantages of the invention can be expected being utilized to a greater extent, for example in office rooms and, particularly, in hospital wards. In wards, the demand of qualified and rapidly performed work increases continuously and mistakes and errors often have far-reaching damaging effects. The personnel, therefore, for their well-being and efficiency, must be given an optimum ventilation comfort, without being subjected to sudden changes during the day, caused for example by intensive sunshine and, respectively high lighting effects because of cloudy weather.

The arrangement according to the invention, applied at ventilation installations of the aforesaid kind, is characterized in that its passageway for conducting away from the room the exhaust air collected adjacent the window surface is connected to one or several passageways, which preferably are provided in the ceiling of the room, and each of which passes the fluorescence tube fittings of the room for cooling the tubes by said exhaust air before it is conducted away and, respectively, possibly recirculated to the room via a conditioning unit. Due to the fact that fluorescent tubes are lighted at cloudy weather and darkness, but not at sunny weather, the arrangement according to the invention, at ventilation installations of the aforesaid kind, always brings about automatically a balancing of the heat, which otherwise would have been supplied to the room by solar or lighting heat and constitute a source of sudden thermal disturbance.

According to a preferred embodiment, the exhaust air window of the room is of the kind disclosed in the copending application of the same date No. 162,419(Ahlberg)based on the Swedish Pat. application No. 10099/70. This arrangement, moreover, renders possible by simple means a controlled supply of

fresh air and a balanced proportion of supply air and exhaust air.

The invention is described in greater detail in the following, with reference to an exemplifying embodiment according to the accompanying drawing, which shows a cross-section through a ventilation installation equipped with an arrangement according to the invention.

Referring to the drawing, 2 designates a room provided with an exhaust air window, for example of the kind defined in applicant's older Swedish Pat. No. 302 193. A functional improvement, however, can be obtained by utilizing the type of exhaust air window proposed in the copending application of the same date No. 162,419 based on the Swedish Pat. application No. 10099/70, which window is provided with a combined supply and exhaust air device mounted in a recess above the window. Hereby, the arrangement claimed provides the additional advantage of a controlled supply of fresh air and a balanced proportion of supply and exhaust air to the room. The room may be a large-space office or a hospital ward, with a great number of fluorescent tube fittings or fixtures. 3 designates a passageway for conducting away from the room the exhaust air collected adjacent the window surface. 4 designates one or a plurality of passageways mounted one behind the other in the ceiling of the room and connected thereto. Said passageways pass in and out through the opposed walls of the fittings 6 by means of the schematically indicated air-tight tubular sockets 7 and 8, respectively. 5 designates a number of fluorescent tubes connected in parallel and mounted within the closed fitting 6. The room in the embodiment shown is assumed to be provided with a separate sub-ceiling 9, in which a great number of fluorescent tube fittings are arranged in rows over the entire ceiling surface, as it now usually is the case, a.o., in large-space offices. The passageway or passageways 4 continue past the fluorescent tube fitting and remove therefrom the exhaust air, possibly via a conditioning unit (not shown) for heat recovery, filtering and recirculation of air to the room 2.

I claim:

1. In ventilation installations applied to rooms with an exhaust air window, which rooms are lighted by a number of fluorescent tubes enclosed in fittings and distributed over the ceiling surface of the room, the improvement wherein said installation includes a passageway open to the room interior and passing along the surface of said window for conducting away from the room the exhaust air collected adjacent the window surface, passageways mounted in the ceiling of the room having a connection at one end to said first mentioned passageway and a connection at the other end to an air conditioning unit for recirculating the room air, each of said ceiling passageways passing through the fluorescent tube fittings of the room for cooling the fluorescent tubes by said exhaust air, before it is conducted away and recirculated to the room via a conditioning unit.

2. An installation according to claim 1, characterized in that the exhaust air window of the room has an opening to the room interior at the bottom thereof and has an opening at the top thereof to provide said passageway therebetween for conducting away the collected exhaust air adjacent the window surface.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,742,837 Dated July 3, 1973

Inventor(s) Karl-Erik Samuelsson

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the heading before [52] U.S. Cl., the following should be added:

[30] Foreign Application Priority Data

July 21, 1970 Sweden.....10100/1970

Signed and sealed this 13th day of August 1974.

(SEAL)
Attest:

McCOY M. GIBSON, JR.
Attesting Officer

C. MARSHALL DANN
Commissioner of Patents