Nov. 23, 1937. M. P. YOUKER 2,100,152

COMBINED CIRCULATING AND VENTILATING FAN ASSEMBLY

Filed Sept. 24, 1936

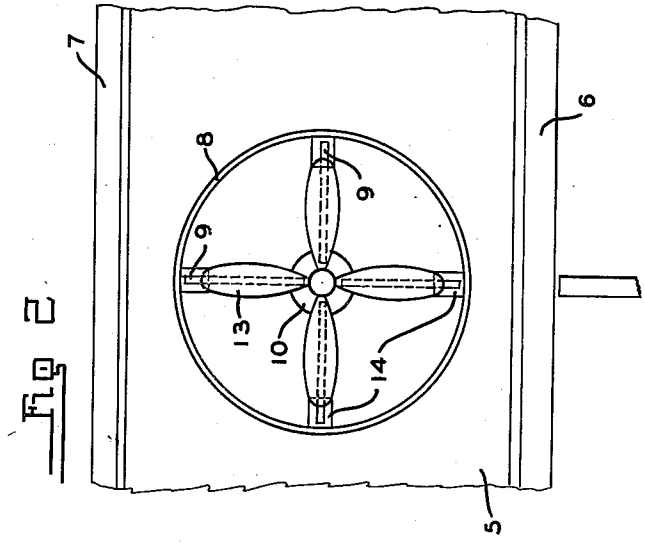

Fig 2

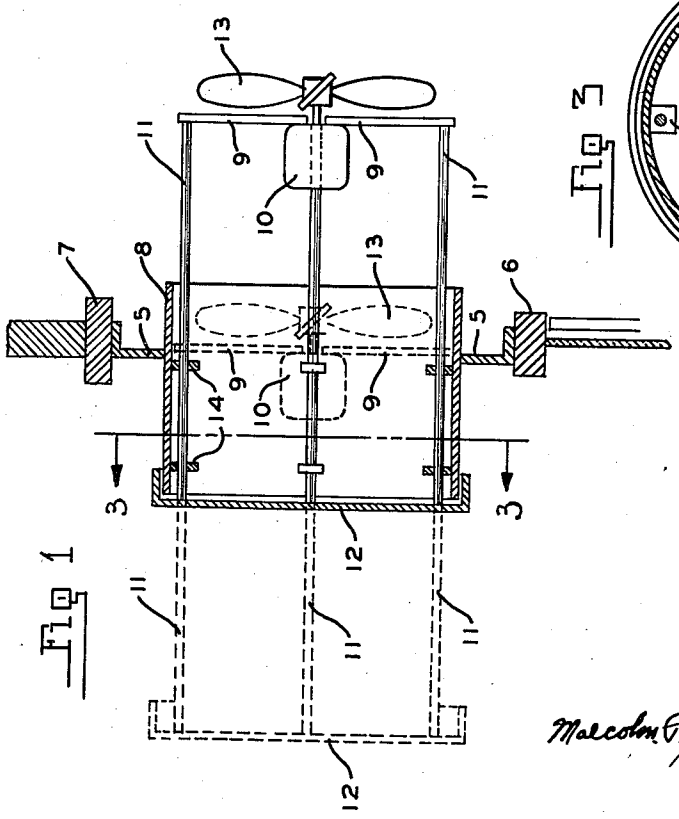

Fig 1

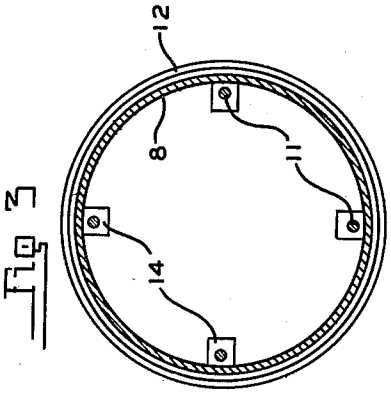

Fig 3

Malcolm P. Youker INVENTOR.

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UNITED STATES PATENT OFFICE

2,100,152

COMBINED CIRCULATING AND VENTILATING FAN ASSEMBLY

Malcolm P. Youker, Bartlesville, Okla.

Application September 24, 1936, Serial No. 102,336

4 Claims. (Cl. 98—94)

My new invention pertains to the ventilation of inhabited quarters and to the circulation of air within such quarters.

An object of my invention is to provide a fan assembly which may be mounted in a window of any room and may be utilized either to circulate the air within the room or to induce air to enter the room from the outside atmosphere and at the same time to deliver such outside air into the room at fairly high velocity, thus causing circulation of air within the room.

My new invention will be understood from the following specification taken in connection with the attached drawing in which:

Figure 1 illustrates in vertical cross section the entire fan assembly installed in a window.

Figure 2 illustrates a front elevation of the fan assembly.

Figure 3 illustrates a cross section taken in the plane 3—3 of Figure 1.

Referring to the drawing, a plate 5, which may be made of any suitable material, is vertically disposed in the upper portion of a window. The upper window sash 6 is in a partially open position and supports the plate 5. The upper edge of plate 5 is in contact with the upper horizontal portion of window casing 7. To the left of the plate 5 and the window 6 is the outside atmosphere and to the right of these portions of the drawing is an enclosed space such as the room of a dwelling or other inhabited quarters. The horizontally disposed cylinder 8 pierces through and is rigidly attached to plate 5. Suitable means may be provided to support the window sash 6. Supporting bars 9 are rigidly attached to and support a motor 10 and are rigidly attached to and supported by guide rods 11. Guide rods 11 are horizontally disposed and extend through cylinder 8 and through holes in guides 14 which are rigidly attached to cylinder 8, and the length of guide rods 11 is considerably in excess of the length of cylinder 8. To the extremities of guide rods 11, which are in the outside atmosphere, is attached a vertically disposed circular plate 12. Guide rods 11 are maintained in their relative position by supporting bars 9 and plate 12 and are so disposed as to make a neat sliding fit in the holes through guides 14. The shaft of motor 10 is horizontally disposed and to its extremity is attached a fan 13. The motor 10 is capable of rotation in either direction and is equipped with a suitable starting switch. That part of the assembly consisting of plate 12, guide rods 11, supporting bars 9, motor 10, and fan 13 may be freely moved horizontally within the cylinder 8, which is stationary. The one extreme position of the movable part of the assembly is illustrated in solid lines, while the other extreme position of this movable part of the assembly is illustrated in dotted lines. When these movable parts are in position shown in solid lines the fan 13 may be utilized to agitate the air within the room and communication through cylinder 8 between the outside atmosphere and the atmosphere of the room is prevented by the plate 12 by which the opening through cylinder 8 is closed. The movable portions being moved into the position shown in dotted lines, open communication between the outside atmosphere and the atmosphere of the room is established through the cylinder 8 as the plate 12 is then removed to a position some distance from the end of cylinder 8 and the fan 13 is positioned within the cylinder 8, and these movable portions being thus positioned as shown in dotted lines the fan 13 may be utilized either to discharge air from the room through the cylinder 8 to the outside atmosphere or to deliver air from the outside atmosphere through the cylinder 8 into the room.

A conventional fan guard or handles by which the fan may be moved may be attached to the supporting bars 9.

From the description of the fan assembly it is seen that the fan 13, being placed in the position shown in solid lines, may be used to agitate the air within the room or the fan 13 may be moved into the position shown in the dotted lines and may then be utilized to either deliver air through the cylinder 8 from the outside atmosphere into the room or from the room to the outside atmosphere. When using the fan 13 to deliver air either from or into the room it is necessary that the bottom half of the window be partially opened or that open communication between the outside atmosphere and that of the room be established through some opening other than the cylinder 8 such as for instance some window or door not shown.

Normally, my fan assembly is utilized to agitate the air within the room during the daytime while the outside atmosphere is warmer than that of the room. After the sun has gone down and the outside atmosphere has become cooler than that of the room my fan assembly is preferably utilized to deliver air from the outside atmosphere into and through the room, thus both ventilating the room and agitating the atmosphere of the room.

While I have described in detail a form of my new fan assembly, it is to be understood that I

do not propose to limit myself in my claims to these details, but rather intend to claim all of the novel features which are inherent in my invention. I may utilize a conventional oscillating fan and mount the same in a frame which may be attached to supporting bars 9, the oscillating mechanism being of the conventional type such that the fan may be either oscillated or not oscillated.

I claim:

1. An air conditioning fan assembly comprising a conduit adapted to be inserted in a suitable opening in the wall of a room, placing the interior of said room in communication with the outside atmosphere, a motor-driven fan supported co-axially by said conduit and slidable longitudinally to a position within one end of the conduit, whereby when in operation said fan will draw fresh air into said room, said fan being slidable in the opposite direction out of the conduit to a position within the room, whereby it may serve as a circulating fan, and means for closing said conduit when the fan is in the latter position.

2. An air conditioning fan assembly comprising a conduit adapted to be inserted in a suitable opening in the wall of a room, placing the interior of said room in communication with the outside atmosphere, a frame member slidably supported by said conduit, a motor-driven fan carried at one end of said frame member, and a sealing disc fixed at the other end thereof, said frame being of a greater longitudinal extent than that of the conduit, whereby when the frame is slid to its outermost position, the fan will lie within one end of the conduit and the sealing disc will disengage the conduit, and when said frame is in its innermost position, said fan will occupy a position within the room and the sealing disc will close the end of the conduit.

3. An air conditioning fan assembly as claimed in claim 2 wherein said frame includes a series of guide rods longitudinally slidable in said conduit.

4. An air conditioning fan assembly comprising a conduit adapted to be inserted in a suitable opening in the wall of a room, placing the interior of the room in communication with the outside atmosphere, a closure for the outer end of said conduit, a motor-driven fan co-axial with said conduit, means operatively connecting said fan with said closure in longitudinally spaced relation, and means in said conduit for slidably supporting said closure and fan, whereby when said closure is in engagement with said conduit, the fan assumes a position beyond the inner end of the conduit and serves as a circulating fan, and when said closure is at its full open position, said fan will lie within the inner end of said conduit and serve to draw fresh air into said room.

MALCOLM P. YOUKER.