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J. B. HELLE ETAL

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FRESH-AIR VALVE

Filed April 25, 1963

2 Sheets-Sheet 1

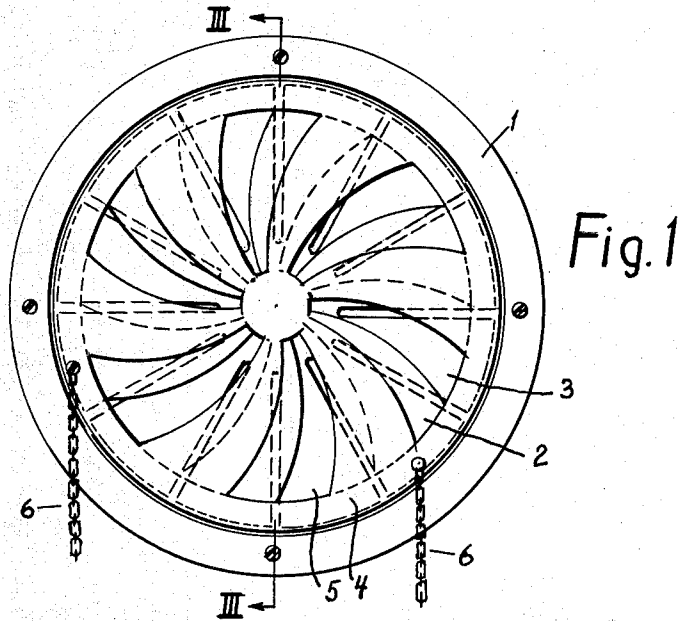


Fig. 1

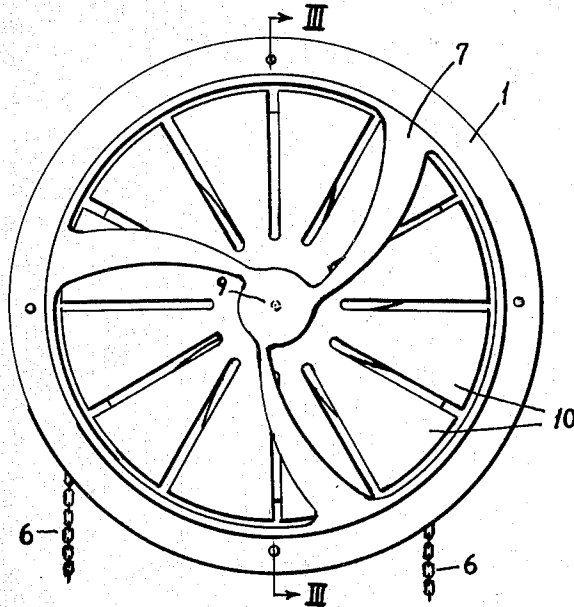


Fig. 2

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Fig.3 Fig.4 Fig.5 Fig.6

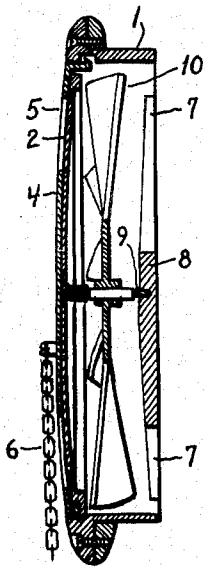
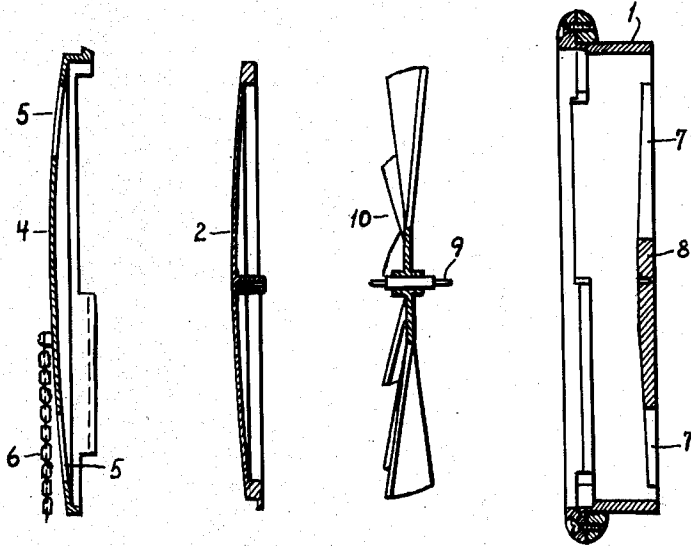


Fig.7

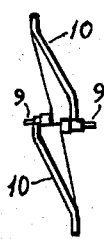


Fig.8

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FRESH-AIR VALVE

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2 Claims. (Cl. 98—96)

The invention relates to a fresh-air ventilator of the kind having a frame adapted to tightly fit in a suitable aperture, e.g. in a window pane, wall or the like, and having transversely of said aperture a stationary and a limited rotation member having openings therethrough which by such means as a chain pull can be caused to move in and out of register with one another for more or less admission of air through the ventilator for the renewal of air in the room located on the inner side of the ventilator.

The object of the invention is by means of such fresh-air ventilator to make the ventilation particularly effective in a cheap manner and without the application of motor-driven ventilator blades and motor and driving power, such as electric power for this purpose.

This is obtained, according to the invention, by providing that closely adjacent to said members having openings therethrough, there is rotatably mounted a rotor assembly comprising blades of substantially the same extent as said members having openings, and which are driven in rotation by wind or air currents from the outside and thus assist in sucking out foul air from the inside and blowing in fresh air through the ventilator, respectively.

According to the invention the said members with holes of the ventilator may quite simply and cheaply be disc-shaped plates with substantially sector-shaped openings and the rotor blades may be located close to one another in the assembly of the same, in which manner the best possible ventilation is obtained.

According to the invention the shaft of the rotor may quite simply have its ends journalled centrally in the plates and in radial arms in the ventilator frame, respectively.

According to the invention, the said, preferably narrow, radial arms may be positioned transversely of the normally outwardly facing part of the hole frame and the hole plates be located transversely of the normally inwardly facing part of the frame.

The invention is described below in detail with reference to the drawing, in which

FIG. 1 shows an embodiment of the ventilator according to the invention, viewed from the inside in a hole in a window pane, wall or the like (not shown),

FIG. 2 the same, seen from the outside.

FIGURES 3, 4, 5 and 6 are cross-sectional views of the various components of the ventilator arranged in the manner of an exploded view;

FIGURE 7 is a cross-sectional view of the ventilator;

FIGURE 8 is a side view of another type of rotor.

The ventilator has an annular frame 1, over which is permanently mounted a substantially disc-shaped plate 2 formed with generally sector-shaped curved openings 3. Mounted over plate 2 is a partially rotatable plate 4 having openings 5 corresponding in shape to openings 3 of plate 2. Plate 4 is rotatable between stop members to

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bring openings 3 and 5 in and out of register by means of a chain pull 6.

Transversely of the outwardly facing part of the frame 1 there are provided radial curved arms 7, FIG. 2, with a central hub 8 in which is journalled one end of a shaft 9 of a rotor assembly of obliquely positioned rotor blades 10 between the arms 7 and the plate 2. The other end of shaft 9 is mounted centrally in plates 2 and 4.

By an air pressure from the outside on the rotor blades 10, the latter will rotate and produce central suction and peripheral blowing respectively of air through the ventilator.

The parts of the latter may be constructed in another suitable manner than the one shown or described. Thus, its frame may have another shape, such as square on the outside with a central hole. The rotor itself may be of the shape shown in FIG. 8.

We claim:

1. A fresh air ventilator comprising:

a frame adapted to be fixed in an aperture formed in a partition of a room to be ventilated;

said frame having a cylindrical opening;

an inner stationary disc-shaped plate mounted on said frame transversely of said frame opening; said plate formed with substantially sector-shaped ventilating openings;

an outer disc-shaped plate formed with sector-shaped ventilating openings similar to the ventilating openings of said inner plate; said outer plate mounted on the frame for partial rotation across said frame opening in close spatial relationship with said inner plate;

control means for rotating said outer plate to bring the ventilating openings of said plates in and out of register;

a rotor mounted for free rotation in close spatial relationship with said inner plate and formed with a plurality of closely disposed radial blades obliquely arranged in relation to the general plane of said plates whereby to be easily revolved by air going through said rotor;

the blades of said rotor having generally the same shape, size and radial extent as the ventilating openings through said inner plate;

radial arms extending from a central hub, the outer ends of said arms being secured to the said frame on the face opposite the face of the frame carrying said plates, said rotor having a central shaft and bearing means on said inner plate and hub for receiving said shaft for free rotation of said impeller.

2. A ventilator as claimed in claim 1, wherein the ends of said rotor central shaft are very thin and narrowed down and are mounted in holes in said inner plate and hub at the center of said arms, said holes defining said bearing means.

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