June 3, 1952 H. P. FIELDS ET AL 2,598,774

WINDOW VENTILATOR

Filed April 15, 1950 2 SHEETS--SHEET 1

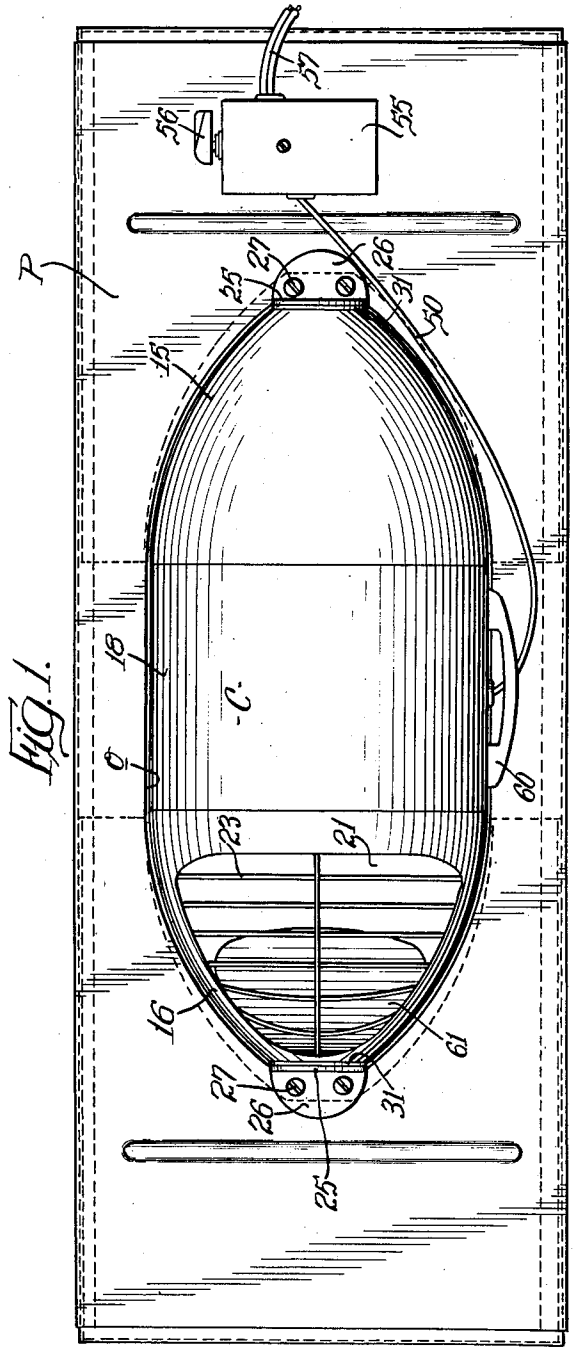


Fig. 1.

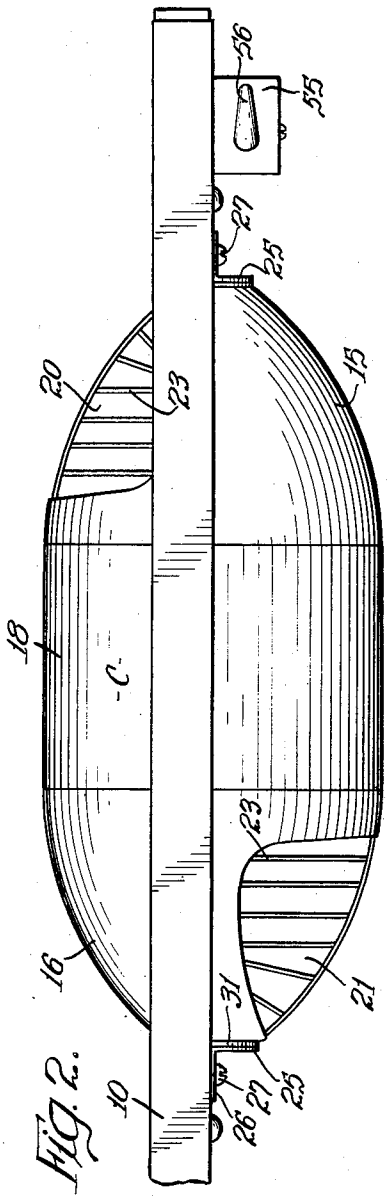


Fig. 2.

Inventors:
Herbert P. Fields
Bruno Kucinski
By: Banning & Banning
Attys.

June 3, 1952 H. P. FIELDS ET AL 2,598,774

WINDOW VENTILATOR

Filed April 15, 1950 2 SHEETS—SHEET 2

Fig. 3.

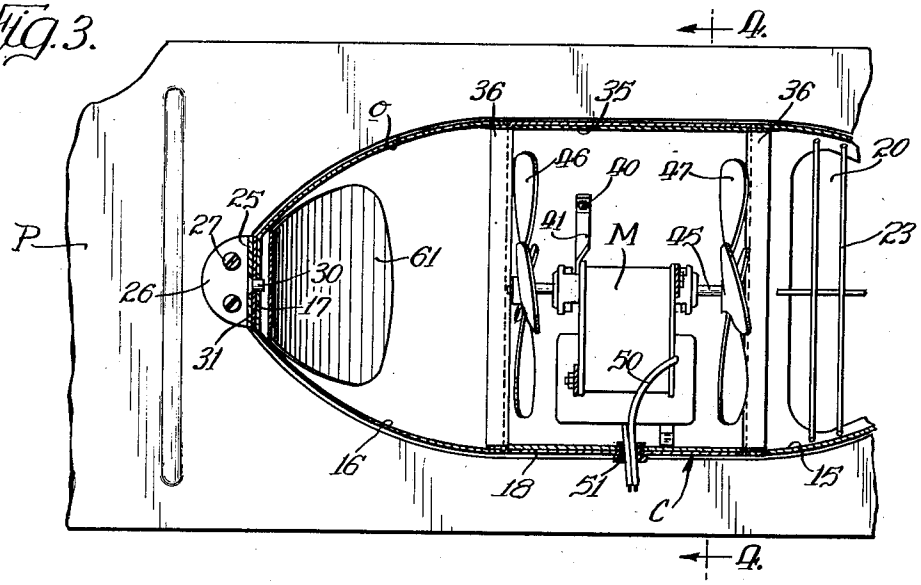


Fig. 4.

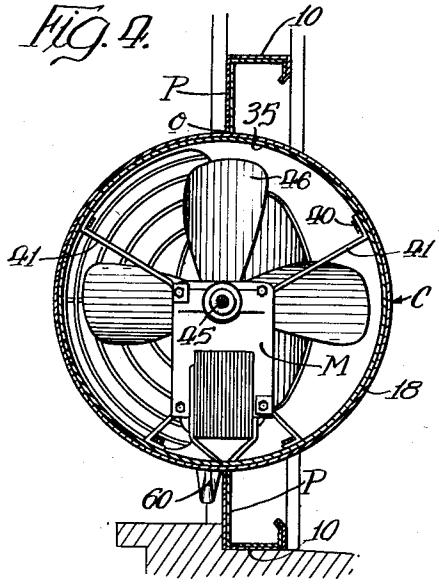


Fig. 5.

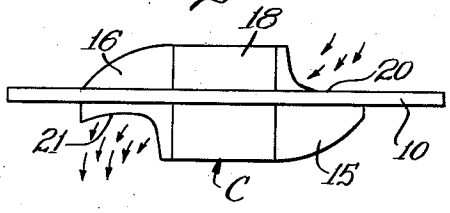
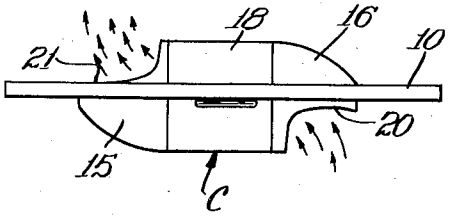


Fig. 6.



Inventors:
Herbert P. Fields
Bruno Kucinski
By: Fleming & Fleming
Attys.

Patented June 3, 1952

2,598,774

UNITED STATES PATENT OFFICE

2,598,774

WINDOW VENTILATOR

Herbert P. Fields and Bruno Kucinski,
Chicago, Ill.

Application April 15, 1950, Serial No. 156,184

2 Claims. (Cl. 98—94)

1

This invention relates to a power-operated ventilating apparatus for use in a window opening whereby to induce a movement of air either into or out of a room. The apparatus is self-contained in that it may be fitted in place upon the sill of a window, and immediately below the lower rail of a sliding sash, with one side thereof exposed interiorly of the room and the other exteriorly thereof.

For its objects our invention aims to provide a simple and inexpensive ventilating apparatus which may be readily installed and placed in use; an apparatus which embodies means within itself for controlling the volume of air which is moved therethrough, and through any one of several circuits, as desired; and an apparatus of this character which embodies special features of improvement by which its capacity for moving air is enhanced, and by which the control of air movements both as to volume and flow circuit may be accurately controlled.

These and various other features of improvement which characterize our invention are hereinafter described in detail in conjunction with the accompanying drawings wherein—

Figure 1 is a view in elevation of the inner side of the mounting plate and casing which is supported for axial movement therein;

Fig. 2 is a top plan view thereof;

Fig. 3 is a fragmentary central vertical section through the casing;

Fig. 4 is a transverse section, taken on line 4—4 of Fig. 3; and

Figs. 5 and 6 are diagrammatic views showing the casing rotated to two opposite positions with arrows indicating the flow circuit of the air therethrough.

This invention comprises a longitudinally extensible mounting plate P (of two or more plies) whose edges are desirably flanged at 10 to fit within the sash channels provided in the usual window frame. The flange along the bottom of the plate is adapted to be rested upon the window sill. The plate flange itself is disposed toward the inner side of the sash channel, as suggested in Fig. 4.

There is provided in the plate P an elongated opening *o* having its opposite end portions coned as by tapering or curving inwardly to join with short ends which are vertically disposed. A casing C is contoured to fit closely within this opening while remaining spaced therefrom. The walls of this casing are coned inwardly at 15 and 16 in its opposite end portions, its intermediate portion 18 being cylindrical. The casing is symmetrical and disposed about a horizontal axis which substantially coincides with a line extending centrally between opposite ends of the plate opening *o*. In one end portion 15 of the casing is an inlet opening 20 which extends arcuately for nearly 180°, a like outlet opening 21 being provided in the other end portion of the casing but diametrically opposite thereto. A wire guard 23 may be fitted across each opening to prevent movement of a solid object therethrough.

2

A bracket 25 of generally semicircular shape is provided at each end of the casing. Formed as part of this bracket is a foot 26 which is connected as by screws 27 to the mounting plate. When so secured, the bracket is immovably affixed in place. A trunnion 30 is carried by the bracket at about its center point which is close to the plane of the mounting plate. This trunnion extends through a circular washer 31 affixed to the bracket 25 and also through the end wall 17 of the casing (see Fig. 3) and provides therefor an axial mounting about which the casing is free to rotate. Any suitable detent means may be provided on the washer 31 to engage with the end wall 17 to frictionally lock the casing in a selected position of rotative adjustment. Since the cross sectional form of the casing is circular at all points, it will at all times remain spaced from the edges of the opening *o* in the mounting plate a distance which is uniform, although very slight.

In the central portion 18 of the casing, interiorly thereof, is affixed a sleeve 35 having at each end thereof an abutment ring 36. To this sleeve is connected, as by bolts 40, a plurality of arms 41 whose inner ends are secured to a motor M at appropriate places to provide a fixed mounting therefor. The motor shaft 45 is substantially aligned with the axis of the casing, and extends within its medial portion 18 to carry propellers 46 and 47 near opposite ends thereof.

A flexible conductor cord 50 extends from the motor through an insulated bushing 51 in the casing wall to a switch 55 which is equipped with a handle 56 by which the operation and speed of the motor may be controlled. From the switch another conductor cord 57 continues on to connect with a current source. A handle 60 may also be affixed to the casing to facilitate imparting rotary movements thereto.

It will be noted that the arrangement of the opposed openings at the two end portions of the casing is such that in one extreme rotative position thereof one opening faces to the outside of the window and the other into the room. Each opening is at one of the coned ends of the cas-

ing where the contour of its walls is such as to deflect the air laterally for movement both lengthwise within the casing and for eduction radially outwardly therefrom. To assist in such outward movement a deflector plate **61** may be affixed within the casing opposite its outlet opening **21**. The direction of pitch of the propellers, or the direction of rotation of the motor, will determine the direction in which air will be moved through the casing. In the position indicated in Fig. 5, the inlet and outlet openings of the casing are so disposed that, with the motor operating at full speed, a maximum volume of air will be drawn into the casing for eduction therefrom into the room; in the opposite position of Fig. 6, the movement of the air, while continuing in the same direction, will be reversed in that air will be drawn out of the room for eduction exteriorly thereof. In the different in-between positions, the volume of air moving through the casing will be variously modified.

It will be noted that we attain all the advantages of extreme flexibility and control without the aid of moving parts except only the casing itself which is rotatably mounted and symmetrically contoured so as to project equally on opposite sides of the mounting plate regardless of its rotative position therein. Such moving parts as are positioned within the casing are completely enclosed so that there is full protection thereto and to persons who may be near the ventilator. The entire construction is one which permits utilization of metallic parts which are stamped, or possibly of plastic parts which may be very economically produced. These parts are few in number, and they may be readily assembled so as to involve but a minimum of expense.

We claim:

1. A window ventilator comprising a vertically disposed mounting plate having an elongated opening with converging opposite end portions, a casing having walls symmetrically disposed about an axis substantially coincident with a line extending centrally for the length of the plate opening and contoured in conformity therewith to lie close thereto but spaced therefrom, means providing at each end of the casing a rotatable mounting therefor axially thereof, the casing having in one converging end portion an opening extending through nearly 180° and in the other curved end portion a like opening but disposed diametrically opposite thereto, a motor within the casing having its shaft substantially coaxial therewith, means supporting the motor fixedly within the casing to rotate therewith, and a pair of propellers fixed to the shaft at spaced points lengthwise thereof, one toward each casing opening but inwardly thereof, acting to propel air lengthwise therethrough when drawn in through the opening facing upon one side of the mounting plate at one end of the casing for eduction at the opposite end thereof upon the other side of the mounting plate.

2. A window ventilator comprising an elongated casing having walls symmetrically disposed about an axis lengthwise thereof and coned inwardly at its opposite end portions, the casing having in one coned end portion an opening extending through nearly 180° and in the other coned end portion a like opening but disposed diametrically opposite thereto, a sleeve fitted closely within the casing intermediately of its coned ends, a motor within the casing having its shaft substantially coaxial therewith and disposed wholly inwardly of the openings in the coned end portions thereof, means joined to the sleeve supporting the motor fixedly within the casing to rotate therewith, a pair of propellers fixed to the shaft at spaced points lengthwise thereof, acting to propel air lengthwise through the casing when drawn in through the opening facing upon one side thereof for eduction at the opposite end through the opening facing upon the other side thereof, and a vertically disposed mounting plate having an elongated opening contoured in conformity with the walls of the casing for receiving the latter therewithin in closely spaced relation thereto, and means on the mounting plate pivotally supporting the casing axially thereof.

HERBERT P. FIELDS.
BRUNO KUCINSKI.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
495,288	Almy	Apr. 11, 1893
1,323,321	Simpson	Dec. 2, 1919
1,769,922	Harris	July 8, 1930
1,838,674	Heath	Dec. 29, 1931
2,209,054	Doud et al.	July 23, 1940
2,405,411	Dybvig	Aug. 6, 1946
2,456,391	Davies	Dec. 14, 1948