R. A. ILG.

VENTILATING FAN.

APPLICATION FILED FEB. 23, 1906.

957,776. Patented May 10, 1910.

Fig. 1.

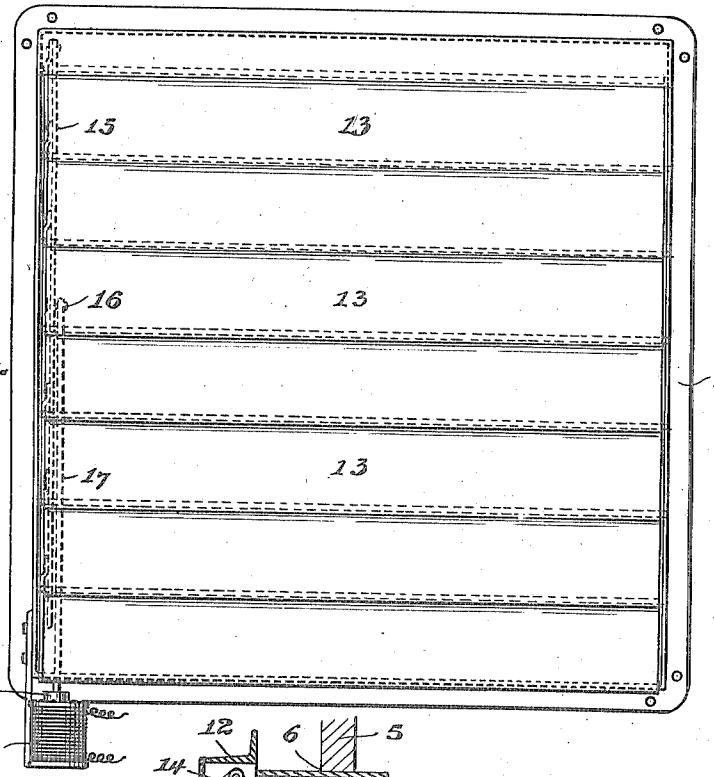
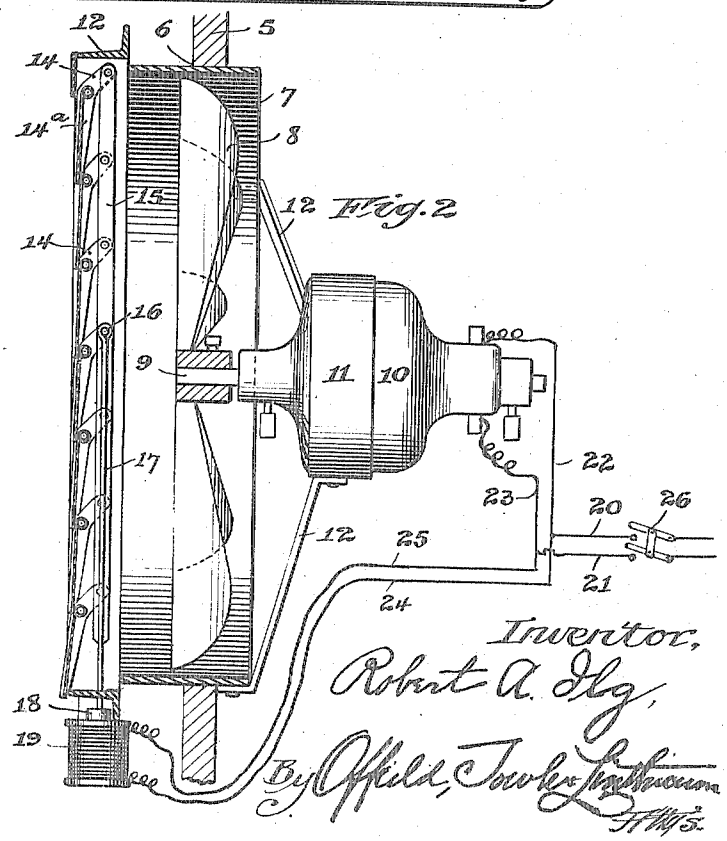


Fig. 2.



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UNITED STATES PATENT OFFICE.

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VENTILATING-FAN.

957,776. Specification of Letters Patent. Patented May 10, 1910.

Application filed February 23, 1906. Serial No. 302,535.

To all whom it may concern:

Be it known that I, ROBERT A. ILG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Ventilating-Fans, of which the following is a specification.

This invention relates to ventilating fans of that type wherein a fan is located in a flue or opening of a wall and operates to draw off foul air, gases, and the like from a room on one side of said wall. Such fans are commonly located in the external walls of buildings so as to discharge the foul air and gases directly into the atmosphere; and it is desirable to effect a closure of the opening to exclude cold air and moisture when the fan is not in use.

It is the object of my invention to provide, in association with a ventilating fan, a means whereby the flue or passageway in which the fan is located may be automatically opened when the fan is started into operation, and automatically closed when the fan is stopped.

To this end my invention comprises, in combination with the fan and fan casing, a closure in the nature of a shutter mounted across the discharge end of the fan casing, the blades of which are pivoted in a line substantially coincident with their upper edges, motors for actuating the fan and opening the blades of the shutter, and means for simultaneously energizing and deënergizing said motors.

My invention will be readily understood when considered in connection with the accompanying drawing, which illustrates the preferred mechanical embodiment thereof, and in which,—

Figure 1 is a face or front elevational view of my improved shutter; and Fig. 2 is a central vertical section through the shutter and fan.

Referring to the drawings, 5 may designate a wall having an opening 6 into which is set the usual annular fan-casing 7. As herein shown the space to the right of the wall 5 may be assumed to represent the interior of a kitchen, laboratory, or other chamber to be ventilated; the space to the left of the wall respresenting the outer atmosphere or any other space into which the fan discharges.

8 designates a fan of the usual form or type, which is mounted on one end of a suitably journaled fan-shaft 9 disposed centrally of the casing 7. On the shaft 9 is directly mounted an electric motor conventionally illustrated by 10, said motor being supported in an annulus 11 carried by a series of bracket arms 12 suitably fastened to the fan-casing or to the wall adjacent to the same.

Attached to the outer end of the fan-casing by any suitable means is a rectangular frame 12, in and between the parallel sides of which are hung on suitable pintles a series of shutter-blades 13 so disposed that when said blades hang downwardly in idle position, the lower margin of each blade just overlaps the upper margin of the blade next beneath it, so as to form a complete closure for the opening bounded by the rectangular supporting frame 12. It will be observed that the hinge pintles of the shutter blades are in a line substantially coincident with the upper edges of the latter, so that the shutter blades normally tend to drop by gravity or external wind pressure.

Fast on one end of the several pintles of the shutters are mounted a series of arms 14 (Fig. 2) that extend inwardly of the frame 12 behind the several shutters. Preferably, and as herein shown, the arms 14 have integral extensions 14^a on the opposite sides of the pintles, to which one end of the shutters is secured to afford increased strength to the latter, although this is not essential. The free ends of the several arms 14 are all connected by a connecting-bar 15 to which they are pivoted, so as to insure the simultaneous and equal actuation of the shutters. On a pin 16 projecting laterally from one side of the bar 15 is hung a link 17, the lower end of which extends through an aperture in the lower horizontal member of the frame 12, and carries an armature 18 adapted to coöperate with the core of an electromagnet 19 located directly therebeneath.

20 and 21 designate electrical conductors leading from a source of current, such as a dynamo, these conductors being connected in shunt with the motor 10 and electromagnet 19 by the wires 22, 23 and 24, 25, respectively. 26 indicates a switch interposed in the main conductors 20 and 21, by actuating which the current may be supplied simultaneously to the fan and shutter motors, and simultaneously turned off therefrom.

From the foregoing it will be seen that,

the electromagnet 19 being wound to take substantially the same current strength as the motor 10, or, a sufficient resistance being interposed in one of the wires 24 and 25 to effect the same result, when the switch 26 is turned to close the main conductors and apply the current, the fan motor 10 and the shutter motor 19 are simultaneously energized, so that the shutters are opened by the downward pull of the armature 18 acting through link 17, connecting bar 15, and arms 14 on the pintles of the shutter blades; thus opening the outer end of the fan-casing for the free passage of the air or gases discharged by the fan. Conversely, when the switch 26 is opened and the current cut off so as to stop the fan, the deënergizing of the magnet 19 allows the shutter-blades to drop to closed position by gravity. Of course, the motor and magnet might be connected in series instead of in shunt, if desired.

I claim:

The combination with a fan-casing and a fan mounted therein, of a motor for said fan, a shutter mounted across the discharge end of the fan-casing, the blades of said shutter being pivoted in a line substantially coincident with their upper edges whereby they normally tend to close by gravity or external wind pressure, a motor and connections therefrom to said shutter blades, and means for simultaneously energizing and deënergizing said motors, substantially as described.

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