

April 7, 1925.

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J. E. OSBUN

CEILING VENTILATOR

Filed Feb. 21, 1924

Fig. 1.

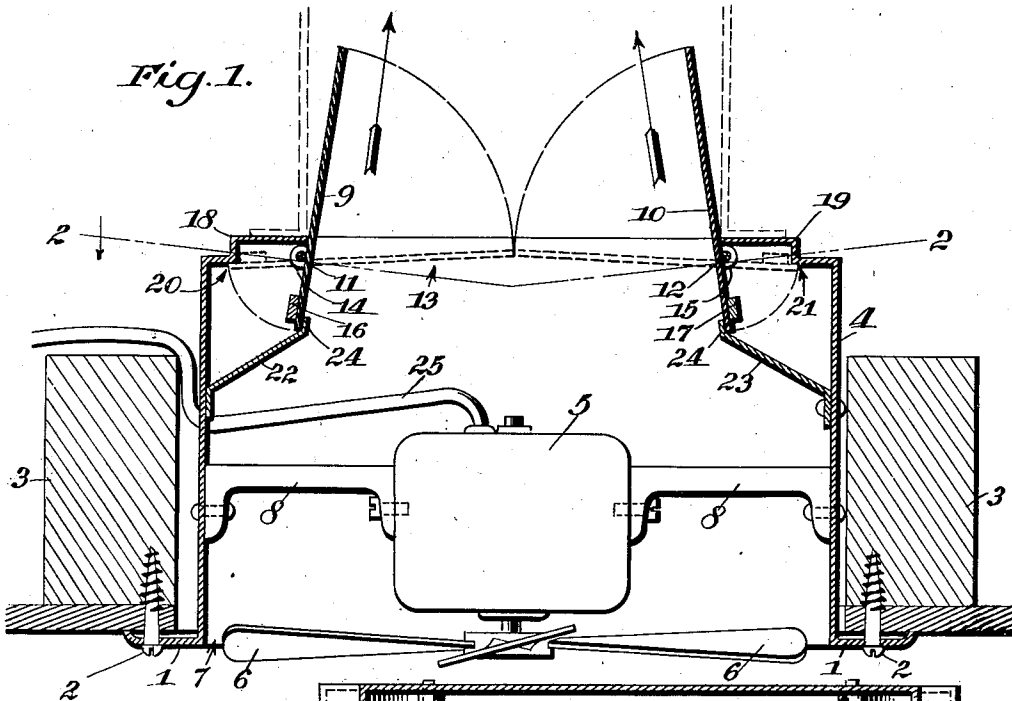


Fig. 2.

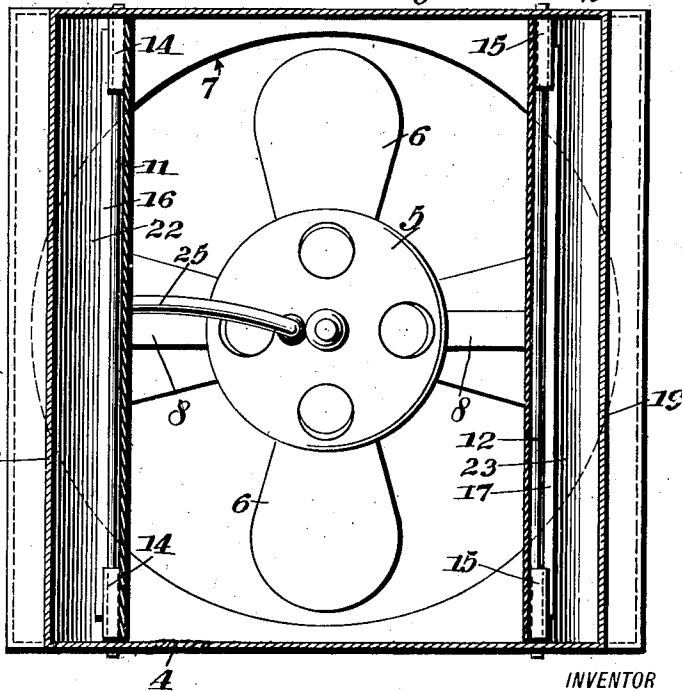
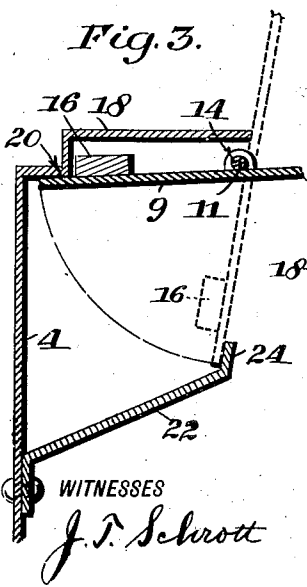


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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CEILING VENTILATOR.

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To all whom it may concern:

Be it known that I, JUSTIN E. OSBUN, a citizen of the United States, and a resident of Riverside, in the county of Riverside and State of California, have invented certain new and useful Improvements in Ceiling Ventilators, of which the following is a specification.

My invention relates to improvements in ventilators, and it consists of the constructions, combinations and arrangements herein described and claimed.

An object of the invention is to provide a simple but efficient ventilator adaptable for use in kitchens, rooms and elsewhere, it being readily set and fastened against a ceiling for these purposes.

A further object of the invention is to place the shutters in such position that they will open by the force of the air exhausted by the fan and close when the fan is stopped.

Other objects and advantages appear in the following specification, reference being had to the accompanying drawing in which:

Figure 1 is a longitudinal section of the ventilator showing the shutters open (full lines) while the fan is in operation,

Figure 2 is a horizontal section on the line 2—2 of Figure 1,

Figure 3 is a detail section showing the hinge mounting and associated parts.

One of the functions of the improved ventilator is to exhaust the steam and heat laden air of kitchens, but the ventilator is not limited to this use, it being applicable to any place whence a circulation of air is found desirable. For the purpose of readily fixing the ventilator in the ceiling of a room it is provided with a face plate 1 through which screws 2 are driven through the plaster into the headers 3. The ventilator is especially adapted for mounting in the ceiling.

The face plate 1 is part of a square box 4 which is concealed above the ceiling and constitutes the housing of the motor 5. The fan 6 at the lower end of the motor shaft rotates in the circular opening 7 of the housing. Brackets 8 extend inward from the sides of the housing to support the motor.

A pair of shutters 9 and 10 are hinged upon rods 11 and 12 respectively at the outlet 13 of the housing in positions parallel to each other so that upon closing the edges of the shutters will meet and so close the

opening. The shutters are pressed upward and open by the force of the air discharged by the fan 6, and they remain thus supported as long as the motor 5 keeps going.

As soon as the motor stops the shutters, lacking the support of the air blast, will fall to the closed position. For this purpose, the hinge bearings 14 and 15 are situated well to one side of each shutter so that the outer ends are slightly the heaviest. The inner ends of the shutters are weighted at 16 and 17 to furnish a necessary amount of counter balance.

The hinge bearings 14 and 15 are situated at the sides of the respective shutters as shown in Figure 2. The hinge rods 11 and 12 extend across the housing 4, the ends being suitably supported in the sides, and particularly in shallow depressions 18 and 19. These are formed out of the top of the housing and the ends of the housing are properly shaped to close the ends of the depressions.

Shoulders 20 and 21 are formed where the depressions 18 and 19 meet the top of the housing. These shoulders act as stops to limit the closing movement of the shutters. When closed, the shutters slope slightly upward as shown in dotted lines so that they may open more readily. When open, the shutters incline inwardly as shown in full lines so they may immediately fall upon stopping of the air blast.

Deflectors 22 and 23 prevent the air from getting behind the small ends of the shutters. The deflectors run the same way as the shutters and are co-extensive with the housing. Each deflector has an upstanding flange 24 which stops the upward movement of the respective shutters and prevents it from reaching the perpendicular position. The electric wire 25 may lead from the motor 5 to the source of current in any convenient manner, the drawing merely suggesting one way in which it may be done.

The operation may be readily understood from the following description. Normally the shutters 9 and 10 occupy the closed positions shown in dotted lines. The shoulders 20 and 21 provide stops for the ends of the shutters so that they can close no farther than shown. The resulting sloping position of the shutters makes it easier to open them when the air blast starts.

Upon starting the motor 5 the air will force the shutters to the open position where

they remain as long as a current of air passes through. The flanges 24 limit the opening movement of the shutters, and the deflectors 22 and 23 of which the flanges are a part, prevent air from entering behind the shutters.

While the construction and arrangement of the improved ventilator herein described and claimed is that of a generally preferred form, obviously modifications and changes may be made without departing from the spirit of the invention or scope of the claims.

I claim:—

1. A ventilator comprising a housing, shutters controlling an air outlet of the housing, hinge means upon which the shutters are so mounted as to gravitate to the closed position, a fan in the housing driving an air blast toward the outlet to hold the shutters open, deflectors within the housing preventing air from getting behind the shutters, and means on the deflectors behind which the shutters engage to limit the opening movement to less than the perpendicular.

2. A ventilator comprising a housing having a facing plate abutting the exposed plaster surface when the housing is set into a ceiling, a fan situated behind an entrance opening in the facing plate to drive an air

blast toward an exhaust opening in the opposite end of the housing, depressions along the sides of said last opening, rods situated in said depressions, shutters hinged upon said rods to open by air blast and close by gravity, shoulders formed by said depressions to limit the closing movement of the shutters, and combined deflector and stop means to both prevent the entrance of air behind the shutters and limit the opening movement thereof.

3. A ventilator comprising a housing, a fan for driving a blast of air therethrough, depressions in the housing providing stop shoulders, shutters pivoted at said depressions having the ends movable toward and limited by engagement with the shoulders, and weights so mounted upon said ends as to enter the depressions and clear the shoulders when the shutters are closed.

4. A ventilator comprising a housing through which an air blast is conducted, shutters pivoted in parallelism at one end of the housing to constrict the air passage when open, and deflectors at which the constriction of the air passage commences, said deflectors then serving as stops for the shutters.

JUSTIN EDWARD OSBUN