

Jan. 13, 1959

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ROOF VENTILATOR

2,868,106

Filed Dec. 9, 1954

2 Sheets-Sheet 1

FIG. 1

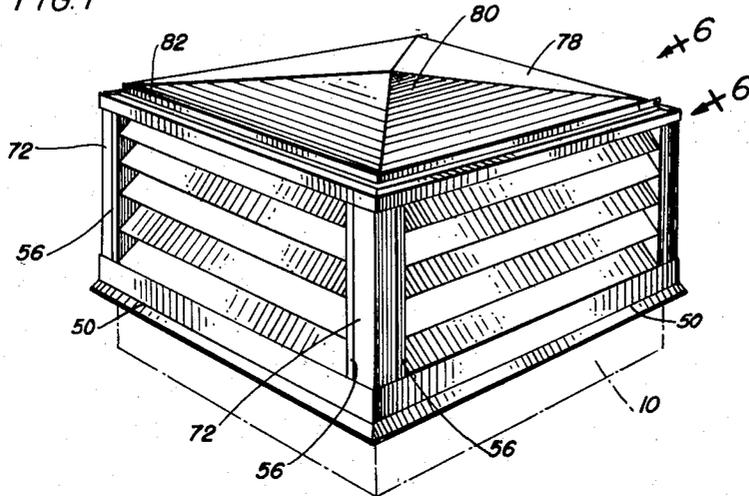
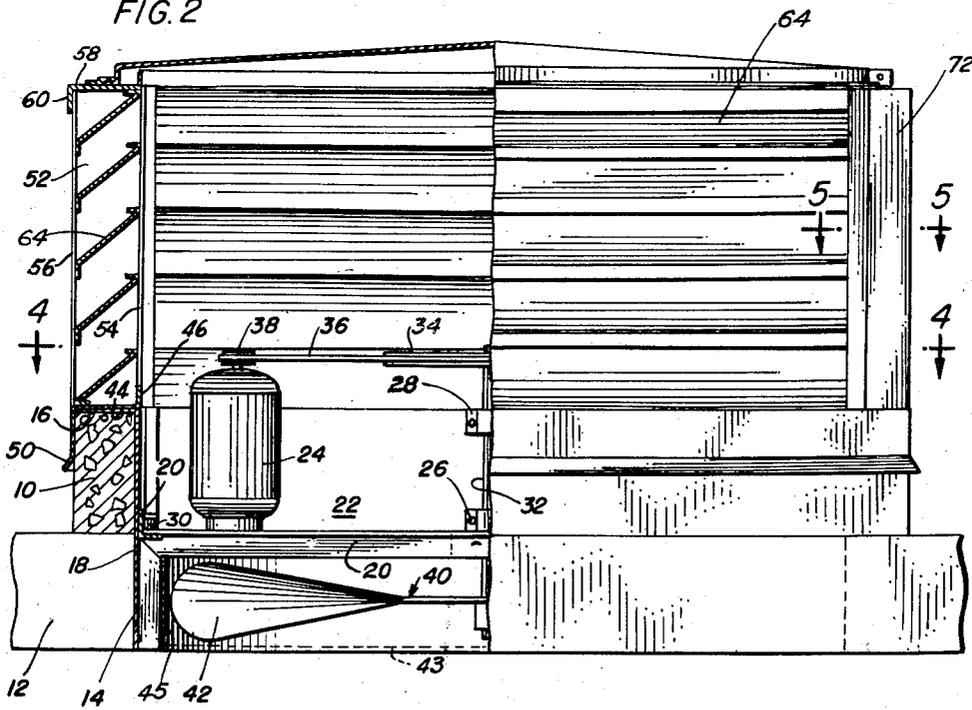


FIG. 2



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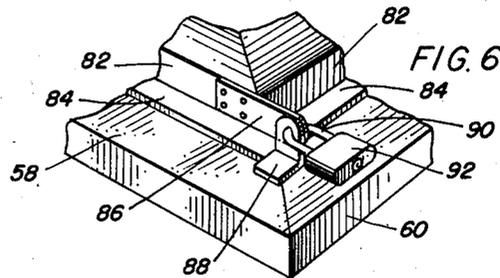
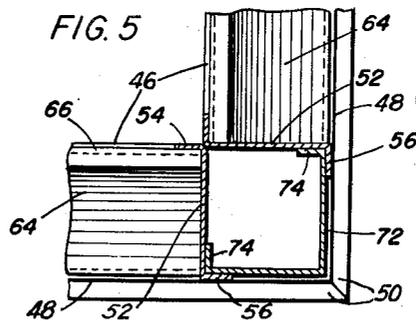
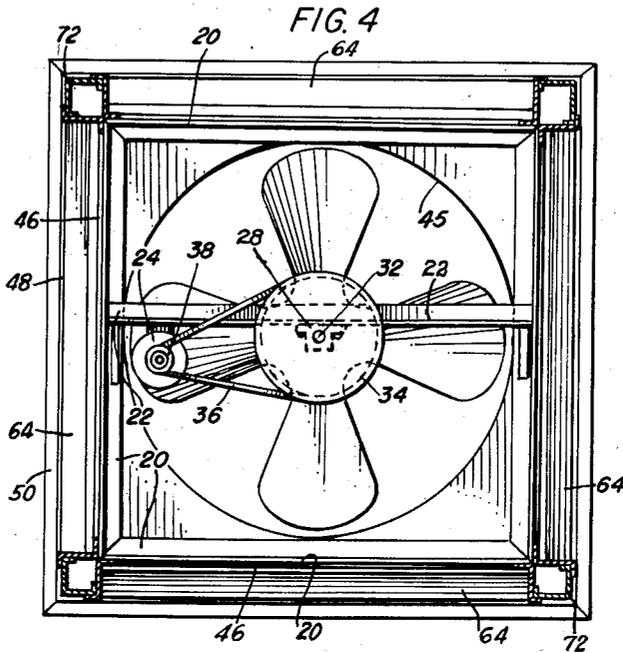
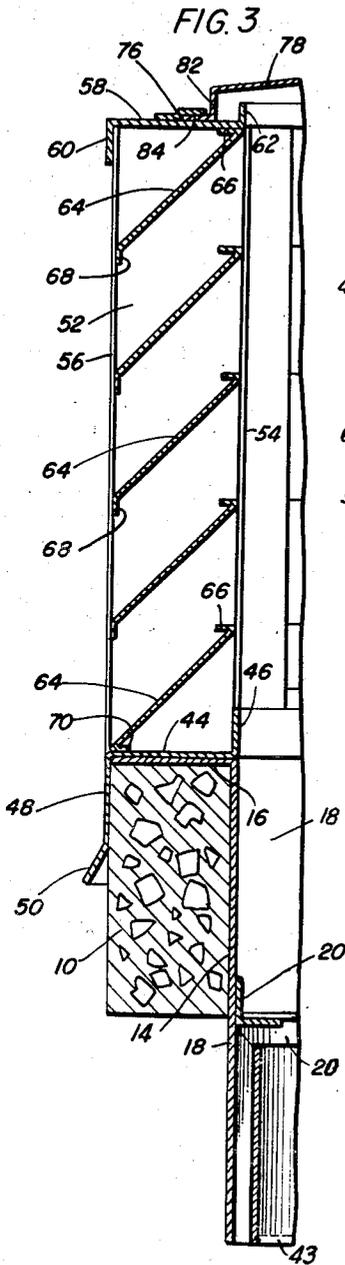
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2,868,106

ROOF VENTILATOR

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Application December 9, 1954, Serial No. 474,068

6 Claims. (Cl. 98—43)

This invention relates in general to a roof ventilator and is more particularly described as a power ventilator for roofs and the like, in which means for inducing the ventilation is supported below and within the sill or curbing upon which the ventilator structure is mounted so that the ventilator structure projects to a minimum height above the mounting curb and therefore presents a neat, unobtrusive and easily concealed appearance when mounted upon an actual or the usual type of commercial building structures.

The usual roof ventilator for this type of surface comprises either a cumbersome upwardly and outwardly projecting structure in which the power means is also mounted so that the overall height of the ventilator and the power means becomes objectionable, or else the power means is supportedly mounted below the curb or support for the ventilator itself so that the parts are not connected for installation or to facilitate access to the power mechanism from the top or upper part of the ventilator.

The present invention overcomes these objections by providing a relatively low and compact ventilator structure adapted to be mounted upon a curb which also supports the power mechanism in a convenient location just below and within the curb where none of the ventilating space is obstructed by it.

An important object of the invention is to provide a roof ventilator which has a power mechanism therefor, both mounted upon the same curb with the power mechanism depending and the ventilator structure extending upwardly from the curb and thus providing a low lying ventilator structure.

A further object of the invention is to provide a power ventilator in which the ventilator structure is prefabricated of sheet metal and assembled and applied to a supporting curb, with ventilator louvers at all sides thereof, and with a removable flat cover which extends partially over the inner edges of all of the louvered sides.

A still further object of the invention is to provide a power ventilator in which the power mechanism is supported by a structure which depends from edge flanges adapted to be supported by the same curb which supports the louvered ventilator overlappingly engaged therewith.

Other objects of the invention will appear in the specification and will be apparent from the accompanying drawings in which,

Fig. 1 is a perspective view of the upper and outer ventilator structure which is visible at the top of a roof to which this power ventilator is applied.

Fig. 2 is a view partly in section and partly in elevation of the structure shown in Fig. 1.

Fig. 3 is a sectional view through one side of the ventilator and power mechanism support.

Fig. 4 is a sectional view as taken on the line 4—4 of Fig. 2.

Fig. 5 is a sectional view of one corner as taken on the line 5—5 of Fig. 2; and

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Fig. 6 is a perspective view of a cover lock as taken on the line 6—6 of Fig. 1.

In providing for ventilators in a roof, a sill or curb 10 is usually provided surrounding an opening through a roof 12 which has a similar inner opening 14 of the same size as that of the curb. The top of the curb is preferably made flat to more easily mount a ventilator structure thereon and also to provide for the engagement of the flange 16 which extends outwardly from a vertical plate 18 at each side of the ventilator. These sides are connected together about their inner periphery and below their tops by angle bar rails 20 which stiffen the structure and provide a support at opposite sides for a transverse supporting plate 22 upon which an upright electric motor 24 is mounted near one end of the support with bearing blocks 26 and 28, near the center of the support.

Between the lower edge of the transverse support 22 and the rails 20 which support it, at each end is a cushioning layer 30 of rubber or similar material to minimize the vibration and noise when the fan is rotated. In these bearing blocks, a shaft 32 is mounted having a pulley 34 at its upper end connected by a belt 36 with a driving pulley at the upper end of the motor.

On the lower end of the shaft 32 below the bearing block 26, a fan 40 is mounted having blades 42 of such a length that they may be freely rotated inside of a sheet metal ring 43 having a circular opening with an inner flange 45 slightly wider than the fan blades to reduce backpressure and backwash from the propeller. The lower edges of the side plates 18 are substantially flush with the lower edge of the roof 12 to present a neat and finished appearance at the inside. The ventilator structure is connected to the top of the power supporting structure at each side thereof by a base flange 44 which rests upon the flange 16 and has an upturned inner edge 46 and a downwardly turned outer edge 48 terminating in an outwardly inclined deflector 50 at the lower edge thereof. At the ends of each base flange 44, and extending upwardly are end plates 52 each having an inwardly turned flange 54 and an outwardly turned flange 56. At the top of each section is a top plate 58 having an outer downwardly turned flange 60 and an inner upwardly turned flange 62. Between the end plates 52 are a plurality of louvers 64 inclined from the inside outwardly and each having an acutely bent flange 66 at its upper end and a lower flange 68 flush with the outer edge of the louver section, excepting the lower louver in which a flange 70 is also bent acutely inward and secured to the base plate 44.

In assembling all of the composite parts of each ventilator side section thus provided, the plates forming the parts, usually of thin sheet metal are welded, soldered or otherwise secured together in any suitable well known manner.

At the connecting corners between the sections, the flanges 56 extend at right angles so that it is necessary only to insert an upright corner plate 72 between the outwardly extending flanges 56. This corner plate is commonly provided with angular flanges 74 which extend at the insides of the flanges 56 abutting the end plates 52 to which they may be secured.

For the top of the structure thus joined by the corner plate 72, the top plates 58 form a close marginal rim with an inner upwardly extending flange 62.

At one side or two adjacent sides, an offset strip 76 is attached to the top plate to provide an undercut portion opening from the inside. A cover 78 of a size to slightly overlap the rim 62 and having a central upwardly inclined crown 80 is also formed with a depending flange 82 which raises the cover up above the top of the flanges 62 and one edge or two adjacent edges are provided

with outwardly extending flanges 84 at the lower edge of the corresponding depending flanges 82 so that the flanged edges 84 of the cover may be inserted in the open edge of the strip or strips 76 to firmly attach these portions of the cover in place.

At the opposite edge of the cover as shown more clearly in Fig. 6, a locking strip 86 is attached to one depending projecting flange 82 and projects beyond the corner and flanges 84 of the cover to register with a locking clip 88, the end of the strip and the clip having corresponding openings through which a hasp 90 of a padlock 92 may be inserted for locking the cover downwardly in place.

With this construction, it will be apparent that the sides of the ventilator and the sides of the connecting parts of the power supporting means may be produced and partially erected separately, and at a distance from the place where they are to be erected and applied or the parts may be entirely assembled and shipped and applied as a complete unit. The ventilator overlaps the upper flange portion of the support at the marginal edge thereof and these parts may be permanently connected together at the factory where the ventilator is made or the parts may be assembled and connected together in interengaging relation when applied to a roof.

Access to the power mechanism may be easily attained by removing the cover 78 and if the entire power unit is to be removed, the ventilator unit may be lifted from its engagement with the power unit flange, if it has not been permanently connected and then the power unit may be removed or repaired as desired.

While a preferred embodiment of the invention has been described in some detail, it should be regarded as an illustration or example rather than as a limitation or restriction of the invention, since various changes in the construction, combination and arrangement of parts may be made without departing from the spirit and scope of the invention.

We claim:

1. In a louvered ventilator structure a power driven fan and supporting means therefor comprising side plates connected together to form a rectangular structure with upper outwardly projecting flanges, a ventilator housing comprising a corresponding number of sides with louvered units for each side of the ventilator and carried by the flanges of said side plates, corner post connections between the ends of adjacent louvered units also carried by the flanges, a cover extending over the top of all of the connected units, means for securing the cover in place on the tops of and overlapping the edges of the inner sides of the units, the cover having downwardly turned sides with outwardly turned flanges at the lower edges, and offset strips attached to one or more of the said tops beneath which corresponding flanges of the cover are engaged to hold the cover in place.

2. In a roof ventilator structure, in accordance with claim 1, locking means comprising a strip attached to a downwardly turned side of the cover and a locking clip attached to one of said tops at a side of the ventilator structure opposite the engagement of the cover with the flange strip, and the locking strip and clip having regis-

tering openings through which a fastening lock may be inserted.

3. In a ventilator for a roof having a rectangular opening with a curb at the edges of the opening, supporting means comprising plates depending at the edges of the opening, each having a top flange overlapping the curb, a power driven fan supported by the plates within the opening, a louvered ventilator enclosure comprising louver sections extending over the top of the opening having a base engaging the top flanges on top of the curb and each side of the enclosure having a bottom plate with an outward depending flange to engage the outside vertical edge of the supporting curb, positioning the enclosure on the curb and directly upon the flanges of the plates, the fan having a motor, and a supporting plate extending transversely of the opposite supporting means plates to mount the fan centrally of the opening and below the tops of the said top flanges, and the ventilator enclosure having a cover, hollow corner posts to support the cover and the louver sections extending above the outwardly flanged base and between the corner posts with louvers in each section being inclined downwardly at the outside thereof.

4. In a roof ventilator in accordance with claim 3, the said supporting means including a transverse upright plate extending centrally and connected to opposite supporting plates and the upright plate carrying spaced bearing blocks, a shaft mounted in said bearing blocks centrally in the opening of the supporting means, the fan secured to the shaft, and a motor also connected to the said upright plate and connected to the shaft for rotating it.

5. In a roof ventilator in accordance with claim 3, in which each section of the ventilator enclosure has end plates each forming a portion of the corner post with an inwardly turned flange at the insides of the ends of the louvers and an outwardly turned flange at the outside of the louvers, the end plates forming the adjacent inner sides of a corner post, and an outer angular plate secured to the said outwardly turned flanges to form the two outer sides of a corner post.

6. In a roof ventilator in accordance with claim 5, the corner posts connecting the ventilator louvers together and forming a side enclosing structure, a top plate for each side section extending over the tops of the corner posts, the top plate having a downwardly turned flange at the outer side of each louver section, and an upwardly extending flange at the inner side of each unit and the cover having a downwardly turned flange at its marginal edge for seating it on the top plates and overlapping the said inner flanges at the tops of the louver sections.

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