

May 12, 1959

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2,885,948

DAYLIGHT DOME VENTILATOR CONSTRUCTION

Filed Oct. 1, 1956

2 Sheets-Sheet 1

FIG. 1.

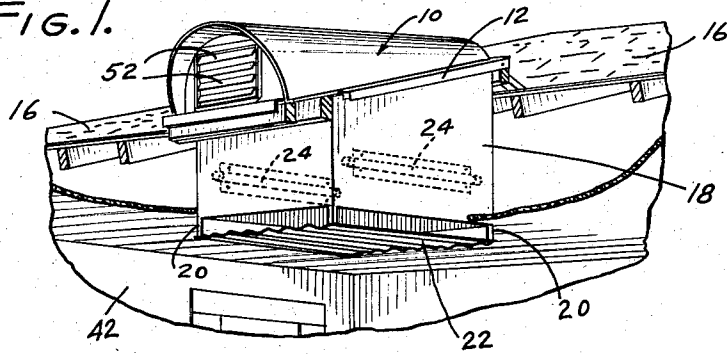


FIG. 2.

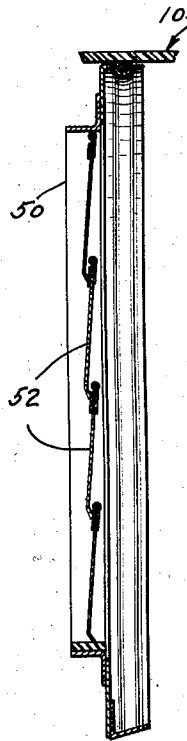
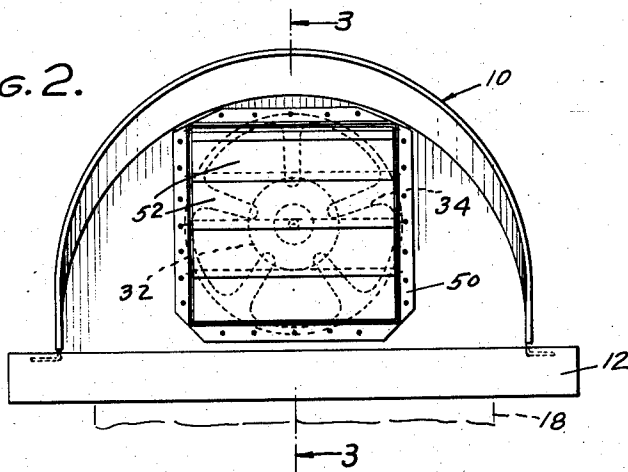


FIG. 6.

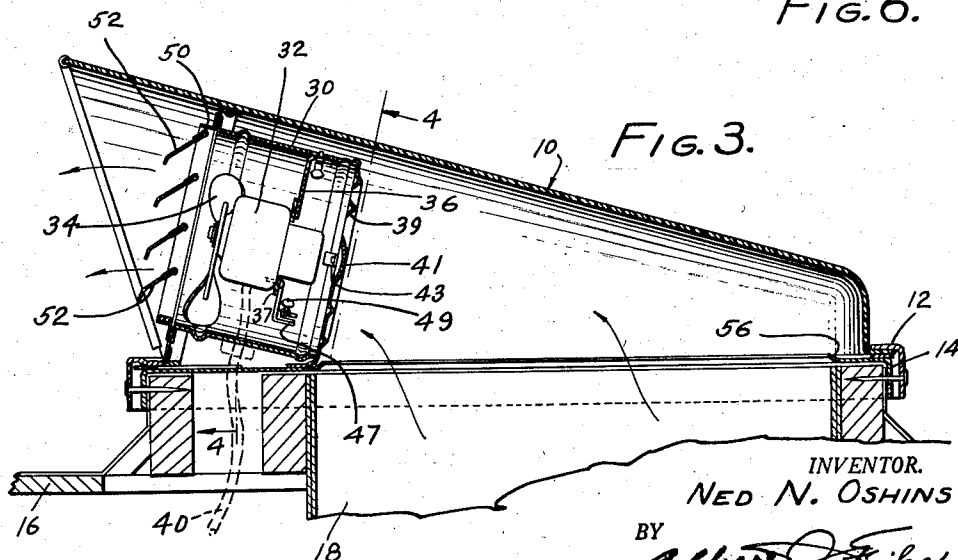


FIG. 3.

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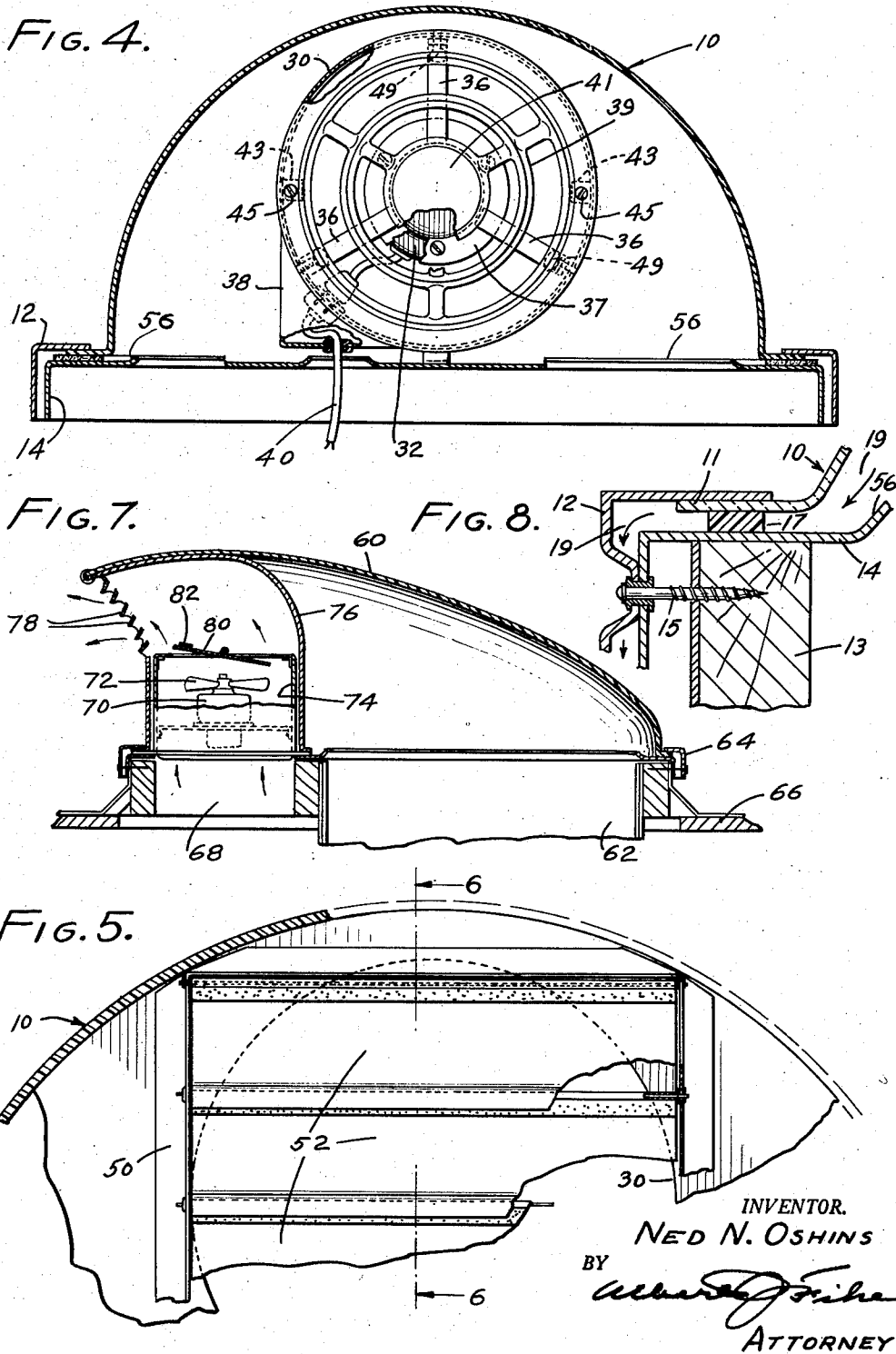
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DAYLIGHT DOME VENTILATOR CONSTRUCTION

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Application October 1, 1956, Serial No. 613,351

4 Claims. (Cl. 98—116)

This invention relates to a completely new type of combination plastic dome skylight and exhaust fan ventilator, designed for the purpose of bringing natural light through the roof into interior rooms and exhausting foul, stale, or hot air from said rooms, both functions being performed by one unit and through one opening in the roof.

The invention also has for one of its principal objects the provision of a combined ventilator and skylight which can be used in the roofs of all types of buildings, and particularly in interior bathrooms, for kitchens, in attics, and even in various commercial installations.

One of the important objects of this invention is to provide a device of the class described, wherein both ventilation and exterior light may be admitted to the interior of a building and wherein the construction further includes an efficient exhaust fan whereby rooms may be made airy, attics made cool, and whereby undesirable odors may be removed from kitchens and the like.

Another important object of the invention resides in the provision of combined ventilating and daylighting apparatus which will fit all roof pitches and which will create an ideal air flow pattern while, at the same time, admitting abundant daylight for natural illumination.

Another object is to provide, in combination with the ventilating and lighting apparatus, an attractive flush ceiling which conceals the well opening without restricting the flow of air and which will furthermore operate as a diffusing panel for both daylight and artificial lighting and which will, at the same time, be completely weather-proof.

Yet another object is to provide a special construction of louvers or shutters which will automatically open when ventilation is in progress and which will automatically close when the blowing action is stopped, rendering the same proof against undesirable ingress of rain, snow, dust or the like.

Other and further important objects of the invention will be apparent from the disclosures in the accompanying drawings and following specification.

The invention, in a preferred form, is illustrated in the drawings and hereinafter more fully described.

In the drawings:

Figure 1 is a perspective view of the improved daylight dome ventilator of this invention, showing some interior details, such as ceiling panel, attic well, electric lighting fixtures and curb members, some of which elements are not particularly germane to the invention but serve to illustrate the complete functions thereof.

Figure 2 is an enlarged front elevation of the outlet end of the structure.

Figure 3 is a vertical section taken on the line 3—3 of Figure 2, looking in the direction indicated by the arrows, and shows an interior grill arrangement.

Figure 4 is an enlarged section on the line 4—4 of Figure 3, looking rearwardly.

Figure 5 is a view of the louver mounting and associated parts.

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Figure 6 is a vertical section on the line 6—6 of Figure 5.

Figure 7 illustrates a modified form of the invention.

Figure 8 is an enlarged fragmentary view in section illustrating the manner in which the dome is secured to the curb.

As shown in the drawings:

The reference numeral 10 indicates generally the dome element of the improved construction of this invention. This is composed of some clear colorless or white translucent material such as a suitable plastic, which transmits a great deal more daylight than conventional top-lighting materials and without glare or shading. The dome may be made of various shapes as desired, necessary, or convenient, and formed in any approved fashion, as by blowing or molding.

The plastic dome element is fitted into a frame, usually of metal, and which includes an outer angle element 12 and an inner angle element 14. The details of this arrangement are illustrated in Figure 8. It will be noted particularly in that figure that the angle elements 12 and 14 engage the flange 11 of the dome 10 and are secured to the curb 13 by the screw 15. The inner upturned edge 56 of the angle element 14 forms a gutter about the dome inwardly of the flange 11.

The metal frame 14, in addition to conforming to the base contour of the dome, is upwardly flanged at 56 to provide a gutter for water condensation on the interior of the dome, a drain arrangement for both rain and exterior moisture that may seep in, and a counter flashing to prevent seepage of water around the wooden curb into the building. The drain arrangement is formed by a gasket 17 which supports the flange 11 of the dome on the angle element 14. The gasket 17 may be made of any material such as neoprene and is intermittently interrupted either by providing passages through the gasket or by the use of a plurality of small gaskets spaced from one another under the flange 11. The interruption of the gasket provides a passage for any condensation which collects on the gutter 56 or on the under side of the dome so that the moisture may flow as suggested by the arrows 19 to the outside of the curb.

The frame composed of angles 12 and 14 is adapted to be mounted on a curb secured about an opening in a roof 16 (Figure 1), and here again provision is made so that the device will fit any and all roof pitches, adding a clean-cut integrated line to either traditional or contemporary roof styles.

A well somewhat in the shape of a hollow rectangular parallelepipedon is fitted into the roof opening beneath this dome 10 and its top edges are arranged to coincide with or follow the roof pitch, all as best shown in Figure 1. This element is completely detached from the unit of this invention and is provided for in the carpentry.

Downwardly extending posts or legs 20 formed at the four lower corners of the well 18 support a panel 22. It will be noted in Figure 1 that the four legs 20 space the panel 22 from the lower edge of the well 18 to permit the flow of air between the interior of the well and the space beneath the panel 22, that is, the interior of the structure employing the ventilator. This panel is preferably also white translucent or transparent plastic material, and is shown as corrugated, but other types may obviously be employed. This provides an attractive flush ceiling which conceals the well opening without restricting the flow of air and also acts as a diffusing panel for daylight and likewise for light from electric fixtures 24, which may be installed inside the well or frame 18.

As best shown in Figure 3, the dome 10 is provided with an angularly sloped rim about the periphery of its open end, thereby affording protection against practically all driving rain, dust, snow, or the like.

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Fitted into the dome 10 by brackets or the like, beginning at point adjacent its lower forward edge, is a cylindrical metallic housing or support 30, wherein an electric motor 32 is positioned, having a fan 34 adapted to be driven thereby. The motor is supported by three spacers 36, as best shown in Figure 4, and is usually provided with a junction box 38 and current carrying wires 40, leading to a control switch in the room 42 or other portion of the housing or building, into which the apparatus of this invention is built.

The motor support, besides including the three spokes or spacers 36, also includes a ring 37 into which the housing of the motor 32 is fitted, a grill 39 composed of a plurality of a concentric circular elements, and a central disk 41 fitted onto the end of the cylindrical housing 30, all as best shown in Figure 3. This arrangement provides for a free passage of air through the grill and past the motor supports 36—37 whenever the fan 34 is operated by the motor 32. Lugs 43 are welded at a 90° angle to the inside of the housing or support 30 at the rear end thereof and the grill construction 39—41 is secured to these lugs by screws 45.

The spokes or spacers 36 of the motor support include integral inwardly bent slotted elements 47 (Figure 3). Winged nuts and bolts 49 secure spacers 36 to the housing 30 and thereby provide removable fastening means for the associated parts.

A rectangular framework 50 is mounted in the dome 10 ahead of the motor and fan, and this supports a plurality of pivoted louver elements 52, which are shown in more detail in Figure 6. It will be noted that the axis of the housing 30 forms an obtuse angle with the axis through the well 18, thus positioning the outer lowermost portion of the housing spaced above the upper surface of the frame 12. These are preferably composed of some suitable light metal, as aluminum, and overlap as shown, whereby, when closed, they will efficiently shut out all undesirable rain, snow, dust or the like. However, when the motor 32 and its fan 34 are operating, air from the interior of the building will be forced through the louvers as shown by the arrows in Figure 3, and the louvers will then be in open position, also as shown in that figure.

Suitable air deflectors can be fitted into position behind the motor, if desired, and the grill 39—41 can serve as such an air deflecting and directing element. Other types may be employed.

A modified form of the invention is illustrated in Figure 7, wherein a plastic dome 60, similar to the dome 10, is provided, mounted over a suitable light well 62 and on a framework 64 in a roof 66. An opening 68 is provided for the passage of air and a motor 70, having a fan 72, is fitted into a housing 74 just above the opening 68, whereby air can be forced out of the room or other space immediately below.

A divider 76 of metal or similar material forms part of the air duct and separates the air passage-way from the light passage-way. The dome 60 projects outwardly beyond the motor housing 74. A series of fixed louver elements 78 is incorporated just beneath the leading edge of the dome projection and are sloped rearwardly to prevent undesirable ingress of rain, snow or the like.

A counter-balanced damper or shutter 80 is fitted into the top of the motor housing 74, which, because of a weight 82, is normally closed but will open to a sufficient and desirable extent when the motor 70 is in operation.

The entire apparatus is equipped with suitable gaskets and other sealing means, wherever such are necessary, and condensation and drainage gutters 56 are provided around the upper edge of the housing 18, as best shown in Figures 3 and 4.

It will be evident that herein is provided a combination ventilator and skylight which can be readily adapted to fit the roof of practically any building, and which is so designed that it can be shipped as a completely assembled unit or built into place. All parts are composed of

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rosion resistant materials and the apparatus, when in operation, will satisfactorily dispose of the warm or foul air prevalent in all buildings during the hot season, and will create an ideal air flow pattern which will effectively ventilate bathrooms and kitchens, and circulate large volumes of air for all living areas.

New concepts of floor planning are now possible for homes and other buildings. Bathrooms can be located for maximum convenience and privacy, and economies can be effected in plumbing and other constructions.

I am aware that many changes may be made and numerous details of construction varied through a wide range without departing from the principles of this invention, and I, therefore, do not propose limiting the patent granted hereon otherwise than as necessitated by the prior art.

I claim as my invention:

1. A combination ventilator and skylight adapted to be mounted on a curb which surrounds a roof opening comprising a hood of translucent material, said hood formed substantially as a longitudinal segment of a cylinder closed at one end and open at the other with a peripheral outwardly extending flange continuous with the edges of the sides and closed end of said cylinder, a continuous rectangular frame having inner and outer angle elements, said inner angle element providing an inwardly extending flange resting on the upper surface of said curb and terminating at its inner edge in a continuous upwardly extending lip forming a gutter, said outer angle providing an inwardly extending apron and a downwardly extending apron with said inwardly extending apron and said inwardly extending flange cooperating to secure said peripheral flange therebetween, means securing said frame to said curbing, means forming a well having continuous sidewalls within said curb with the portion of said sidewalls most closely adjacent the open end of said hood spaced substantially inward from said curb and with the other portions of said sidewalls in substantial contact with said curb, a motor driven fan, means mounting said fan within said hood at said open end and outwardly of said first mentioned portion, said fan being adapted to draw air upwardly through the opening and drive the air out of said hood, a flat plate substantially obstructing said open end of said hood with a transversely extending opening, a plurality of louvers positioned over said transversely extending opening and means mounting said louvers for pivoting outwardly.

2. A combination ventilator and skylight adapted to be mounted on a curb which surrounds a roof opening comprising a hood of translucent material, said hood formed substantially as a longitudinal segment of a cylinder closed at one end and open at the other with a peripheral outwardly extending flange continuous with the edges of the sides and closed end of said cylinder, a continuous rectangular frame having inner and outer angle elements said inner angle element providing an inwardly extending flange resting on the upper surface of said curb and terminating at its inner edge in a continuously upwardly extending lip forming a gutter, said outer angle providing an inwardly extending apron and a downwardly extending apron with said inwardly extending apron and said inwardly extending flange cooperating to secure said peripheral flange therebetween, means securing said frame to said curbing, means forming a rectangular well having continuous sidewalls within said curbing with the sidewall most closely adjacent the open end of said hood spaced substantially inward from said curb and with the other of said sidewalls in substantial contact with said curb, a motor driven fan, a housing for said fan within said hood with the innermost end of said housing supported at the upper edge of said first mentioned sidewall and the outermost end of said housing supported in an opening in a flat plate, said plate closing the space intermediate the inner surface of said hood and said housing, a plurality of louvers positioned over said opening, and means mounting said louvers for pivoting outwardly.

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3. A device as set forth in claim 1 wherein said means mounting said fan comprises a cylindrical housing substantially open at either end with the inner end supported at the upper edge of said first mentioned portion of said sidewall and said outer end supported in said opening of said plate. 5

4. A device as set forth in claim 2 wherein the walls of said hood gradually flare outwardly from said closed end to said open end, and wherein said housing is disposed with its axis inclined from said curb. 10

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References Cited in the file of this patent

UNITED STATES PATENTS

1,264,056	Geibig -----	Apr. 23, 1918
1,792,514	Spear -----	Feb. 17, 1931
2,157,609	Hopkins -----	May 9, 1939
2,665,625	Woodhams -----	Jan. 12, 1954
2,665,626	Jones -----	Jan. 12, 1954
2,692,548	Knorr -----	Oct. 26, 1954
2,711,126	Atkinson -----	June 21, 1955