

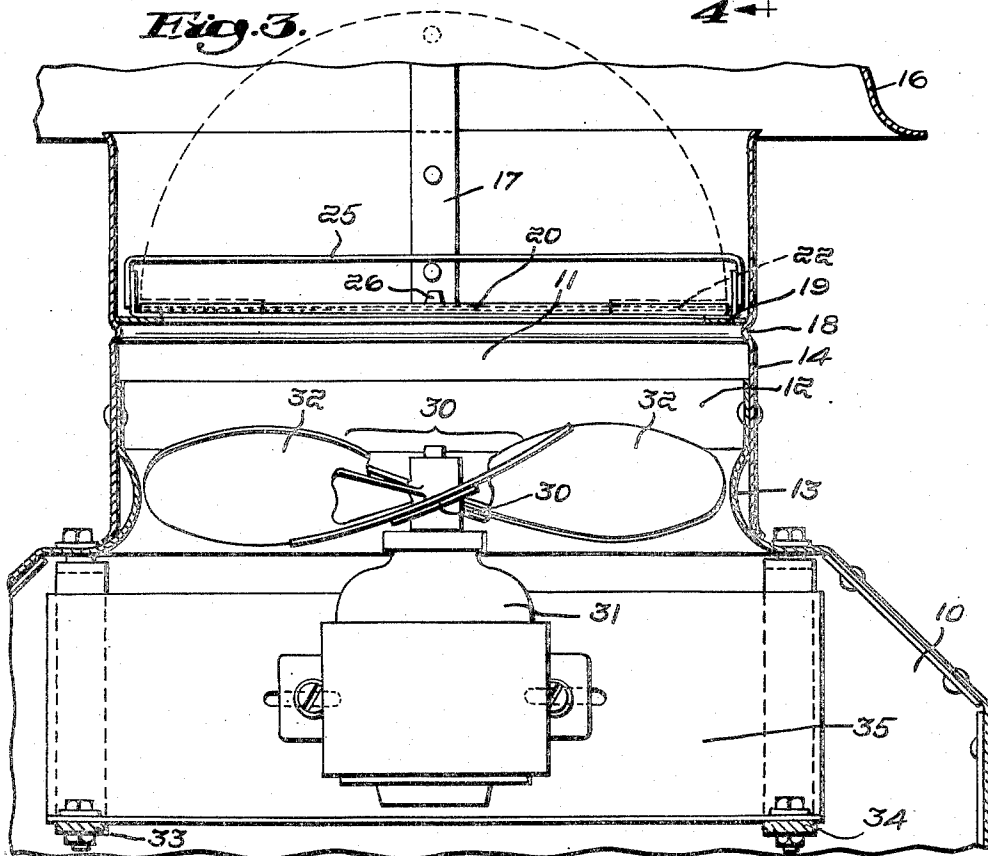
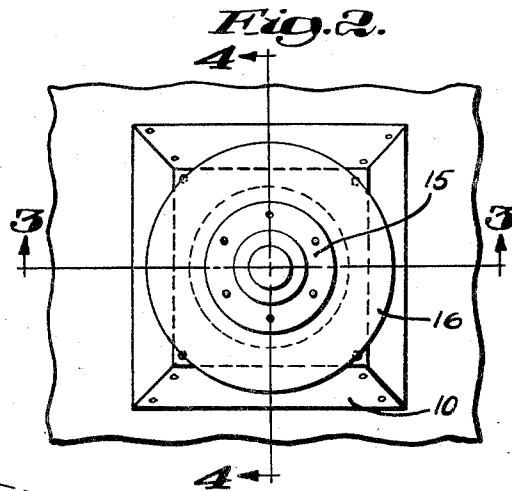
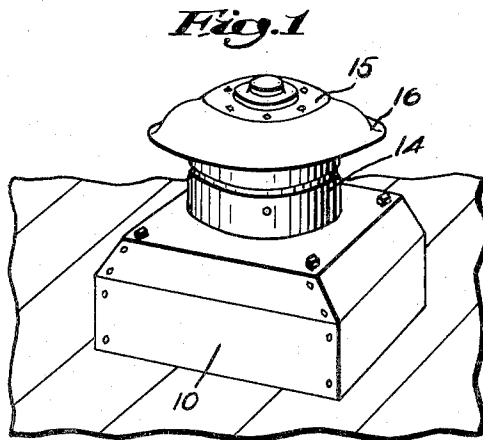
Nov. 12, 1957

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ROOF VENTILATOR

2,812,703

Filed Feb. 4, 1954

2 Sheets-Sheet 1



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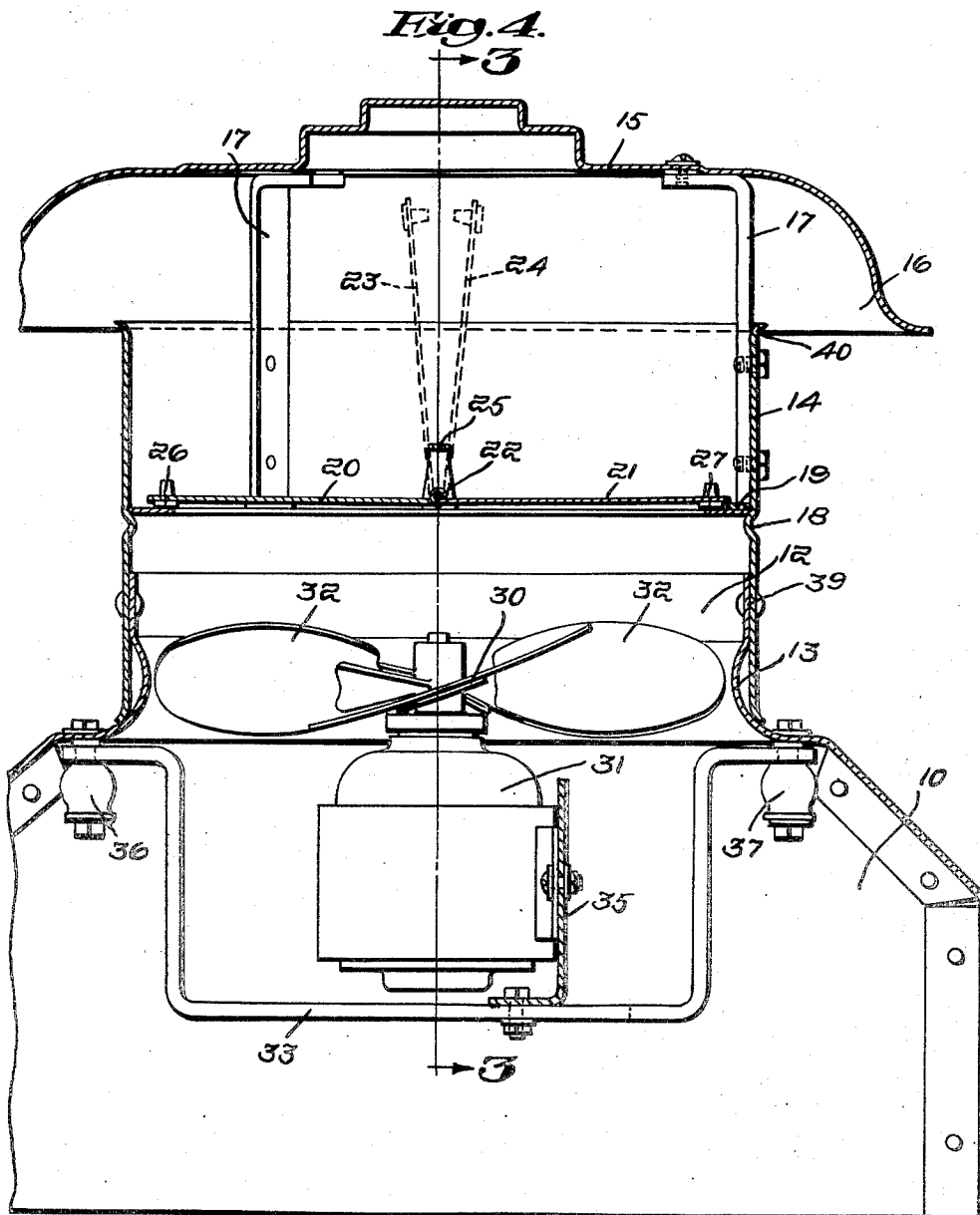
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ROOF VENTILATOR

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4 Claims. (Cl. 98—116)

This invention relates to ventilating apparatus for buildings, and more particularly to fan or blower operated ventilating units intended for mounting over an opening in a roof.

Ventilating units of this general type must be constructed so as to prevent rain from entering the opening, and at the same time must present a minimum of obstruction to the flow of air out of the opening, so that the power requirements for driving the blower or fan are not excessive. It is also desirable to have some provision for closing the ventilator opening when the blower is turned off to prevent loss of heat from the building and possible down-drafts of cold air.

The object of this invention is to provide a roof ventilator, satisfying the above requirements which can be readily constructed of a minimum number of parts and conveniently installed as a prefabricated unit on a roof opening surrounded by a conventional curb, which is so shaped to produce a venturi action in the area of the fan so as to insure maximum efficiency, which is leak proof, which is quiet in operation, and which is provided with an automatic damper for closing the ventilator opening when the fan is not running.

In the drawings illustrating the invention:

Fig. 1 is a perspective view of a ventilator constructed according to the invention;

Fig. 2 is a plan view of the ventilator;

Fig. 3 is an enlarged cross-section partly broken away, taken along line 3—3 of Fig. 2; and

Fig. 4 is an enlarged cross-section taken along line 4—4 of Fig. 2.

The ventilator unit is supported by a rectangular sheet metal base 10 which is designed to fit over the usual curb provided around a roof opening. The base has a circular opening 11 in its upper surface and the metal around the opening is spun in the form of a tubular projection 12 having a constricted portion 13 which is so curved as to act as a venturi tube. A cylindrical metal duct body 14 fits over the tubular projection 12 and is bolted or otherwise secured thereto. A cap 15 having a flaring rim 16 which is spaced from and overhangs the body is supported on brackets 17 which are attached to the body. The body has a bead 18 on which is supported a ring 19. A pair of damper plates 20 and 21 of the "butterfly" type are hinged on a rod 22 mounted transversely across the duct on the ring. The damper plates rise to the position shown by the dotted lines 23, 24 when air is blown upward through the duct and fall back to close the opening when the fan is shut off, thus eliminating loss of heat and cold down drafts through the ventilator opening. A bar 25 mounted above rod 22 acts as a stop for the damper plates when they are open and prevents their falling to the wrong side. The plates are preferably provided with resilient gaskets 26 and 27 around their rims to insure tight closure and quiet operation.

A fan 30 driven by a motor 31 is mounted in the base of the ventilator. The fan is located so that the tips of its blades 32 lie in the narrowest part of the venturi 13 so as to obtain a maximum draft of air with a minimum of power. The motor 31 is carried on a suspension

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mounting consisting of a pair of U-shaped straps 33 and 34, to which an angle bracket 35 is attached. The brackets 33 and 34 are supported on rubber shock mounts 36 and 37 attached to the upper part of the base, and the motor is bolted to plate 35. This mounting cuts down the motor noise and presents a minimum of obstruction to the air flow.

It will be noted that the projection 12 terminates in a vertical cylindrical portion 39 which fits tightly inside body 14, and that the lower part of the body extends well down over the outside of the projection. This construction insures a watertight joint. It will also be noted that the upper edge 40 of the body is slightly flared outward. This feature, and the curvature of rim 16 of the cap, help to create a smooth flow of air through the ventilator.

What is claimed is:

1. A ventilator for mounting on a roof opening or the like, comprising a frame adapted to surround the opening, said frame having a generally tubular upward extension aligned with the opening, a fan mounted in said extension, said extension having an integral constricted portion with curved walls forming a Venturi in the region of said fan and an integral cylindrical rim above said constricted portion, a tubular duct fitting tightly around said rim and connected thereto, said duct extending upward above said rim and also extending downward around the outside of said constricted portion and having a lower edge engaging said frame below said constricted portion, and a cap mounted on and overlying said duct and spaced therefrom, said cap having a rim overhanging said duct all around.

2. A ventilator as described in claim 1, said duct having an outwardly curved upper rim, and the rim of said cap being reversely curved outward to ensure smooth flow of air through the ventilator.

3. A ventilator for mounting on a roof opening or the like, comprising a frame adapted to surround the opening, said frame having a generally tubular extension aligned with the opening, a fan mounted in said extension, said extension having an integral constricted portion with curved walls forming a Venturi in the region of said fan and an integral cylindrical rim above said constricted portion, a tubular duct fitting tightly around said rim and connected thereto, said duct extending upward above said rim and also extending downward around the outside of said constricted portion and having a lower edge engaging said frame below said constricted portion, an internal bead on said duct, a ring supported on said bead, a pair of butterfly type damper plates mounted on said ring, and a cap mounted on and overlying said duct and spaced therefrom, said cap having a rim overhanging the duct all around.

4. A ventilator as described in claim 3, having a pair of brackets mounted within said frame and having resilient connections with the frame, a vertical plate mounted on said brackets across the opening, and a motor mounted on said plate, the fan being connected to the motor and driven thereby.

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