Oct. 15, 1940. H. R. BOYER 2,218,348

VENTILATOR

Filed July 5, 1939

FIG.1.

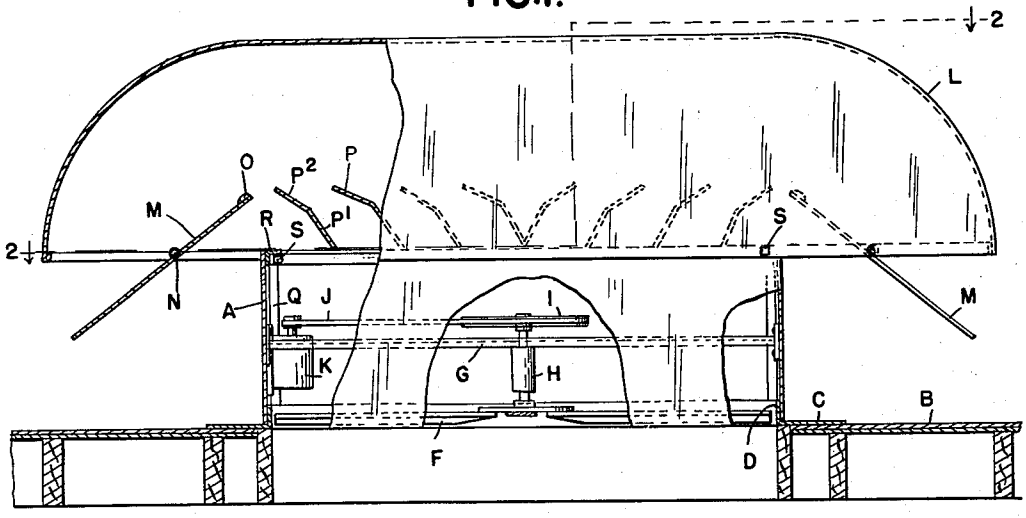
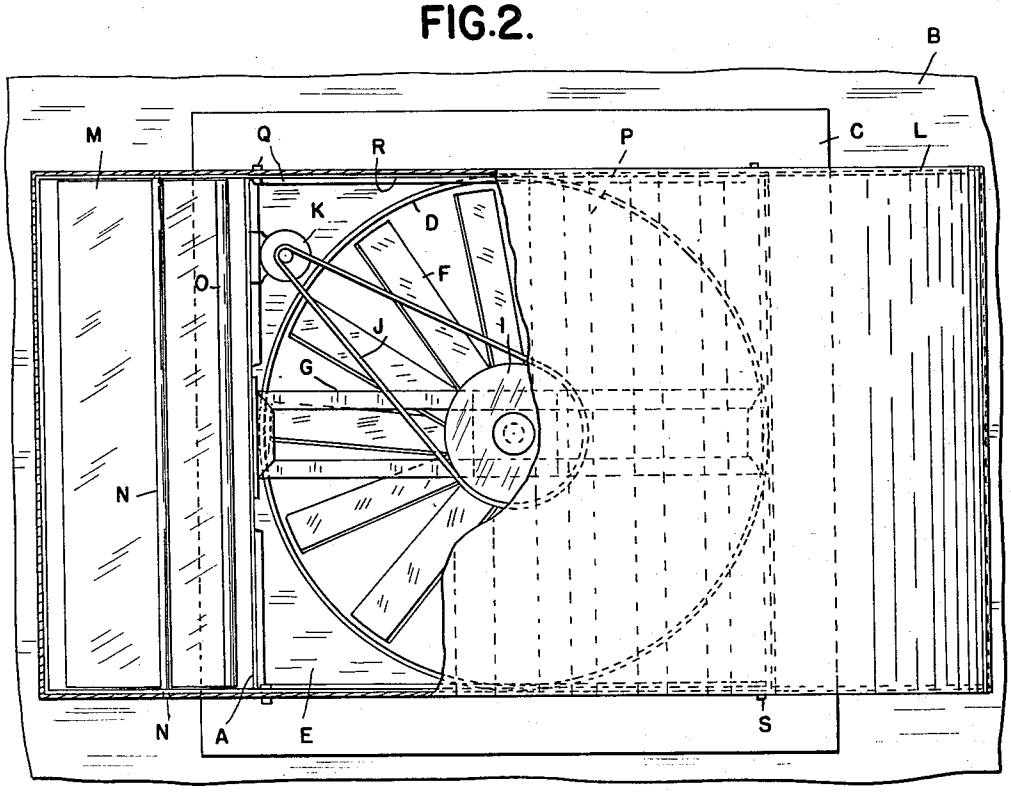


FIG.2.



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VENTILATOR

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3 Claims. (Cl. 98—43)

The invention relates to ventilators and more particularly to that type designed for mounting on building roofs. It is the primary object of the invention to obtain a construction which may be used, when desired, to discharge heated air from an attic or other room directly beneath the roof. It is a further object to accomplish this result without loss of the weatherproof character of the roof. Still further it is an object to obtain a construction which will effectively prevent the discharge of heated air when it is desirable to retain the same, as for instance during cold weather. With these objects in view, the invention consists in the construction as hereinafter set forth.

In the drawing:

Figure 1 is a vertical section partly in elevation of my improved ventilator as installed on a building roof;

Figure 2 is a plan view taken substantially on line 2—2 of Figure 1.

As illustrated, A is an open ended casing, preferably of rectangular form, which is mounted on top of the roof B to register with an opening therethrough with surrounding flashings C for forming a weatherproof joint. In the lower portion of the casing A is a circular casing D with horizontally extending plates E for filling the corners. F is a fan arranged within the casing D and mounted upon a suitable support such as bars G extending centrally across the casing with their opposite ends attached thereto. At the center of these bars is a bearing H for the fan shaft and above this bearing a pulley I which is connected by a belt J to an electric motor K, preferably mounted in one of the corners above the plate E. Connected to the upper end of the casing A is a hood member L having its sides in alignment with the sides of the casing and its ends projecting laterally beyond said casing and curved to form a return bend. Dampers M normally close the lower ends of these projecting portions so as to form a substantially closed casing. These dampers are preferably of the butterfly type being centrally pivoted at N but with the portion on the outer side of the pivot of slightly greater area than the portion inside thereof, so as to be automatically opened by air pressure. Counterweights O on the inner portions serve to close the dampers when relieved from air pressure and to hold the same normally closed.

With the construction as thus far described it will be understood that when the motor is in operation the fan F will propel air upward through the casing A, while the hood L will direct the air laterally from opposite sides of the center against the dampers M. The air pressure will cause the opening of the dampers thereby permitting the discharge of air as long as the fan is in operation. When, however, the motor is deenergized to stop the fan the dampers M will automatically close, preventing any further discharge of air.

To secure the greatest efficiency it is desirable to prevent the forming of eddies in the air current which would check its velocity. For this purpose I provide louvers P extending transversely across the hood L above the casing A. The louvers on one side of the center of the casing are inclined to direct the air toward one end of the hood, while those on the other side of the center are inclined oppositely to direct the air toward the other end of the hood. These louvers are also preferably formed with two or more portions P', P^2 at slightly different angles so as to form an easy bend for the air currents.

The structure is one which may be easily constructed from sheet metal with suitable reenforcements such as angle bars. As shown, angle bars Q are arranged at each of the corners of the casing A and angle bars R surround the top of the casing to impart rigidity thereto. The hood M may be attached to the angle bars R by bolts S and by detaching the bolts at one end the bolts at the other end will form a hinge permitting the hood to be turned back so as to provide accesss to the casing A and the fan therein. Thus, the structure can be manufactured at low cost; is easily installed and when the fan is in operation will effectively eject the hot air from beneath the roof.

What I claim as my invention is:

1. A ventilator comprising a casing opened at bottom and top and adapted for placing upon a roof in registration with an aperture therethrough, flashings forming a weatherproof joint between the lower end of said casing and roof, a fan mounted within said casing and functioning to propel air upward therethrough, a hood mounted at the upper end of said casing and extending beyond the same to form a downturned discharge, and louvers extending across said hood above said casing for directing the air currents from said fan toward said discharge.

2. A ventilator comprising a casing opened at top and bottom and adapted for mounting on a roof in registration with an aperture therethrough, a fan within said casing functioning to direct the air upward therethrough, a hood mounted at the upper end of said casing and projecting laterally beyond the same at its opposite

ends to form downturned air discharge passages, and louvers extending transversely across said hood above said casing, the louvers on one side of the center of said casing being inclined to direct the air toward one end of said hood and those on the other side being inclined to direct the air toward the opposite end of said hood.

3. A ventilator comprising a casing opened at top and bottom and adapted for mounting on a roof in registration with an aperture therethrough, a fan within said casing functioning to direct the air upward therethrough, a hood mounted at the upper end of said casing and projecting laterally beyond the same at its opposite ends to form downturned air discharge passages, louvers extending transversely across said hood above said casing, the louvers on one side of the center of said casing being inclined to direct the air toward one end of said hood and those on the other side being inclined to direct the air toward the opposite end of said hood, and slightly unbalanced butterfly dampers for normally closing and weatherproofing said discharge passages adapted to be open by a slight excess of internal air pressure and to be held closed by excess external air pressure.

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