

Nov. 20, 1956

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2,771,020

VENTILATOR

Filed Dec. 6, 1955

2 Sheets-Sheet 1

FIG. 1.

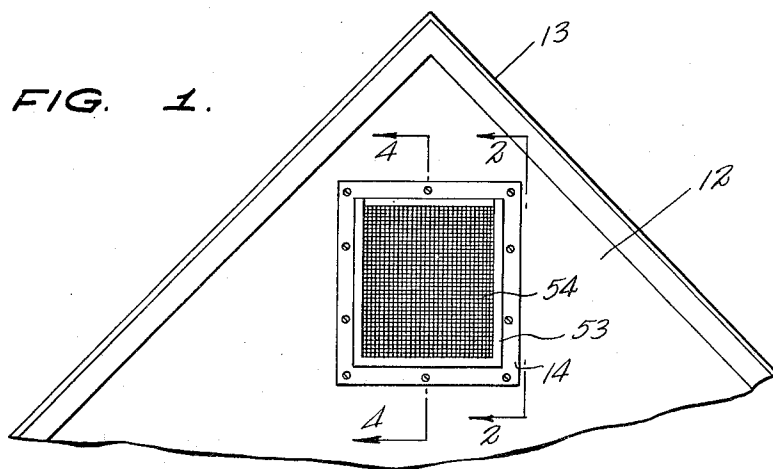


FIG. 2.

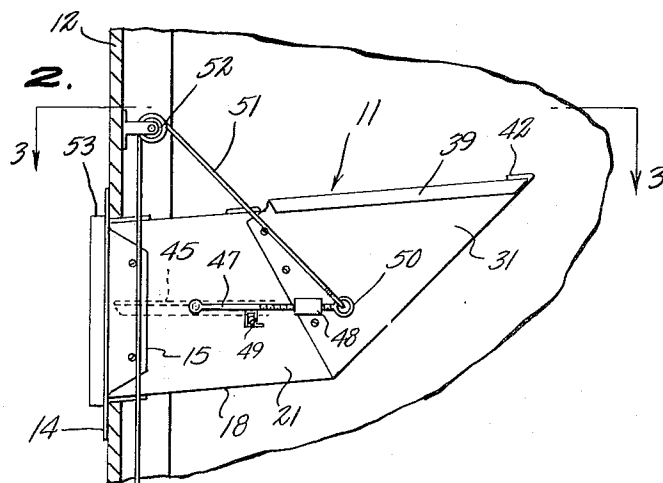
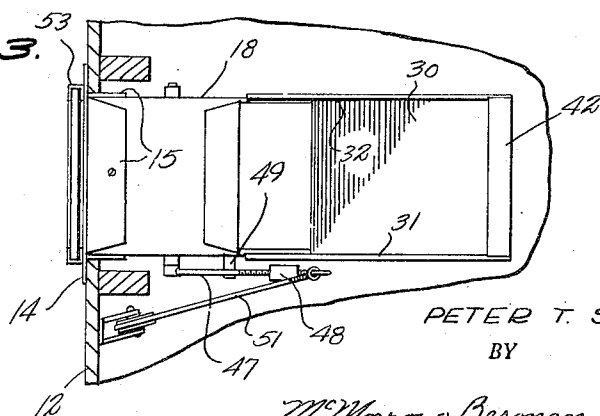


FIG. 3.



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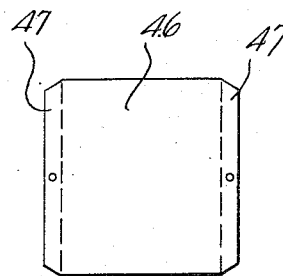
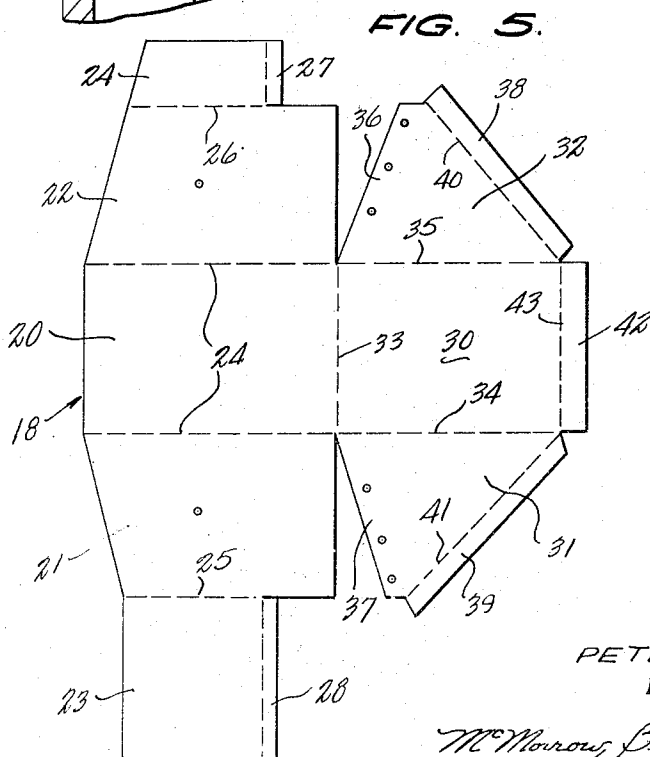
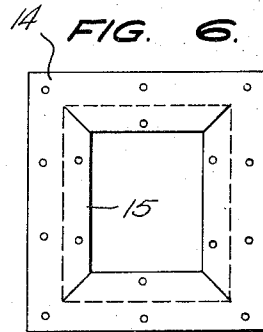
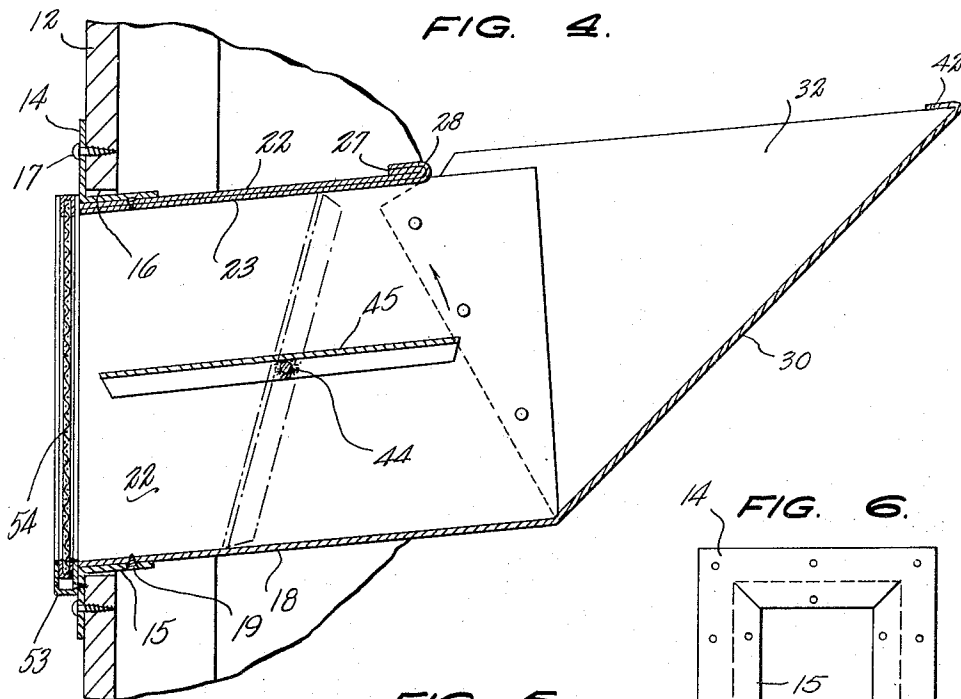
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2 Sheets-Sheet 2



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2,771,020

VENTILATOR

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1 Claim. (Cl. 98—37)

This invention relates to ventilation devices, and more particularly to an improved remotely controlled ventilation duct for a building.

A main object of the invention is to provide a novel and improved ventilator for use in a wall of a building, said ventilator being relatively simple in construction, being easy to install, and providing a large ventilation capacity in a relatively small wall area.

A further object of the invention is to provide an improved ventilator for a building wall, said ventilator being inexpensive to fabricate, being durable in construction, being controlled remotely, so that it may be closed at times to save heat, and being substantially inconspicuous in appearance so as not to adversely affect the external appearance of the building in which it is employed.

Further objects and advantages of the invention will become apparent from the following description and claim, and from the accompanying drawings, wherein:

Figure 1 is a fragmentary front elevational view of the top portion of a building provided with an improved ventilator constructed in accordance with the present invention.

Figure 2 is a vertical cross sectional view taken through the wall of the building of Figure 1 substantially on the line 2—2 of Figure 1.

Figure 3 is a horizontal cross sectional view taken substantially on the line 3—3 of Figure 2.

Figure 4 is an enlarged vertical cross sectional view taken on the line 4—4 of Figure 1.

Figure 5 is a view showing a blank employed to form the main duct element of the improved ventilator of Figures 1 to 4.

Figure 6 is a plan view of the blank employed to form the rectangular frame of the ventilator assembly of Figures 1 to 4.

Figure 7 is a plan view of the blank employed to form the damper element of the ventilator of Figures 1 to 4.

Referring to the drawings, 11 generally designates an improved ventilator assembly constructed in accordance with the present invention. The assembly 11 is adapted to be installed in a wall 12 of a building 13, for example, in the top portion of the building wall, as shown in Figure 1. The ventilator assembly 11 comprises a rectangular frame 14 formed with a rectangular flange structure 15 adapted to be inserted through a rectangular opening 16 formed in the building wall 12, whereby the frame 14 engages against the outside surface of the wall adjacent the opening 16 and is secured to said wall by suitable fasteners 17, such as screws or the like, as shown in Figure 4. The rectangular flange structure 14 defines a seat which receives a generally rectangular duct 18, the seat being inclined upwardly and inwardly by a small angle, as shown in Figure 4, whereby the duct 18 is supported in an upwardly and inwardly inclined position. The forward end of the duct 18 is fastened to the flange 15 in any suitable manner, as by suitable screws 19 passing through the flange 15 and threadedly engaging in the duct 18.

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As shown in Figure 5, the duct 18 is formed from a blank of sheet metal, or the like, comprising a rectangular bottom wall portion 20, the respective side wall portions 21 and 22, and the top flap elements 23 and 24 provided on the respective side wall portions 21 and 22. The duct is formed by folding the blank along the respective parallel longitudinal lines 24, 24 so that the elements 21 and 22 are at right angles to the bottom wall element 20, the flaps 23 and 24 being then bent on fold lines 25 and 26 to overlapping relationship, the flaps 24 and 23 being provided with respective bendable tab elements 27 and 28 which are interengageable with each other and which may be crimped together to lock the structure in its folded position, defining the rectangular duct 18.

The blank also includes a rectangular portion 30 aligned with the bottom wall portion 20 and the respective generally triangular side wall elements 31 and 32. The element 30 is foldable on a transverse fold line 33, and the side members 31 and 32 are foldable on respective longitudinal fold lines 34 and 35, to define an upwardly opening channel at the inner end of the duct 18, the side members 31 and 32 being secured at their respective forward margins 36 and 37 to the rear margins of the side wall elements 22 and 21 of duct 18.

The respective side members 36 and 37 are provided with flange elements 38 and 39 which are bendable outwardly on respective fold lines 40 and 41, and the bottom wall member 30 of the upwardly facing end channel is provided with an end flange 42 which is bendable inwardly on a transverse fold line 43, and is so bent when the ventilator is fabricated, to provide stiffening means for the upwardly facing channel member of the duct.

Extending rotatably through the intermediate portions of the side walls 21 and 22 of the duct 18 is a transverse shaft 44 on which is secured a damper plate 45, said plate comprising a main body portion 46 and respective side flaps 47, 47 which are bent at right angles to the main body 46 and through which the shaft 44 extends and to which said shaft is rigidly secured.

Rigidly secured to one end of shaft 44 is an external lever member 47 on which is threadedly engaged an adjustable counterweight 48. The lever 47 is engageable with a stop lug 49 secured to the adjacent side wall 21 of the duct 18. The end of the lever 47 is provided with an eye loop 50, and secured thereto is the end of an operating cable 51, said cable passing over a pulley 52 provided above and laterally adjacent to the duct 18, said cable extending downwardly so as to be operable from below. As shown in Figure 2, when the cable 51 is pulled, the lever 47 is rotated counterclockwise, whereby the damper plate 45 may be rotated from a normally horizontally extending position to a substantially upright position, closing the duct 18. The weight 48 biases the plate member 45 to the aforesaid substantially horizontal normal position, shown in Figure 2.

A screen frame 53 is secured externally on the ventilator supporting frame 14, said screen frame containing a foraminous screen member 54.

Under normal conditions, air is free to enter the top portion of the building through the duct 18, the air entering the duct 18 and moving inwardly and upwardly from the duct through the upwardly and inwardly inclined end channel defined by bottom wall element 30 and side wall elements 31 and 32. The air is thus free to circulate through the building, and a relatively large volume of air will enter the building when the damper plate 45 is in its horizontal normal position, shown in Figures 2 and 4. When it is desired to close the ducts, for example, during cold weather, it is merely necessary to pull the cable 51 from below, rotating the lever 47, and causing the damper plate 45 to be rotated from its full line po-

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sition of Figure 4 to its dotted view position shown therein, in which position the cable 51 may be secured, thus holding the damper valve in its upright closed position.

The biasing force tending to return the damper plate 45 to its horizontal open position may be adjusted by adjusting the position of the weight 48 on the lever 47. When the cable 51 is released, the weight 48 causes the lever 47 to return to the position thereof shown in Figure 2, thus opening the duct 18.

While a specific embodiment of an improved building ventilator has been disclosed in the foregoing description, it will be understood that various modifications within the spirit of the invention may occur to those skilled in the art. Therefore, it is intended that no limitations be placed on the invention except as defined by the scope of the appended claim.

What is claimed is:

In a building, a ventilator comprising a frame mounted in a vertical wall of the building, a duct rigidly secured at one end in said frame and extending into the building, said duct being inclined upwardly and inwardly at a relatively small angle, a channel member secured to the inner end of said duct, said channel member having a bottom wall inclined upwardly and away from the bottom wall of the duct at a relatively large angle and having side walls secured to the side walls of the duct, defining an upwardly opening outlet for the duct, horizontal shaft

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means rotatably mounted in the side walls of the duct, a damper plate elongated longer than the vertical height of said duct and transversely mounted on said shaft means, a lever member having one end fixedly secured to said shaft means externally of the duct in substantially the same plane as said damper plate, a counterweight adjustably mounted on said lever member, a stop member mounted on the side wall of the duct subjacent said lever member between the counterweight and said shaft means, limiting downward movement of the lever member to substantially a horizontal position thereof, a control cable secured to the free end of said lever member, and pulley means on the building wall above said frame, said cable passing over said pulley means, whereby said damper plate may be rotated to a substantially vertical position by exerting downward force on the control cable.

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