March 3, 1953 H. GLASCOCK 2,630,056

EXHAUSTER MECHANISM

Filed Aug. 12, 1948

Fig. 1.

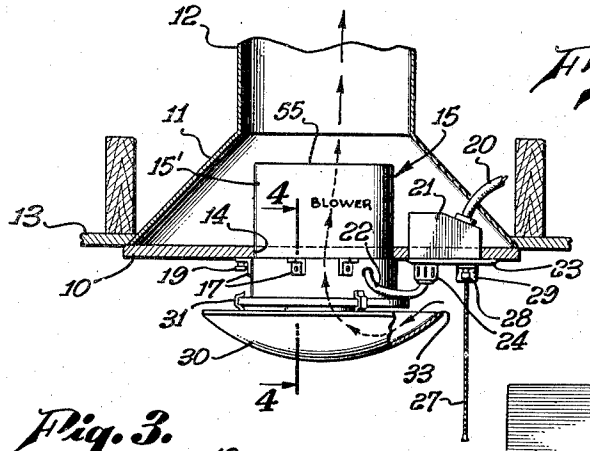


Fig. 2.

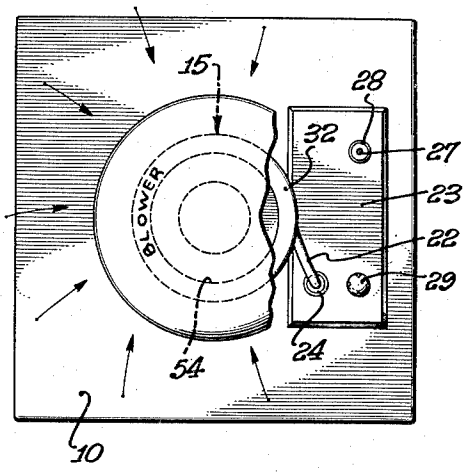


Fig. 3.

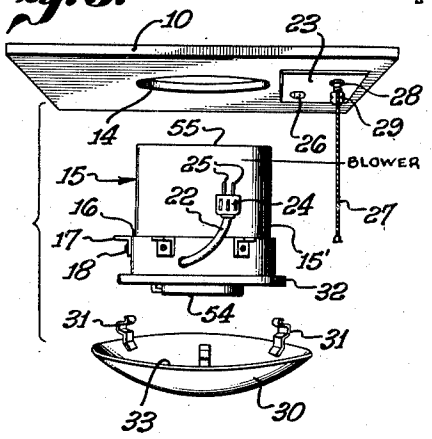


Fig. 4.

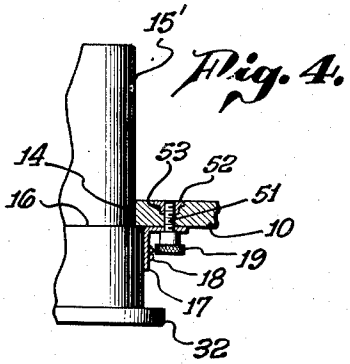
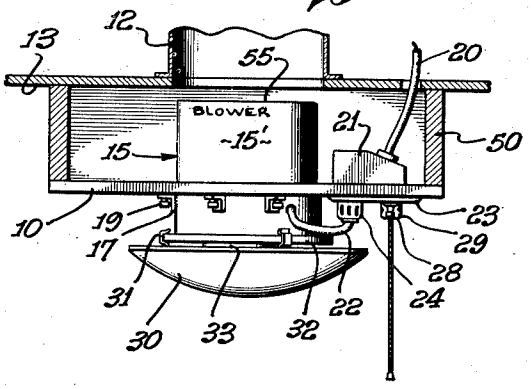


Fig. 5.



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EXHAUSTER MECHANISM

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3 Claims. (Cl. 98—43)

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This invention relates to fan or blower installations, and more particularly to devices of this character which are adapted to exhaust unwanted air.

It is one object of this invention to provide an exhaust unit which is readily adaptable to existing structures without material alterations, and which is easily assembled and disassembled without resorting to special tools or the like.

It is another object of this invention to provide an exhaust unit entirely complete in itself, and which may thus be installed without requiring supplemental structures or mechanisms.

The operation of ordinary exhaust mechanisms adapted for ceiling use has been characterized by high velocity vertical drafts which create air turbulence and which do not directly provide for a resultant movement or an exhaust of air from non-adjacent areas in the room. It is accordingly a further object of this invention to provide an improved exhauster unit which obviates these difficulties by exhausting air evenly and efficiently from all horizontal directions at the ceiling level, thereby continually exhausting the most contaminated air.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of one embodiment of the invention. For this purpose there is shown a form in the drawings accompanying and forming part of the present specification. The form will now be described in detail illustrating the general principles of the invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of this invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a vertical elevation, partly in section, showing the exhauster unit in assembled position;

Fig. 2 is a plan view, with the dome deflector partly broken away;

Fig. 3 is an expanded pictorial view illustrating the cooperation and mode of assembly of the component parts of the structure;

Fig. 4 is a sectional view on an enlarged scale taken along the plane 4—4 of Fig. 1; and

Fig. 5 is a vertical elevation, partly in section, similar to Fig. 1, but showing a modified adaptation of the exhauster unit to a ceiling.

A mounting base 10 is adapted to be secured over a hood 11, which forms the mouth of an air duct 12. This base 10 is made of plywood or other suitable material and is secured to the ceiling 13 by appropriate fastening means (not shown) to be either flush with the ceiling 13 or overlapping slightly as illustrated in Fig. 1. In the form illustrated in Fig. 5, the air duct 12 is shown extending to the ceiling 13. In this instance the entire structure is mounted beneath the ceiling 13. The mounting base 10 is here mounted on a frame 50, which frame is substantially equivalent in function to the hood 11.

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The mounting base 10 is provided with a circular opening 14 through which part of the blower assembly 15 passes. This assembly 15 includes an outer cylindrical shell or housing 15'. The housing 15' provides an inlet end 54 and outlet end 55 for the passage of air through the blower assembly 15. The blower housing 15' is provided with a shoulder 16 which abuts the mounting structure 10 adjacent the opening 14 (see Fig. 4).

In order to secure the assembly to the structure 10, brackets 17 are peripherally mounted on the housing 15' adjacent the shoulder 16 as by bolts 18. These brackets have apertured ears contacting the mounting structure 10. Passing through each of these apertured ears are threaded shanks 51 of a knurled thumb screw 19; these shanks 51 extend into the base 10 and threadedly engage the nut 52, which is appropriately provided against rotation in a recess 53 of the base 10.

Electric power is supplied to the blower assembly 15 through the flexible conduit 20 (as for example, armored cable) appropriately brought into the confines of the hood 11 of Fig. 1 or the frame 50 of Fig. 5; the junction box 21 receives the conduit 20 and houses the mechanism which serves optionally to connect the blower assembly lead 22 to the conduit 20 in the manner hereinafter described.

The junction box 21 is mounted on the mounting base 10 and is provided with a cover plate 23. A conventional type plug 24 having prongs 25 is secured to the lead 22, these prongs being detachably received in the socket 26. The pull chain or cord 27 operates the circuit controller 28 for optionally controlling the electrical connection to the assembly 15. The circuit controller may be a standard type toggle switch having a stem tiltable by operation of the chain or cord 27. A pilot light 29 is mounted on the cover plate 23 and is so connected in the circuit that it will glow when the switch 28 has been operated to establish an electrical connection between the conduit 20 and the socket 26. The pilot light 29 thus serves to indicate when the blower is in operation. An

air deflector, in the form of a dome shaped structure 30, made of thin material, is hollow and is adapted substantially to surround the end portion of the blower housing (15'), the concave portion of the deflector 30 facing the inlet end 54 of the housing 15' and spaced therefrom. For the purpose of mounting the dome 30 adjacent the inlet end 54 of the housing 15', a plurality of spring fingers 31 are attached to the inner hollow portion of the dome 30. These spring fingers are adapted resiliently to engage an annular lip or flange 32 on the blower assembly housing 15', thus holding the dome 30 firmly in place; the spring fingers 31 can be released from the flange 32 upon the exertion of a slight outward pressure on one of the spring fingers 31 for purposes of disassembly for cleaning, repair, or replacement. The spring fingers 31 can be caused to engage the flange 32 upon the exertion of a small upward force on the dome 30.

The annular lip portion 33 of the dome 30 is of greater diameter than the diameter of the blower housing 15'; thus when the blower assembly 15 is operative, air flows horizontally at the ceiling level from all directions over the lip 33 into the hollow interior of the dome 30, and thence upwardly through the blower assembly 15 and the air duct 12, which path is clearly indicated by the arrows of Figs. 1 and 2. The dome 30 thus confines the air so that it enters from a direction transverse to the axis of the blower assembly 15, thereby preventing high velocity drafts and preventing turbulence in the surrounding air by guiding the flow of air for smooth and efficient exhaust at the ceiling level, the level at which heat, smoke and grease are most dense. The dome 30 also provides for the collection of dust, or other debris that may fall from the blower assembly 15 or from the air duct 12, thereby preventing contamination of objects in the space below.

The exhauster unit as described permits ready replacement of the various parts. Thus, for instance, the blower assembly may be removed as a unit without disturbing any permanent electrical connections. The plug 24 may be detached from the socket 26, and the entire housing removed after loosening the knurled thumb screws 17. The flow assembly unit may thus be serviced and/or replaced with a minimum of difficulty.

The inventor claims:

1. In an exhauster mechanism: an apertured support; an electrically operated blower assembly comprising a blower and a tubular housing member passing through the aperture in the support; said housing member having an end edge; a hollow dome-like deflector member having an outer edge; the concave side of said hollow member being disposed toward the edge of the housing member, and the edge of the deflector member being larger in diameter than the edge of the housing member; and means mounting said deflector on said housing so that said deflector substantially completely overlies said housing member to define a radial air flow path to said blower, comprising: a flange on one edge directed toward the other edge, and spring fingers mounted on said other edge for detachably engaging said flange.

2. In an exhauster mechanism: a support having an edge defining an aperture; an electrically operated blower assembly comprising a blower and a tubular housing member passing through the aperture in the support; said housing member having a shoulder intermediate its length contacting one side of the support at said aperture defining edge; a plurality of angularly spaced brackets carried by the housing member for holding the housing member to the support on that side of the support that is next to the shoulder; and a deflector member detachably mounted on that extremity of the housing which is on the said side of the support.

3. In an exhauster mechanism; an apertured support; an electrically operated blower assembly comprising a blower and a tubular housing member passing through the aperture in the support; said housing member having a shoulder intermediate its length contacting one side of the support; a plurality of angularly spaced brackets carried by the housing member for holding the housing member to the support on that side of the support that is next to the shoulder; a hollow dome-like reflector member having its concave side directed toward the end of the housing member; said end having a flange; and spring fingers mounted on the edge of the deflector member for detachably gripping said flange.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
703,897	Cooksey	July 1, 1902
1,767,988	Knapp	June 24, 1930
2,048,985	Akester	July 28, 1936
2,049,856	Mueller	Aug. 4, 1936
2,134,142	Orear	Oct. 25, 1938
2,157,609	Hopkins	May 9, 1939
2,225,349	Morse	Dec. 17, 1940
2,232,225	Grant, Jr.	Feb. 18, 1941
2,278,561	Dexter	Apr. 7, 1942

FOREIGN PATENTS

Number	Country	Date
367,051	Germany	Jan. 16, 1923
375,862	Great Britain	July 4, 1932