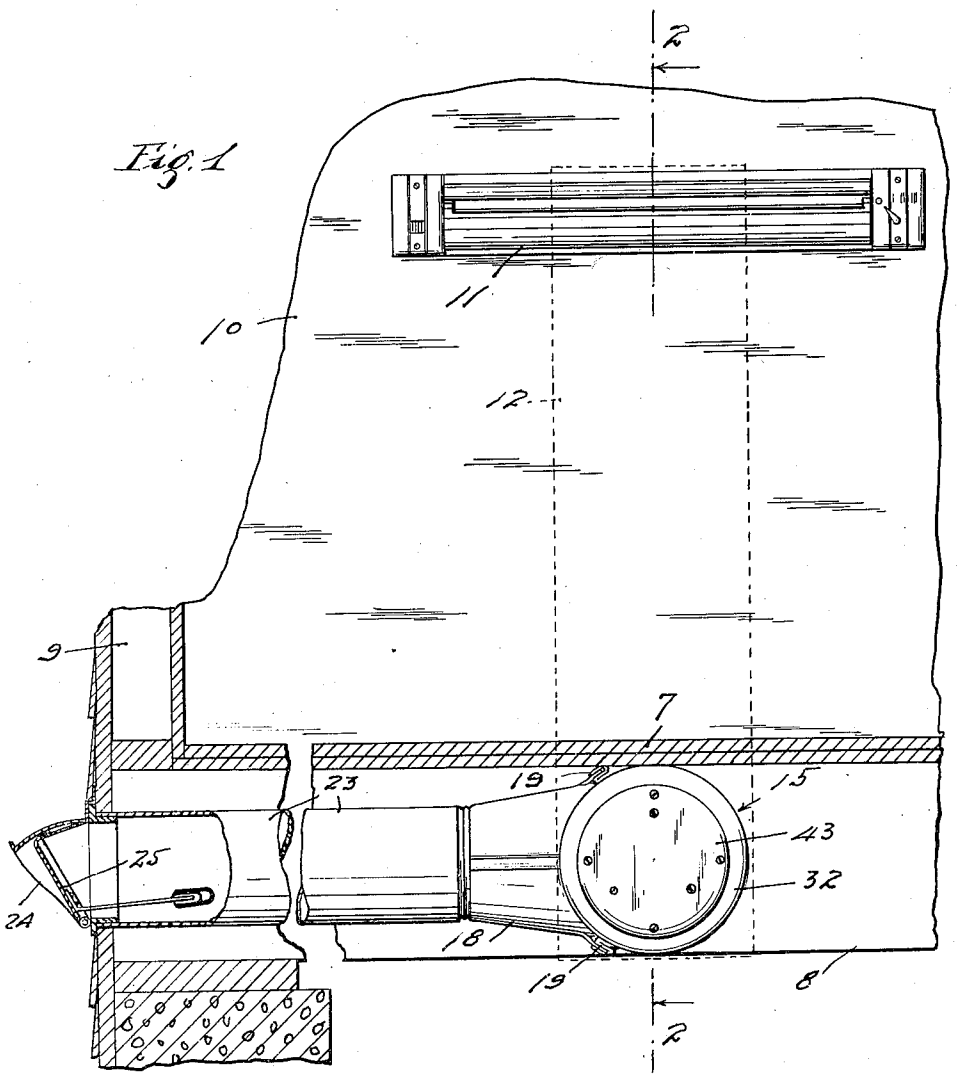
May 31, 1949. C. W. OLSON 2,472,024

BLOWER FOR VENTILATORS

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Fig. 1



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BLOWER FOR VENTILATORS

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Fig. 2

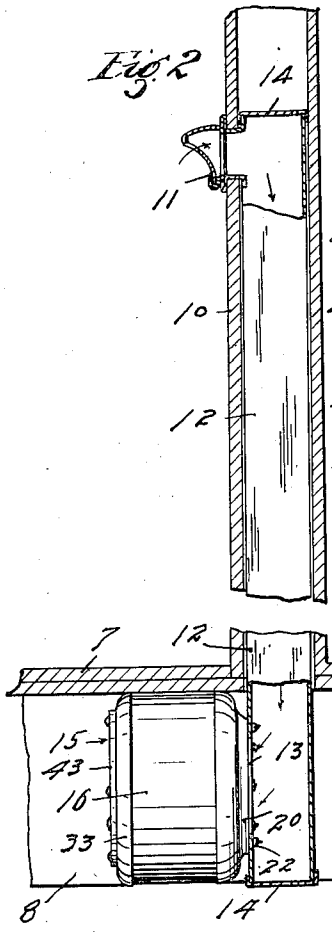


Fig. 3

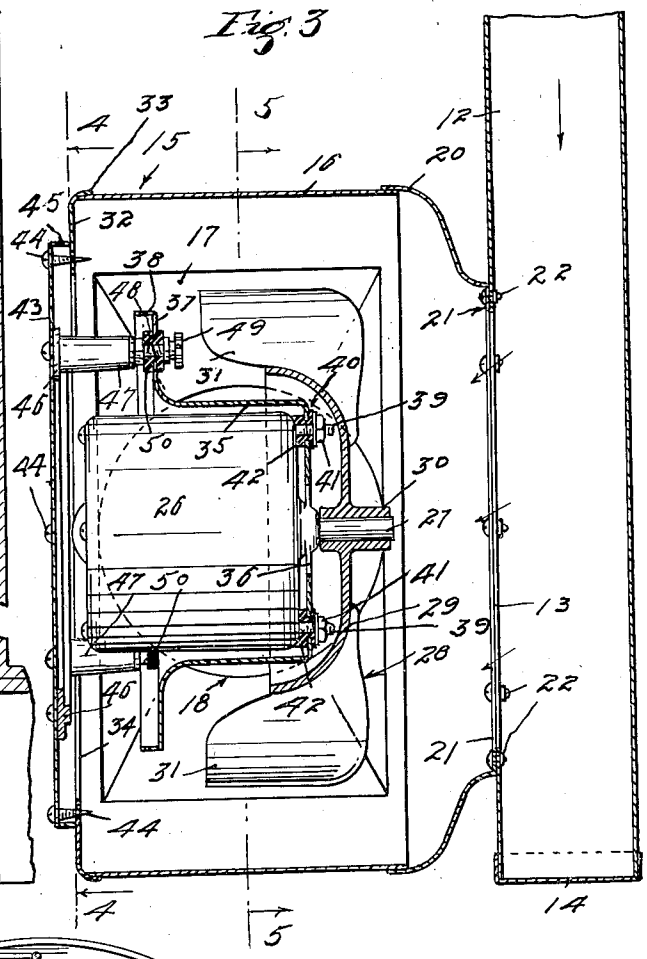
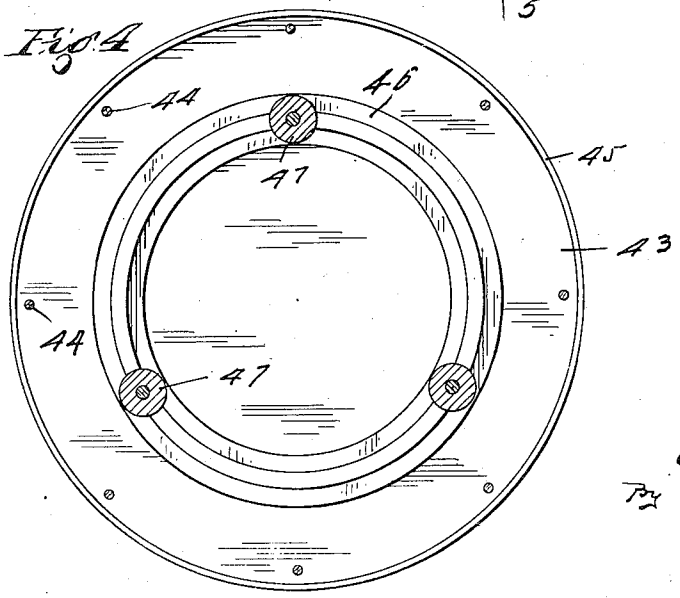


Fig. 4



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BLOWER FOR VENTILATORS

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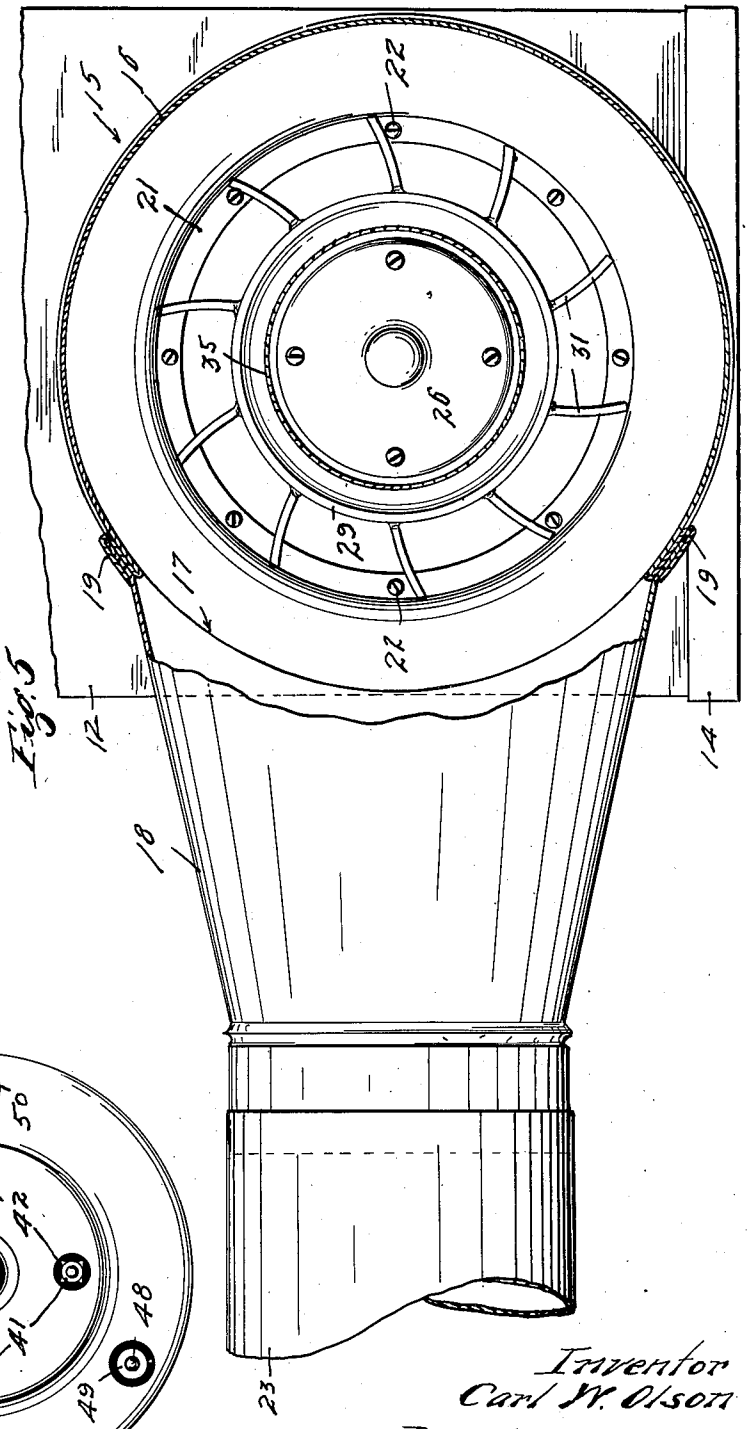


Fig. 5

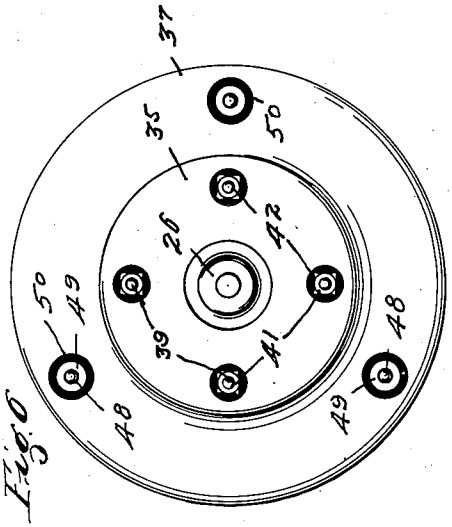


Fig. 6

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2,472,024

BLOWER FOR VENTILATORS

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Application April 30, 1947, Serial No. 744,859

4 Claims. (Cl. 230—117)

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My present invention relates to improvements in electrically operated blowers and, more particularly, to a self-contained blower unit for use in room ventilating systems.

An object of this invention is to provde a highly efficient self-contained blower unit complete for ready installation, in a ceiling, a basement, an attic, a soffit space above a kitchen cabinet and the like, and including a novel housing and mounting for a turbo blower.

Other objects of the invention will be apparent from the following description, reference being had to the drawings.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Fig. 1 is a view showing a fragment of a building, partly in elevation and partly in section, having a room ventilating system in which the self-contained unit is embodied;

Fig. 2 is a fragmentary view partly in elevation and partly in section taken on the line 2—2 of Fig. 1;

Fig. 3 is a view principally in section taken through the blower and attached section of the intake pipe on the line 3—3 of Fig. 1, on an enlarged scale;

Fig. 4 is a view partly in elevation and partly in section taken on the line 4—4 of Fig. 3;

Fig. 5 is a fragmentary view partly in elevation and partly in section taken on the line 5—5 of Fig. 3; and

Fig. 6 is an end elevation of the turbo blower and its holder removed from the unit.

For the purpose of showing the invention embodied in a room ventilating system, there is shown in the drawings a fragment of a building and of the parts thereof it is important to note the floor 7 laid on joists 8, an outer wall 9 and an inner wall 10, which may be assumed to be one of the walls of a kitchen.

On the inner wall 10 is an air intake hood 11 and within this wall is a rectangular suction pipe 12 that leads from said hood. The pipe 12 extends downwardly through the floor 7 and between two of the joists 8 and has in one of its sides, at its lower end portion, a round outlet opening 13. Each end of the pipe 12 is closed by a cap 14.

The position of the hood 11 on the wall 10 is

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such that it would be just above a cooking range, not shown, placed against said wall, so that smoke and hot, rising grease-laden food vapors are drawn, by suction, into the intake hood 11 before they spread, cool and congeal on the ceiling and walls of the room.

It may be here stated that the intake hood 11 is the subject matter of a co-pending application executed of even date herewith by Carl W. Olson and Willard A. Olson, joint inventors.

The self-contained blower unit 15 is installed, as shown, before the two joists 8 between which the pipe 12 extends and includes a housing 16 in the form of a cylindrical shell. This housing 16 has a rectangular outlet opening 17 that extends substantially the full width of the housing 16 and is elongated circumferentially thereof. The housing 16 is in communication with an exhaust pipe section 18 which forms a part of the blower unit 15. The inner end of the pipe section 18 conforms to the contour of the rectangular opening 17 and is secured to housing 16 by interlocked joints 19 and screws, not shown. The outer end portion of the pipe section 18 is round and of a smaller air conducting capacity than the outlet opening 17. This pipe section 18 is tapered from its rectangular inner end to its round outer end portion.

A short neck 20 affords a communicating passageway from the pipe 12 to the interior of the housing 16. This neck 20 is telescoped onto the adjacent end portion of the housing 16 and is secured thereto by welding or otherwise. On the outer end of the neck 20 is an inturned flange 21 that surrounds the open outer end of said neck which is in registration with the outlet opening 13 in the pipe 12. The flange 21 is secured to the pipe 12 by a plurality of nut-equipped bolts 22 that support the blower unit 15 from the pipe 12. The neck 20 is tapered on an ogee profile and, when the blower unit 15 is installed with a plaster wall between the housing 16 and the pipe 12, said neck affords a plaster ground.

The round outer end portion of the pipe section 18 is telescoped into the intake end of a round exhaust pipe 23 that extends longitudinally between the two joists 8 heretofore referred to, through a hole in the outer wall 9 and is in communication with a weather hood 24 on the outside of said wall. The hood 24 has a counterbalanced shutter 25.

The blower unit 15 further includes an electric motor 26 within the housing 16 and its axis is coincident with the axis of said housing. The armature shaft 27 of the motor 26 projects to-

ward the pipe 12 and mounted thereon is a turbo blower 28. This blower 28 has a bell-shaped body member 29, having at its axis a hub 30 mounted on the armature shaft 27. Integral with the body member 29 is a plurality of radial fins or blades 31.

A cover plate 32 for the front end of the housing 16 has a capping flange 33 telescoped onto said housing and secured thereto by welding or otherwise. In the center of the cover plate 32 is a large opening 34 that affords access to the interior of the housing 16. The size of this opening 34 is such that the turbo blower 28 and all parts associated within the housing 16 may be passed therethrough.

A holder 35 is provided for the motor 26 in the form of a cup into which the end portion of said motor, from which its armature shaft 27 extends, projects. In the top of the holder 35 is an aperture 36 through which the armature shaft 27 projects. The motor holder 35 has an integral wide rim 37 provided at its outer edge with an annular reinforcing flange 38. Said holder 35 is spaced from the motor 26 and is secured to the top of the holder 35 by a plurality of screw-threaded studs 39 anchored in the respective end of said motor. These studs 39 loosely project through large holes in the top of the holder 35. Washers 40 and nuts 41 are applied to the studs 39 outwardly of the holder 35.

Rubber grommets 42 completely surround the studs 39 between the motor 26 and the washers 40. These grommets 42 afford cushions between the motor 26 and the top of the holder 35 and between said holder and the washers 40. Said grommets 42 also afford cushions for the studs 39 where they pass through the top of the holder 35.

A motor mounting plate 43 is secured to the cover plate 32 by screws 44. This plate 43 has an inturned annular flange 45 that bears on the outer surface of the cover plate 32, surrounds the opening 34, and affords a closure for said opening. On the inner side of the motor mounting plate 43 is secured an annular base 46 concentric with the flange 45. Mounted on the base 46 is a plurality of circumferentially spaced posts 47. On the outer ends of the posts 47 are screw-threaded studs 48 that loosely extend through large holes in the rim 37 of the motor holder 35. Thumb nuts 49 are applied to the studs 48.

Rubber grommets 50 completely surround the studs 48 between the ends of the posts 47 and the thumb nuts 49. These grommets 50 afford cushions between the ends of the posts 47 and the rim 37 and between said rim and the thumb nuts 49.

As the motor 26 is out of contact with metal and is cushioned by the grommets 42 and 50, it runs quietly and without vibrations.

Obviously, by removing the screws 44, the motor mounting plate 43 may be moved axially away from the housing 16 and thereby withdraw the entire blower unit 15 from the housing 16 through the opening 34. The removal of the entire blower unit 15 from the housing 16 greatly facilitates the assembly of the several parts thereof prior to the mounting of the same in the housing 16 or the removal of the unit from said housing for inspection or repair.

From the above description, it is evident that air is drawn by suction from the room through the intake hood 11, downwardly through the pipe 12 and into the housing 16 through the neck 20. From thence the air is moved by pressure through

the pipe section 18, the pipe 23 and the weather hood 24 to atmosphere outside of the building.

The drawings illustrate a commercial form of the invention, but it will be understood that the same is capable of certain modifications as to details of construction, arrangement and combination of parts within the scope of the invention herein described.

What I claim is:

1. A housing having an entrance passageway, a self-contained blower unit including a blower mounting plate, said unit, with the exception of the mounting plate, being insertable through the entrance passageway, said mounting plate affording a closure for the entrance passageway, means for removably attaching the mounting plate to the housing said unit including posts on the mounting plate, a cup-like blower holder having an outstanding rim on the posts, nut-equipped studs on the posts extending through holes in the rim, rubber grommets on the studs and holding the rim out of contact with the posts, the studs and the nuts, said blower including an electric motor extending into its holder and a body member operated by the motor and having radial blades surrounding the blower holder, nut-equipped studs on the motor extending through holes in the blower holder and supporting the blower out of contact with is holder, and rubber grommets on the last noted studs holding the blower out of contact with its holder.

2. A cylindrical housing, a contracted neck telescoped onto one end portion of the housing and having at its outer end an inturned annular flange for attaching the housing to a suction pipe with the neck in registration with an outlet opening in the suction pipe, a cover plate having a capping flange telescoped onto the other end portion of the housing and having therein an entrance passageway, a rectangular discharge opening in the housing elongated circumferentially thereof, an exhaust pipe section having rectangular inner end in registraton with the exhaust passageway in the housing, the outer end portion of the pipe section being round, said pipe section being tapered from its rectangular inner end to its round outer end portion, a self-contained blower unit including a blower mounting plate, said unit with the exception of the mounting plate beng insertable through the entrance passageway, said motor mounting plate affording a closure for said passageway, and means for removably attaching the mounting plate to the housing.

3. In a ventilator, an intake hood, a suction pipe leading from the hood, a cylindrical housing detachably secured at one of its ends to the pipe, said pipe and housing having coincident communicating openings, said housng having in its side a discharge opening and in its other end an entrance passageway, a displaceable mounting plate closing the entrance passageway, a cup-like motor holder on the mounting plate in the housing, an electric motor in said holder, secured to the closed end thereof and spaced from the sides thereof, a bell-shaped body member on the armature shaft of the motor and capping the closed end portion of the motor holder, and a plurality of blades on the body member for rotation about the motor holder.

4. In a ventilator, an intake hood, a suction pipe leading from the hood, a cylindrical housing detachably secured at one of its ends to the pipe, said pipe and housing having coincident communicating openings, said housing having in

its side a discharge opening and in its other end an entrance passageway, a displaceable mounting plate closing the entrance passageway, a cup-like motor holder having at its open end an outturned flange in opposing relation to the mounting plate, a plurality of post connections between the mounting plate and the flange, a motor in the motor holder secured to the closed end thereof and spaced from the sides thereof, a bell-shaped body member on the armature shaft of the motor, and capping the closed end portion of the motor holder, and a plurality of blades on the body member for rotation about the motor holder.

CARL W. OLSON.

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