

Dec. 21, 1948.

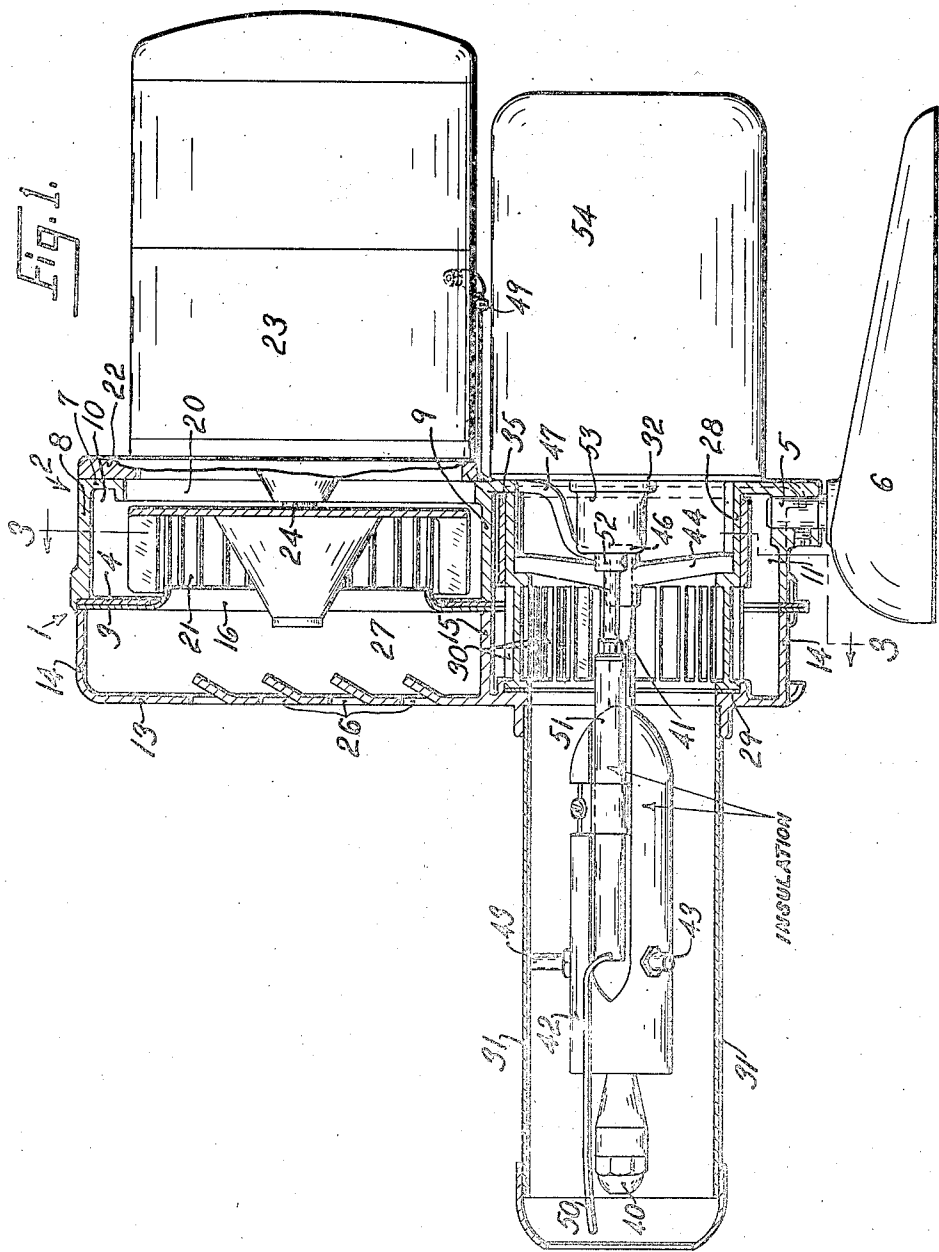
W. H. DE LANCEY

2,456,930

FAN HOUSING CONSTRUCTION

Original Filed Jan. 20, 1945

3 Sheets-Sheet 1



INVENTOR
WARREN H. DELANCEY
BY *Chapman & Hall*
ATTORNEYS

Dec. 21, 1948.

W. H. DE LANCEY

2,456,930

FAN HOUSING CONSTRUCTION

Original Filed Jan. 20, 1945

3 Sheets-Sheet 2

Fig. 2.

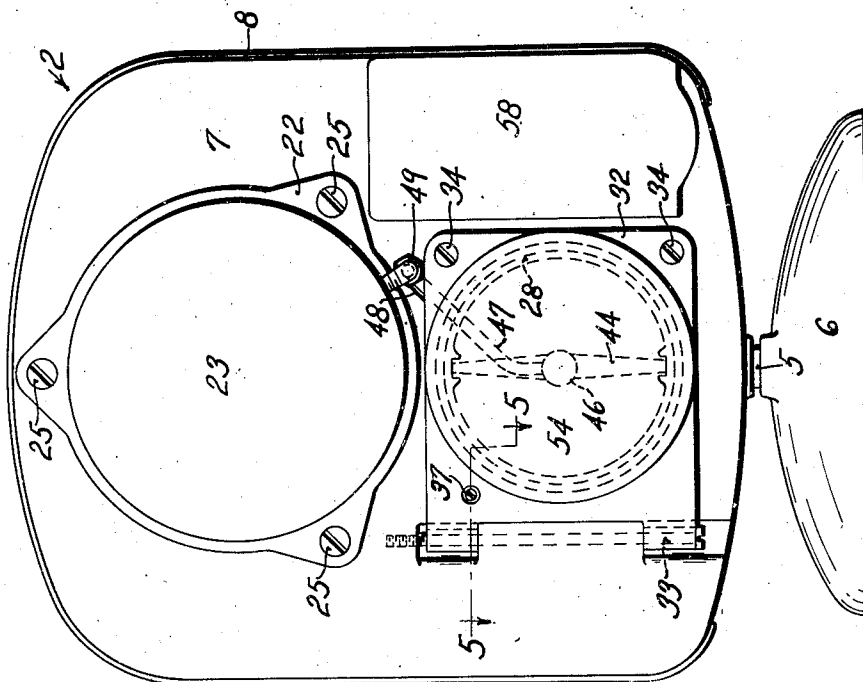
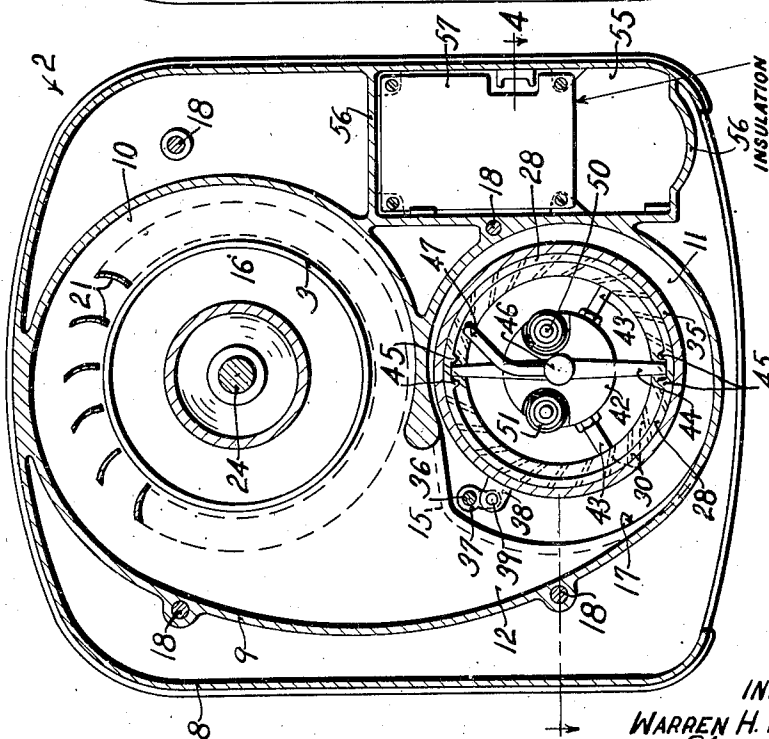


Fig. 3.



INVENTOR
WARREN H. DE LANCEY
BY *Chapin & Neal*
ATTORNEYS

Dec. 21, 1948.

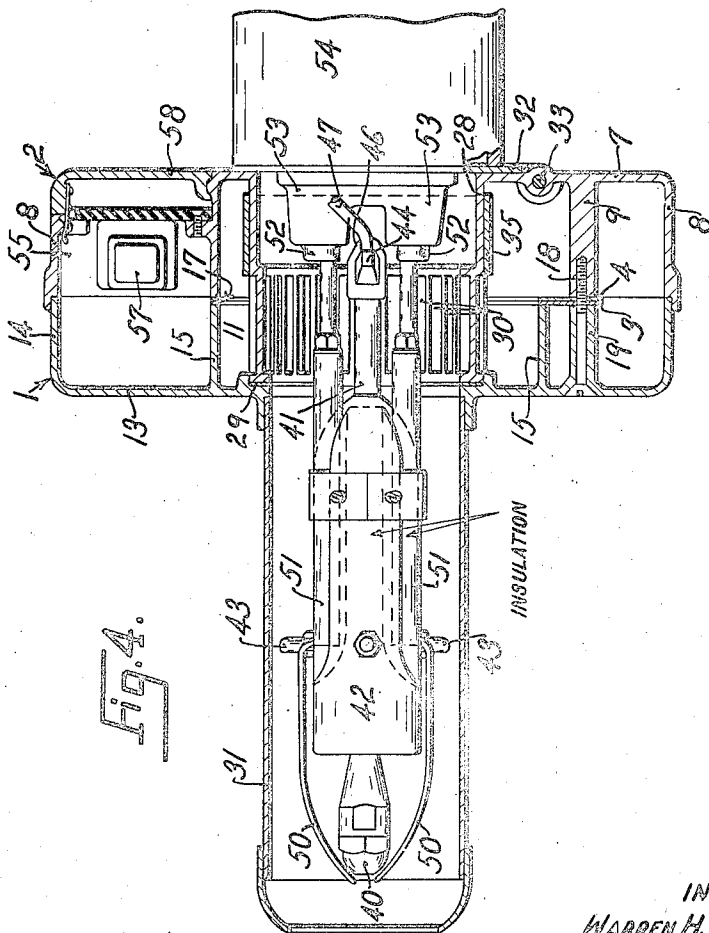
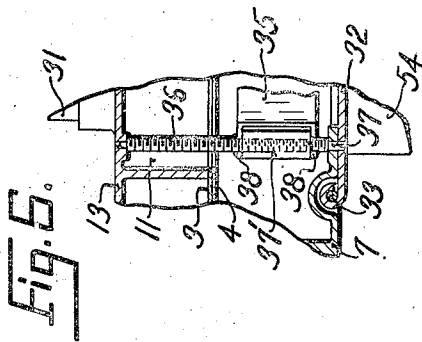
W. H. DE LANCEY

2,456,930

FAN HOUSING CONSTRUCTION

Original Filed Jan. 20, 1945

3 Sheets-Sheet 3



INVENTOR
WARREN H. DELANCEY
BY *Chapin & Neal*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,456,930

FAN HOUSING CONSTRUCTION

Warren H. De Lancey, Springfield, Mass., assignor
to Gilbert & Barker Manufacturing Company,
West Springfield, Mass., a corporation of
Massachusetts

Original application January 20, 1945, Serial No.
573,697. Divided and this application July 8,
1946, Serial No. 681,846

1 Claim. (Cl. 230—133)

1

This invention relates to improvements in oil burners and is a division of my copending United States patent application Serial No. 573,697, filed January 20, 1945.

The invention has for an object to provide in an oil burner an improved housing construction, which is made up of a plurality of sections and which has within it a scroll chamber for the air-supply fan, a plenum chamber encompassing the air tube and communicating therewith through an air director, and a passage interconnecting the fan and plenum chambers.

The invention will be disclosed with reference to the accompanying drawings, in which;

Fig. 1 is a sectional elevational view of an oil burner embodying the invention;

Fig. 2 is an end elevational view thereof;

Fig. 3 is a cross sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a sectional plan view taken on the line 4—4 of Fig. 3; and

Fig. 5 is a fragmentary sectional plan view taken on the line 5—5 of Fig. 2.

Referring to these drawings, a hollow frame (Fig. 1) is made up of two end members 1 and 2 and a pair of abutting intermediate sections 3 and 4, suitably held together. This frame is supported by a post 5, fixed as indicated in Fig. 1 to member 2, from a pedestal 6. From this frame all parts of the burner are supported.

This hollow frame forms a housing for some of the burner parts. The end member 2 has a flat wall 7, which forms the back wall of the housing, an outer marginal flange 8 (Fig. 3), and an inner flange 9. This inner flange provides a scroll chamber 10, a plenum chamber 11 and a connecting passage 12 between these chambers. The end member 1 has a flat wall 13, which forms the front wall of the housing, an outer marginal flange 14 and an inner flange 15. The intermediate section 3 consists of a thin metal plate and the intermediate section 4 consists of a sheet of sound deadening material of the same size and shape as the plate. These sections 3 and 4 form an end wall for the scroll chamber, which wall has an air inlet 16 to such chamber. The sections 3 and 4 also form an end wall for the passage 12. These intermediate sections (Figs. 3 and 4) have an opening 17 therethrough of about the cross sectional size and shape of the plenum chamber 11. The sections 3 and 4 are clamped between the flange 15 and that part of the flange 9, which bounds the plenum chamber, as shown in Figs. 1 and 4. The sections 3 and 4 are further clamped between the upper

2

portions of the outer marginal flanges 8 and 14, as shown in Fig. 1. The two end members 1 and 2 with the intervening parts 3 and 4 are held together by a plurality of screws 18, located as indicated in Fig. 3, and each passing through the front wall 13 and threading into the flange 9 of the back wall 2. These screws may also pass through hubs, such as 19, which project from the front wall 13, as shown in Fig. 4, and abut plates 3 and 4. The construction thus affords two mating half sections 1 and 2 with marginal flanges 8 and 14 which abut and form the top and side walls of the housing.

The back wall 7 of the housing (Fig. 1) has an opening 20 therein through which the air-supplying fan 21 may be inserted in the scroll chamber 10. This opening is closed by the mounting flange 22 of an electric motor 23 on the shaft 24 of which the fan 21 is fixed, such flange being fixed by screws 25 (Fig. 2) to wall 7. The front wall 13 (Fig. 1) has louvers 26 therein, which allow air to enter a chamber 27, between wall 13 and plate 3, and thence through opening 16 to the scroll chamber 10. Air is delivered by the fan 21 through passage 12 tangentially into the plenum chamber 11.

The back wall 7 has a tubular projection 28 (Figs. 1 and 4) which extends through the plenum chamber 11 and has its forward end engaging a gasket 29 and the latter engaging wall 13. Through the forward portion of the periphery of extension 28 are a plurality of slots 30, through which air from the plenum chamber 11 may be forced into the interior of extension 28, which forms the rear end of the air tube of the burner. A cylindrical metal tube 31 is fixed at one end to the front wall 13 and is in communication with, and in extension of, the member 28 and forms the forward part of the air tube. The rear end of the air tube is closed by a door 32 (Figs. 1 and 4) of thin plate, hinged at 33 (Figs. 2 and 4) to back wall 7 and held in closed position by screws 34 (Fig. 2).

A valve, in the form of a sleeve 35 (Figs. 1 and 4), is mounted on the rearward portion of the extension 28 for longitudinal sliding movement and is adapted to regulate the volume of air supplied through slots 30 to the air tube. This valve is movable by a screw 36, rotatably mounted at its ends as shown in Fig. 5 in the front and back walls 7 and 13, respectively, but held against axial movement as indicated. Screw 36 has a slotted outer end 37 (Figs. 2 and 5) which is accessible through a hole in door 32 and which is adapted to receive and be turned

3

by a screw driver. On screw 36 is a nut 37 which has a part engaged between two ears 38 on sleeve valve 35 and pivotally connected at 39 to such ears. By turning screw 36 the valve 35 may be moved longitudinally to carry the valve along tubular extension 28 to vary the air flow through slots 30.

Located in the air tube is an oil atomizing nozzle 40 fixed to the forward end of an oil supply pipe 41. Mounted on the front portion of pipe 41 is a member 42 of insulation having radial pins 43 to engage the peripheral wall of tube 31. The rear end of pipe 41 is centrally fixed to a two armed spider 44, which spans the rear end of the air tube and has each outer end received between a pair of ribs 45 (Fig. 3) formed on extension 28, whereby the spider is held from turning. The spider 44 has a central hollow tubular portion 46, which is closed at its rearward end and at its forward end receives the rear end of the oil pipe 41. A flexible copper tube 47, connected to the portion 46, extends out of the air tube through a recess 48 (Fig. 2) in rear wall 7 and connects with an oil pump which is mounted within the casing of motor 23. A union 49 is interposed in the tube 47.

Ignition electrodes are shown at 50, mounted in insulators 51, secured as indicated to the member 42. The rear ends of these electrodes engage spring-pressed buttons 52 mounted in insulators 53 on an ignition transformer 54, fixed to door 32. The buttons 52 are connected to the terminals of the secondary winding of the transformer.

The housing sections 1 and 2 may provide also a junction box 55 (Fig. 3), formed by flanges, such as 56 on wall 7, and similar and abutting flanges on wall 13. This junction box may contain a control unit 57. Access to the box is had by way of a suitable removable door plate 58 on rear wall 7.

It will be noted that the housing sections 1 and 2 are so designed that they may be cast. All that is necessary is to drill and tap a few holes in these sections. The intermediate plate 3, and the sound deadener part 4 if used, are cut from sheet stock and provided with punched holes for the retaining screws 18. The construction is therefore easy to make and the parts easy to assemble. The invention thus offers an improved multi-section

4

housing construction for an oil burner, providing the casing for the air-supply fan and the passages for conducting the air to and distributing the air in the air tube of the burner.

I claim:

A fan housing construction, made up of two castings, each having a flat wall with a marginal flange along its top and sides, means for securing said castings together with their marginal flanges abutting to form an enclosure of which the flat walls form the front and back walls and the abutting pairs of marginal flanges the top and side walls of the housing, the front wall having upper and lower openings therethrough respectively forming an inlet and an outlet for the fan, an annular flange integral with the front wall and extending toward the rear wall the same distance as the marginal flange on the front wall and surrounding said outlet opening, a second flange integral with the back wall and extending toward the front wall for the same distance as the marginal flange on the back wall, said second flange forming a scroll chamber for the fan and a plenum chamber below the scroll chamber together with a passage connecting said chambers, a thin sheet metal plate clamped between said castings and having one face abutting the second flange and the other face abutting said annular flange, said plate having upper and lower openings therethrough one for connecting said inlet opening to the scroll chamber and the other for connecting said plenum chamber to the space within said annular flange and to said outlet opening, and a tubular air director located within the plenum chamber and said space and extending in coaxial relation with the outlet opening from the front wall to the back wall with its ends engaged one with the front wall and one with the back wall.

WARREN H. DE LANCEY.

REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,177,028	Fischer	Mar. 28, 1916
2,405,196	Elliot et al.	Aug. 6, 1946