United States Patent

Sheppard

[15] **3,643,584**

[45] **Feb. 22, 1972**

[54] READILY ASSEMBLED VENTILATOR HOUSING

[72] Inventor: **Albert S. Sheppard,** Granada Hills, Calif.

[73] Assignee: **The Exitaire Company,** Pacoima, Calif.

[22] Filed: **June 8, 1970**

[21] Appl. No.: **44,278**

[52] **U.S. Cl.**.....**98/121,** 98/122, 98/29

[51] **Int. Cl.**.....**F24f 13/08**

[58] **Field of Search**.....98/29, 121 R, 122, 121 A, 46

[56] **References Cited**

UNITED STATES PATENTS

2,566,156	8/1951	Apolonio	98/121
2,737,876	3/1956	Smith	98/42
3,021,778	2/1962	Slatkovski	98/121
3,120,036	2/1964	Minds	98/121 R
3,216,161	11/1965	Forsmorr	98/46
3,426,667	2/1969	Johnson	98/121

Primary Examiner—William J. Wye

Attorney—Whann & McManigal

[57] **ABSTRACT**

A housing formed of louvered panels having similar angularly disposed end plates for abutting relation at the corners to act as posts and to receive securing means for fastening the panels together and a top plate secured by clips to the panels.

13 Claims, 10 Drawing Figures

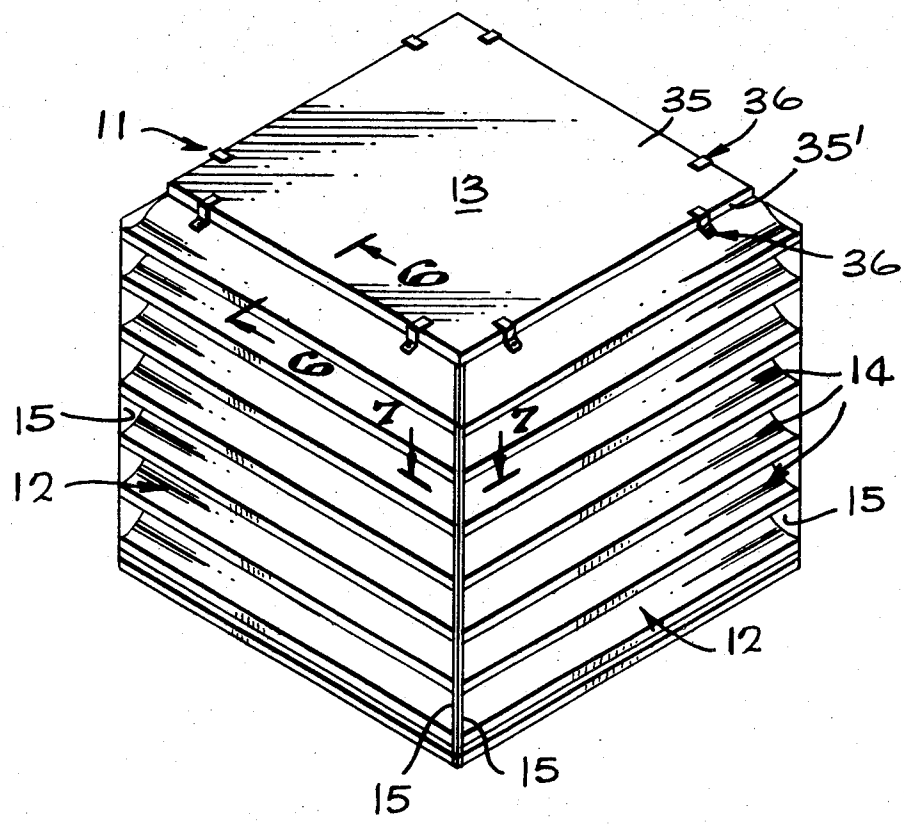
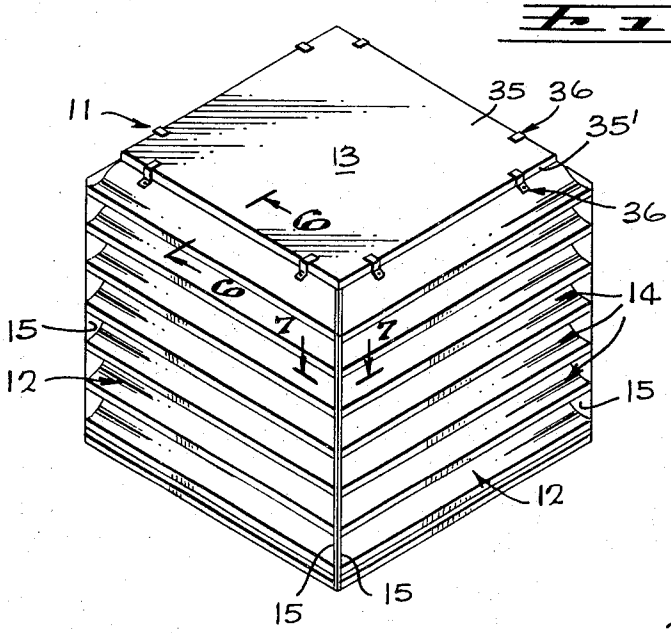


Fig. 1



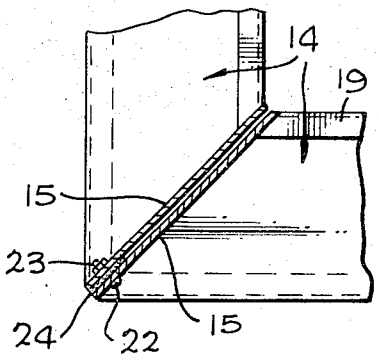
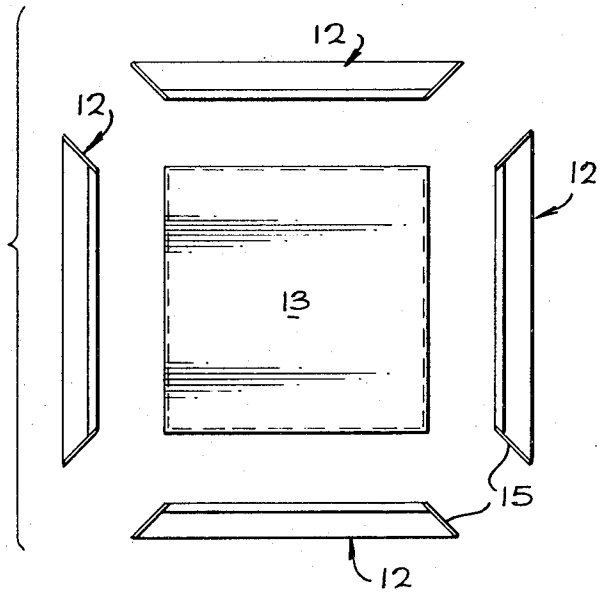


Fig. 7

Fig. 2



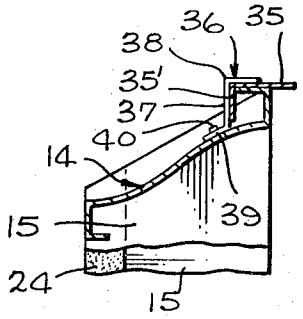


Fig. 6

ALBERT S. SHEPPARD
INVENTOR.

BY William R. Shahan
ATTORNEY

Fig. 3

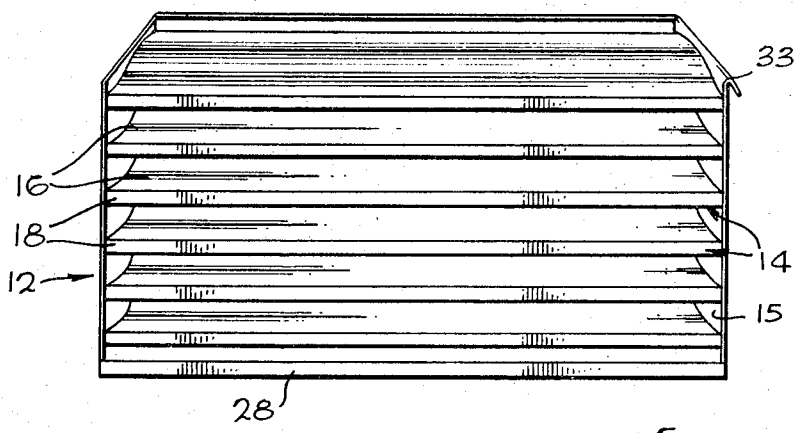


Fig. 4

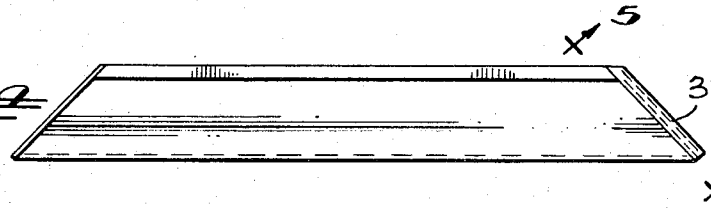


Fig. 9

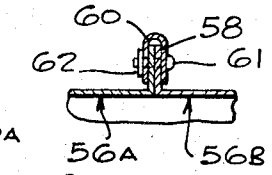


Fig. 5

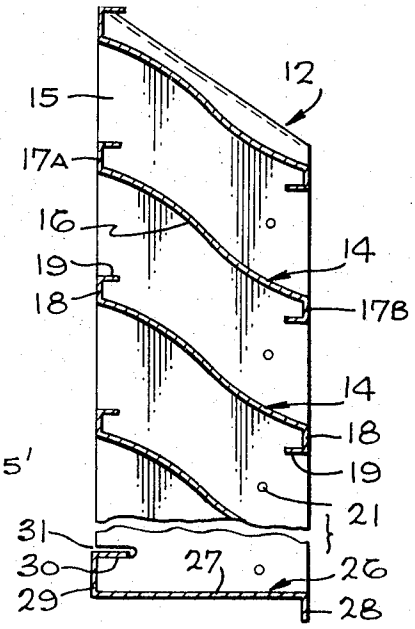
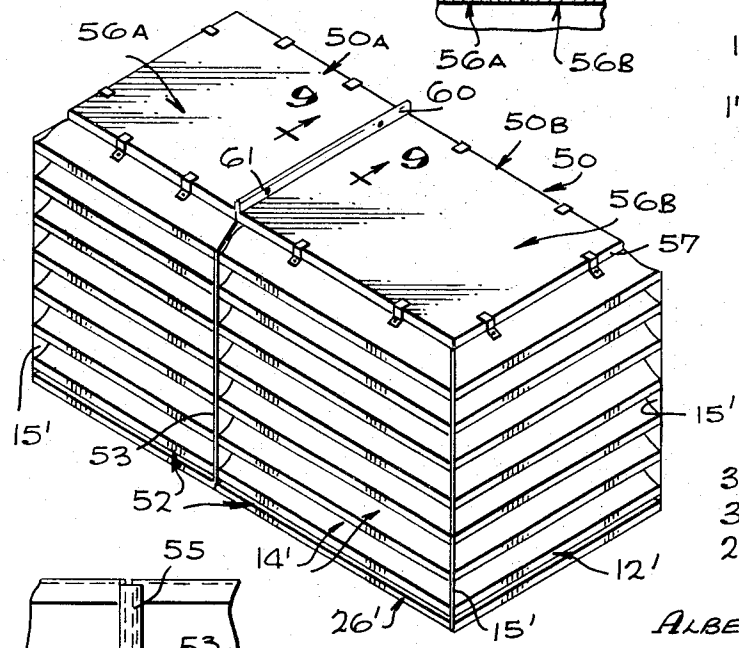


Fig. 8



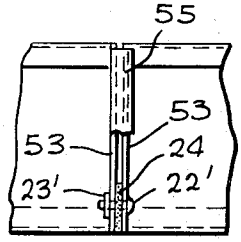


Fig. 10

INVENTOR.
ALBERT S. SHEPPARD
BY
William R. Graham
ATTORNEY

READILY ASSEMBLED VENTILATOR HOUSING

This invention has to do generally with the manufacture of louvered rectangular or polygonal housings such as are commonly used to enclose large ventilation openings in the roofs of buildings to shelter any ventilating equipment mounted therein and insure against entrance of weather, rain, birds, leaves and the like while permitting the flow of air in the direction intended.

It has long been common practice to completely build and assemble such louvered housings at the factory and to ship them ready for installation since they are difficult and costly to assemble away from the factory. Because of the size of the completed structures, this is a costly method since the assembled devices take up an inordinate amount of space at the factory and during transport. Also it is usual practice to build such structures with posts at the corners between which horizontal louvers extend. This construction is relatively costly to manufacture and results in an impairment of the airflow due to the space taken up by the posts at the corners of the housings and imposes design limitations with respect to appearance.

Therefore it is an object of the present invention to provide a novel and improved ventilator housing which overcomes the disadvantages of conventional structures hereinabove pointed out.

More particularly, it is an object to provide a novel ventilator structure which is so designed and constructed that it can be shipped disassembled, or knocked down, and which can be readily assembled at the installation site without special tools or equipment.

It is a further object of the invention to provide a novel ventilator housing made up of louvered panels so constructed that they can be secured together at the corners without posts or other additional structural members, apart from screws, bolts or the like, and so constructed that maximum space is left at the corners for the flow of air. It is a further object to provide a construction wherein the top or cover portion is mounted by means of clips which can be secured at various points on the panels where convenient.

In summary, it is an object to provide a ventilator housing provided with louvered panels extending between angularly disposed end plates designed to match so that when the panels are assembled and secured together the panels are disposed to form the desired polygonal form and including a top which is secured by screw-fastened clips.

These and other objects will be apparent from the drawings and the following description. Referring to the drawings:

FIG. 1 is an isometric view of a housing embodying the invention;

FIG. 2 is an exploded plan view of the housing of FIG. 1;

FIG. 3 is an elevational view of one of the panels of the housing;

FIG. 4 is a plan view of the panel of FIG. 3;

FIG. 5 is a sectional elevational view on line 5—5 of FIG. 4;

FIG. 6 is a fragmentary sectional view on line 6—6 of FIG. 1;

FIG. 7 is a fragmentary sectional view on line 7—7 of FIG. 1;

FIG, 8 is an isometric view of a modified housing;

FIG. 9 is a sectional view on line 9—9 of FIG. 8; and

FIG. 10 is a fragmentary plan view of the joined ends of two side panels of the housing of FIG. 8, partly broken away.

More particularly describing the invention, in FIG. 1 I show a ventilator housing 11 which is comprised of four louvered panels 12 and a top or cover 13. In the particular form of the invention illustrated in FIGS. 1 to 7, the housing is made up of four identical panels 12. Each panel comprises a plurality of parallel horizontally disposed, vertically spaced louvers 14 extending between corner or end plates 15. The louvers are preferably welded or otherwise securely fixed to the plates. By way of example, each louver includes a main portion 16 which is S-shaped in cross section and two marginal channel sections 17A and 17B, the channels being on opposite sides of the main portion. Each channel is formed by a portion of the main body, by a vertical wall section 18 and by a terminal straight section 19 which returns upon the main portion.

For a rectangular housing, the end plates or corner plates are each disposed in converging planes which are disposed at 45° to the plane of a side of the panel, or to the general plane of the panel.

Each end plate is formed with a series of holes 21, identically located with respect to the holes of other plates, so that when the panels are assembled, the holes of one plate register with those of the adjacent plate and the individual panels can be secured together by suitable fasteners extending through such holes, as, for example, bolts 22 and nuts or bolt clips 23 thereon. Preferably also a weatherstrip 24, which may be polyurethane foam or other suitable sealing material, is provided between the adjacent end plates, as best shown in FIG. 7, to prevent entrance of water.

Each panel is also provided with a baseplate, designated 26, which includes a flat main section 27, a downturned forward marginal flange 28, and an upturned inner flange 29 that terminates in a forwardly extending terminal edge portion 30 that is received in a slot 31 provided in the rear edge of each of the end plates. The baseplate is welded or otherwise rigidly secured to the end plates. The baseplate can be omitted in some installations, or other styles used.

It will be noted that the upper ends of the end plates are formed at an angle so that they slope downwardly and outwardly. One of the two end plates of each panel is formed with a flange 33 that is bent over the upper edge of the end plate of the next adjacent panel when the parts are assembled to cover the joint against entrance of water or snow.

The top or cover 13 comprises a relatively flat main body 35 provided with a depending flange 35' at each edge. The cover is secured in place by brackets 36 of sheet metal or other material, each comprising a strap having a flat center section 37, an upper section 38 normal thereto, and a toe section 39, extending angularly forward with reference to the center section. Sheet metal screws 40 serve to secure the parts. Much latitude can be taken as to the location of the brackets 36 for securing the top, thereby eliminating any prefitting of the top and making for ease of assembly at the site. The straps are designed and located so that the top cannot move from its position relative to the louvers and the panels are thus pulled up against the top.

It may be noted that, in addition to the ease of assembly of the panels and top, which makes possible shipment of the housing to the job site disassembled, the construction of the end plates and the attachment of the top makes for an unusually rigid structure.

Referring now to FIGS. 8–10, I show a modification wherein an elongated rectangular ventilator housing 50 is shown comprised of two sections, designated 50A and 50B, respectively. These sections each have one end panel 12' which is the same as any of the panels 12 of the housing 11. In addition, each section has a side panel 52 with an angularly disposed end plate or corner plate 15' at one end and a similar end plate 53 at the other which is disposed normal to the general plane of the panel. Louvers 14' and a baseplate 26' extend between end plate 15' and end plate 53. One end plate 53 of each of the two end-abutted panels is formed with a flange 55 at the top which is bent over the upper edge of the adjacent end plate. The two plates are secured together by bolts 22' and nuts or bolt clips 23', the end plates being provided with registering holes for receiving the bolts, and a seal or weatherstrip 24 completes the joint.

In this case the top may be made of two sections, designated 56A and 56B. These have a downturned flange 57 at three margins as in the top previously described. At the fourth margin, each top section has an upturned flange 58 and this is secured to its neighbor by a rain-guard strip 60 in the form of an inverted U-shaped channel member. Bolts 61 extend through the parts and are secured by nuts or bolt clips 62.

It will be apparent that where a relatively long housing is to be built, one or more additional filler panels having end plates

square (normal to the longitudinal plane) of the panels can be used between those shown and the top made of several sections, with the intermediate sections having an upturned flange at each end. Also, if it is desired to make a three-sided, five-sided or other polygonal-shaped housing, the angles of the corner or end plates would be such as to bisect the angle of two panels when they are joined.

I claim:

1. A rectangular ventilator housing structure adapted for shipment to the installation site in disassembled condition and adapted for ease of assembly at the installation site, comprising a plurality of louvered panels, each panel having a pair of upright end plates and having a plurality of louvers extending therebetween and attached thereto, said end plates each being disposed in a plane at an angle of 45° to the general plane of the panel, said end plates being oppositely disposed whereby planes passing through the same form a 90° angle, and fastening members securing the end plates of one panel to the adjacent end plates of the next adjacent panel.

2. The ventilator housing set forth in claim 1 in which said end plates are provided with a series of identically located holes, and in which said fastening means includes members extending through holes of adjacent end plates.

3. The ventilator housing set forth in claim 1 in which a cover having depending marginal flanges is secured to and supported upon the upper edges of the uppermost louvers and the upper ends of said end plates and is secured to said uppermost louvers.

4. A panel adapted to be assembled end to end with other similar panels to form a polygonal housing wherein at least certain pairs of such panels form angles of a polygon, comprising a pair of upright end plates, a plurality of parallel, spaced louvers extending between said end plates and fixedly secured thereto, and a baseplate secured to and extending between said end plates beneath said louvers, the end plate at each end of the panel being disposed in a plane extending in a direction such that it forms an angle with respect to the general plane of the panel equal to one-half the angle formed by the panel with the next adjacent panel.

5. The panel set forth in claim 4 in which at least one end plate of said panel is in a plane extending at an angle of 45° to the general plane of the panel.

6. A panel adapted to be assembled end to end with other similar panels to form a polygonal housing wherein at least certain pairs of such panels form angles of a polygon, comprising a pair of upright end plates each having a slot in its rear edge adjacent but above its lower edge, a plurality of parallel, spaced louvers extending between said end plates and fixedly secured thereto, and a baseplate secured to and extending between said end plates beneath said louvers, said baseplate having an upwardly extending wall at its rear edge portion having a forwardly projecting flange thereon adapted to be received in the slots of said end plate, the end plate at each end of the panel being disposed in a plane extending in a direction such that it forms an angle with respect to the general plane of the panel equal to one-half the angle formed by the panel with the next adjacent panel.

7. A polygonal ventilator housing structure adapted for shipment to the installation site in disassembled condition and adapted for ease of assembly at the installation site, there being required no separate vertical structural support elements, comprising:

a. a plurality of side panels each comprising a pair of end plates with a plurality of parallel spaced louvers extending therebetween and fixed thereto, said end plates being adapted to directly abut with the end plates of the next adjacent panels and being disposed relative to the general planes of their respective panels at an angle equal to one-half the angle formed by the general planes of the abutting adjacent panels, and

b. fastening means securing the end plate of one panel directly to the abutting end plate of the next adjacent panel.

8. The ventilator housing set forth in claim 6 in which a cover having depending marginal flanges is supported on the upper edges of the uppermost louver of each panel and the upper ends of said end plates, and in which means is provided for securing said cover to said side panels.

9. The ventilator housing set forth in claim 7 in which the means provided for securing said cover to said side panels comprises a plurality of straps secured to the margins of said cover and secured to the uppermost louvers of said panels.

10. The ventilator housing set forth in claim 7 in which each side panel has a baseplate affixed to and extending between said end plates.

11. The ventilator housing set forth in claim 6 in which the upper marginal end portion of one of each pair of end plates at each corner has a flange overlying the upper edge of the other end plate of the pair.

12. The ventilator housing set forth in claim 6 including a baseplate secured to and extending between said end plates beneath said louvers.

13. The ventilator housing set forth in claim 11 in which each of said end plates is provided with a slot in its rear edge adjacent but above its lower edge, and in which said baseplate has an upwardly extending wall at its rear edge portion having a forwardly projecting flange thereon received in the slots of said end plates.

* * * * *