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VENTILATING HOOD WITH DETACHABLE BONNET

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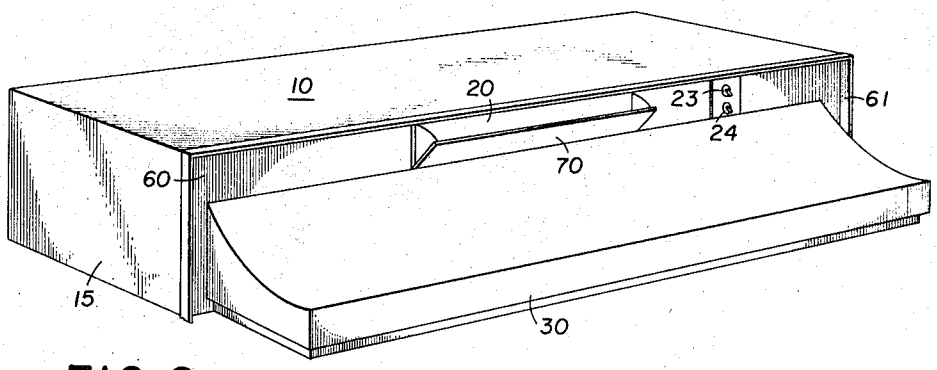


FIG. 2

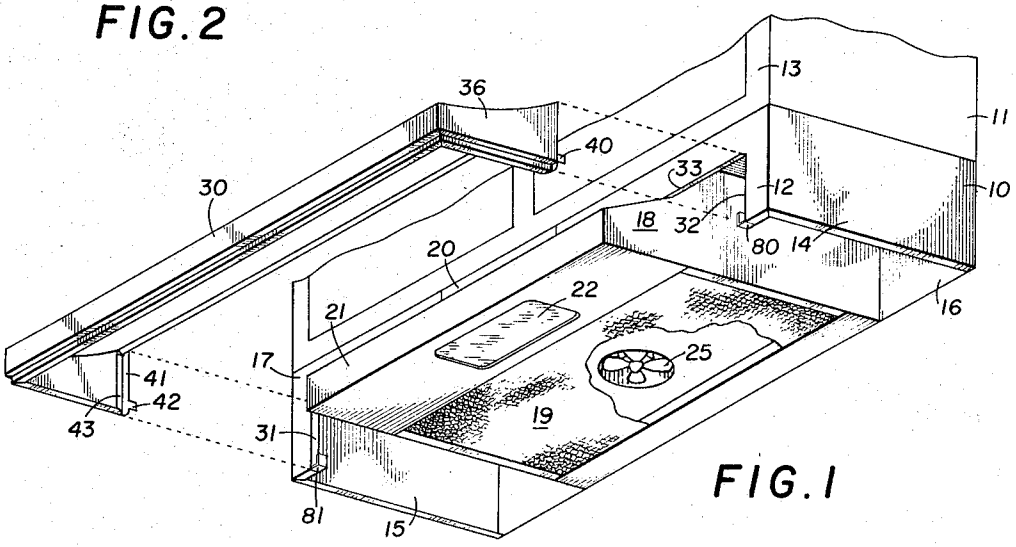


FIG. 1

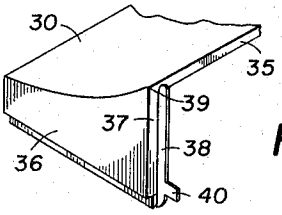


FIG. 3

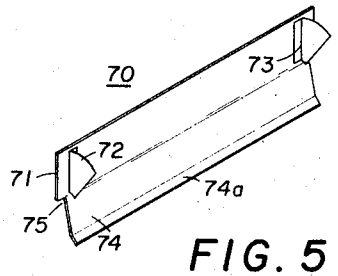


FIG. 5

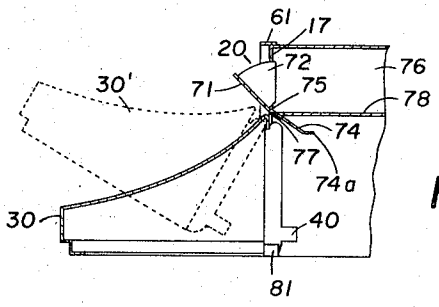


FIG. 4

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VENTILATING HOOD WITH DETACHABLE BONNET

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ABSTRACT OF THE DISCLOSURE

A ventilating hood including an enclosure having top, end, and back panels of substantially continuous form, and a front panel having the bottom central section thereof removed. A bonnet having a length equal to the central section of the front panel is connected thereto. A suction fan mounted in the enclosure facilitates the movement of gases from the ventilating hood.

This invention relates to ventilating hoods as employed in kitchens, as over cooking areas, and more particularly, to a system in which a basic unit is provided with a detachable bonnet permitting coordination of decorative schemes.

Vented kitchen hoods of the type illustrated in U.S. Patent No. 3,064,551, or ductless hoods of the type disclosed in U.S. Patent No. 2,886,124, are widely used to control fumes produced in food preparation areas. Generally, a fan unit is mounted to draw fumes from a working area into the hood and propel the fumes to atmosphere through an exhaust duct or through a suitable filter of, for example, charcoal. The filtered air stream is then delivered into the room from which it was withdrawn.

In satisfying the wide variety of demands made by designers, decorators, housewives and the like, the manufacturer of such hoods has been called upon to provide an inventory which is extremely burdensome.

The present invention is directed to the provision of a universal hood unit with a detachable bonnet such that the manufacturer may stock a single basic unit involving the exhaust and filter mechanisms. A wide inventory of items of deverse shape, color and finish is thus required only for the bonnet. The bonnet can thus be a relatively small fraction of the total construction minimizing the construction costs while providing a versatile decorative unit.

Thus, in accordance with the invention, a ventilating hood is provided in which an enclosure has top, end, and back panels of substantially continuous form. A front panel has the bottom central section thereof removed. A forwardly directed lip extends the length of the bottom margin of the central section. A bonnet is provided having a length equal to the central section with a rearwardly directed column connected along its length to the back edges of the bonnet except for a protruding top column portion. The bonnet has a downwardly extending lip along the top rear margin thereof for resting on the forwardly directed lip of the enclosure when the top column portion is inserted inside the enclosure. Means, preferably integral with the column, are provided for locking

the lower ends of the columns to adjacent portions of the front panel.

For a more complete understanding of the present invention and for further objects and advantages thereof, reference may now be had to the following description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is an isometric view from below an installation embodying the present invention;

FIGURE 2 is a top isometric view of a ductless hood embodying the invention of FIGURE 1;

FIGURE 3 is an isometric view of a rear corner of a typical bonnet;

FIGURE 4 illustrates the installation of a bonnet; and

FIGURE 5 is a rear isometric view of a flapper valve of FIGURE 2.

Referring now to FIGURE 1, an exhaust hood **10** is mounted beneath a cabinet **11**. The front surface **12** of the hood **10** is flush with the front surface **13** of the cabinet **11**. The hood **10** is provided with end walls **14** and **15** and a rear wall **16**, which are substantially continuous. The center section of the front wall **17** is cut away in the lower portion to accommodate a forwardly projecting section of a filter unit **18**. The filter unit is substantially shorter in length than the hood **10** and includes a screen-filter unit **19**, and a suction fan **25** connected by way of a duct (not shown) which leads to an outlet **20**. The filter unit **18** has a forwardly projecting canopy **21** in which a suitable source of illumination **22** is housed. Switches **23** and **24**, FIGURE 2, are employed for selectively energizing the suction fan and the source **22**, respectively.

The unit thus far described is a universal unit which may be fabricated and finished without substantial alteration, and thus may be stocked as a single item without regard to the ultimate finish and trim to be employed with the unit. A basic color may be adopted for the end walls **14** and **15** and the front wall **17**. The finish on the unit **18** may be utilitarian or as decorative as a given production operation may require.

A detachable bonnet **30** provides for ready matching of the installation to any decorative scheme. The bonnet length corresponds roughly with the length of the cut away section of the front wall **17**. It will be noted that the bottom edges of the end walls **14** and **15** and the bottom edges of the front wall **17** are broken inward to form a rigid margin. Similarly, the edge **31** of the cut away section is bent inward to form an inwardly depending lip. The edge **32** similarly is formed. A forwardly extending lip **33** is formed along the lower margin of the cut away section of face panel **17**.

As best shown in FIGURE 3, the rear surface of the bonnet **30** has a downwardly extending lip **35** extending the length of the top margin. The lip **35** rests upon the lip **33**. On the end **36** of the bonnet, an inwardly directed flange **37** is provided with a rearwardly extending column **38**. The column **38** is integral with the flange **37**, preferably from the bottom to the point **39**. Above point **39**, the column **38** is of semicircular configuration. A rearwardly extending tab **40** is formed on the column **38** near the bottom thereof.

At the other end of the bonnet **30**, a column **41**, having a lip **42** and a semicircular upper end, is formed integral-

ly with the in-turned flange 43. With the structure thus formed, the bonnet 30 may be installed by merely inserting the upper end of columns 38 and 41 through the cut away section of the front panel 17 with the bonnet tilted upwardly as shown by the dotted outline 30' of FIGURE 4. In this position, the lower edge of the lip 35 rests on the lip 33. The front edge of bonnet 30 may then be dropped to the position shown in FIGURE 4, whereupon the circular upper ends of the columns 38 and 41 lock the upper end of the bonnet firmly against the front face 17. The tab 40 may then be bent around the rearwardly extending flange 32 and the tab 42 will be bent around the flange 31, thus completing the installation.

The bonnet 30 may be given any desired configuration and finish, subject only to the limitation that the rear surface must have the configuration to match the locking features above described incorporated in the exhaust unit 10.

A decorative panel 60, shown in FIGURE 2, may be mounted on the front face of the exhaust unit 10. The panel 60 has an inner portion cut away to correspond with the cut away of panel 17. The panel 60, as illustrated, has a rim 61 which extends along the sides and the upper edge of the panel 17. With the panel 60 thus in place, the bonnet may be mounted as above described, locking the panel 60 onto the front face of the unit 10.

In a ductless installation, the exhaust fan in the unit 18 delivers air to the outlet 20. As illustrated in FIGURE 2, the outlet 20 is provided with a damper closure 70. As best shown in FIGURES 4 and 5, the damper closure 70 comprises an outer panel 71 which is a rectangular panel of size such that it will cover the outlet 20. A pair of stops 72 and 73 are mounted on the rear surface of the panel 71. A counterweight panel 74 is formed integrally with panel 71, being offset along line 75 to a plane parallel with the front panel. The output duct 76 leading to the port 20 directs air onto the rear face of the front panel 71, rotating it as it rests on the edge 77 of the outlet opening in the panel 17. Thus, a ductless hood may be provided in which the exhaust vent is open only when air is moving through the system. When the unit is de-energized, the counterweight panel 74 rotates the closure panel 71 into a plane parallel to and flush against the front of the panel 17.

The panel 78, forming the bottom of duct 76, has a forward end terminating close to the back surface of panel 17. This serves as a stop for the damper 70, permitting it to rotate to the position illustrated in FIGURE 4 but not substantially further. The portion 74*a* of the damper 70 adds to the weight below the pivot axis, serving as a counterweight to maintain the damper normally closed. The portion 74*a* is bent inwardly so that the damper panel 71 will normally be parallel to the front panel 17.

As seen in FIGURE 1, a pair of upfacing hooks 80 and 81 extend inwardly adjacent the edges 31 and 32 to receive and support the lower ends of columns 38 and 41, respectively. This serves to relieve undue stress on the upper corner welds, such as at the juncture between the top of the bonnet and the end panel 36, FIGURE 3, for example. As the bonnet is rotated into position, as illustrated in FIGURE 4, the lower end of the column 38 slides into the slot formed by the hook 81 and the flange 31.

The hood 10 may be vented in the usual manner, in which case the damper 70 would not be required and the front panel would not have the outlet 20.

It will be recognized that the use of the columns 38 and 41 and tabs 40 and 42 is a convenient, simple, and yet positive latch for the bonnet. Other latching arrangements may be employed that do not involve the column. For example, the tabs 40 and 42 may be removed. A sheet metal screw through the lower end of column 41 and the flange 31, for example, will lock the bonnet in place. The rounded upper ends of the column lock the upper margin of the bonnet, but a hook may be formed from the bonnet flange. Other interlocking structure may be employed. However, the arrangement shown in the drawings is preferred because of its simplicity and reliability.

It will be recognized that hood 10 will accommodate a variety of fan units. The fan unit 18 has a forward end protruding through the cut away section. Protruding fan units of this type may be employed, as well as rectangular units that fit entirely inside the hood 10. In either case, the bonnet of appropriate finish will be applied to the face of the unit in completion thereof.

Having described the invention in connection with certain specific embodiments thereof, it is to be understood that further modifications may now suggest themselves to those skilled in the art and it is intended to cover such modifications as fall within the scope of the appended claims.

What is claimed is:

1. In a ventilating hood installation, the combination which comprises:
   (a) an enclosure having top, end, and back panels which are substantially continuous and a front panel, the bottom central section of which is cut away with a forwardly directed lip extending the length of the top of the cut away section and bent in flanges along the side margins of the cut away section,
   (b) a bonnet having a length substantially equal to the length of the cut away section with in-turned flanges along the upper rear margin and the rear side margins and a rearwardly directed column connected along the length of the inner edge of the side flanges including a protruding top column portion, the downwardly extending flange along the top rear margin resting on said forwardly directed lip, the protruding top column engaging the front panel and the rear side margins and rearwardly directed columns mating with the front panel and the bent in flanges, respectively, and
   (c) means for locking the lower end of said columns to the adjacent portions of said front panel.

2. The combination set forth in claim 1 in which the locking means comprises rearwardly extending tabs on the lower end of each column, which tabs are bent outwardly to engage the front panel.

3. The combination set forth in claim 1 in which a fan unit is mounted in said enclosure with a forwardly projecting portion extending through said front panel under said bonnet.

4. The combination set forth in claim 1 in which a fan unit is mounted in said enclosure with an air inlet occupied by a filter element and an air outlet duct leading through the center top portion of said front panel to circulate air through said hood.

5. A ventilating hood installation which comprises:
   (a) an enclosure having top, end, and back panels which are substantially continuous and a front panel, the bottom central section of which is cut away with a forwardly directed lip extending the length of the top of the cut away section,
   (b) a bonnet having a length substantially equal to the length of said cut away section with in-turned flanges along the upper rear margin and the rear side margins of said bonnet,
   (c) means for securing said bonnet to said front panel with the flange on the upper margin of said bonnet resting on said lip,
   (d) a fan unit mounted in said enclosure with an air inlet occupied by a filter element,
   (e) an air outlet duct leading through the center top portion of said front panel, and
   (f) closure member means mounted in said outlet and comprising a flat sheet having a central offset and wider across the upper portion than the width of said outlet and narrower on the lower portion than the width of said outlet for automatic opening and closing of said outlet in response to initiation and termination of air flow through said fan unit.

6. The combination set forth in claim 5 in which said closure member is longer below said offset than above said offset.

7. The combination set forth in claim 5 in which said closure member has an upper portion of length equal to the height of said outlet duct and a lower portion substantially longer than the upper portion with a lower segment of said lower portion bent inwardly of said hood and away from said front panel to effectively move the center of gravity of said lower portion away from said front panel for positive closure of said outlet duct.

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