

[54] **EXHAUST HOOD**

[75] Inventors: **Arnold S. Kaufman**, Studio City;
Albert Sweet, Northridge, both of
Calif.

[73] Assignee: **Elsters, Inc.**, Hollywood, Calif.

[22] Filed: **Jan. 16, 1974**

[21] Appl. No.: **433,727**

[52] U.S. Cl. **98/115 K; 55/DIG. 36**

[51] Int. Cl. **F23j 11/00**

[58] Field of Search **98/115 K, 115 LH, 36;**
55/DIG. 36, DIG. 29, DIG. 18, 383, 385,
418; 126/299

[56]

References Cited

UNITED STATES PATENTS

3,322,111	5/1967	Simpson et al.	98/115 K
3,411,428	11/1968	Ahlrich	98/115 K
3,457,850	7/1969	Sweet et al.	98/115 K

3,695,164 10/1972 Stalker 98/115 K

Primary Examiner—Charles J. Myhre

Assistant Examiner—Paul Devinsky

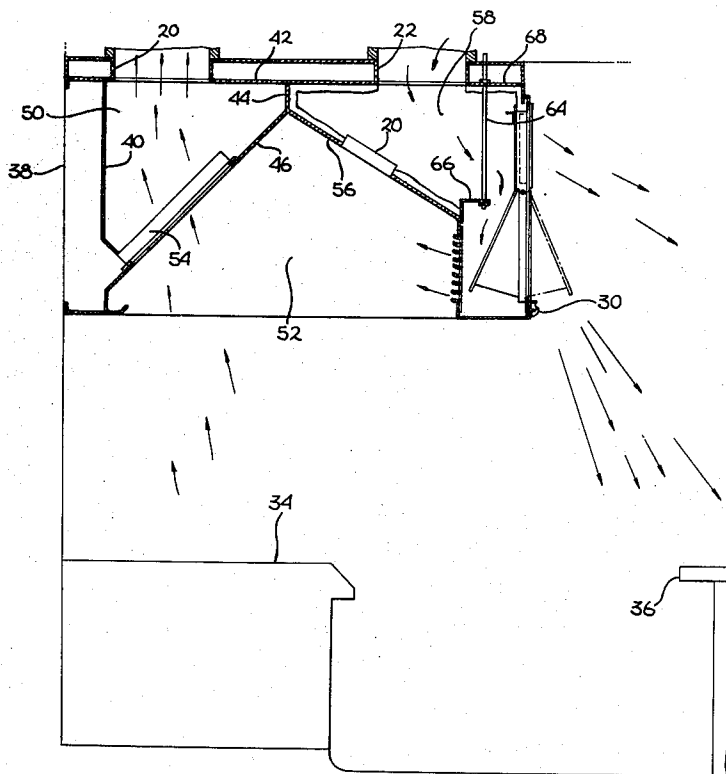
Attorney, Agent, or Firm—Spensley, Horn & Lubitz

[57]

ABSTRACT

An improved exhaust hood of the type designed for disposure over a cooking surface and for connection to a ventilation system for removing smoke, vapors, and cooking odors, and for providing fresh air to the same work area. The improved Exhaust Hood includes a ventilation door on the front thereof disposed in co-operation with the source of "temperature controlled" fresh air so as to direct the air toward the cooking surface when in one position and to direct air both outward and downward in front of the exhaust hood when in a second position to provide "temperature controlled" air at adjacent work stations.

4 Claims, 7 Drawing Figures



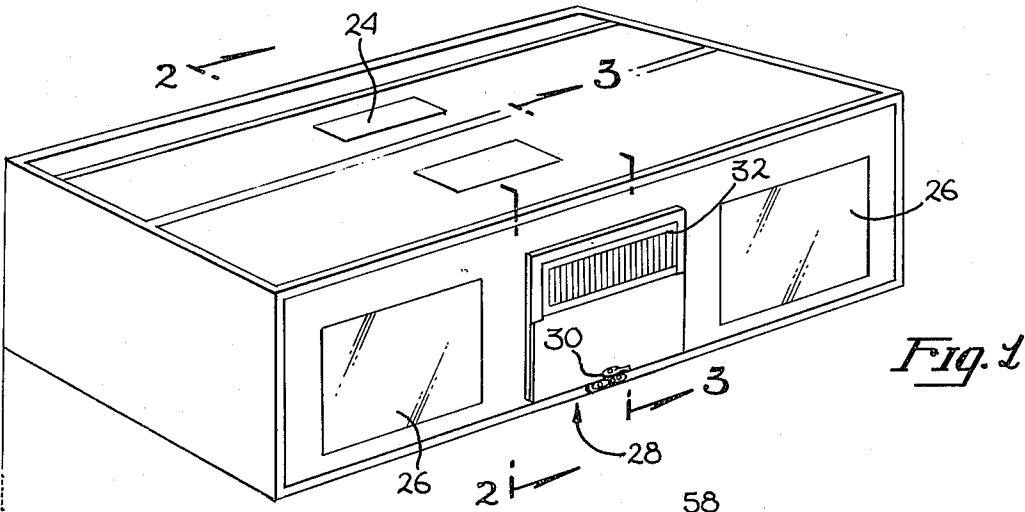


Fig. 1

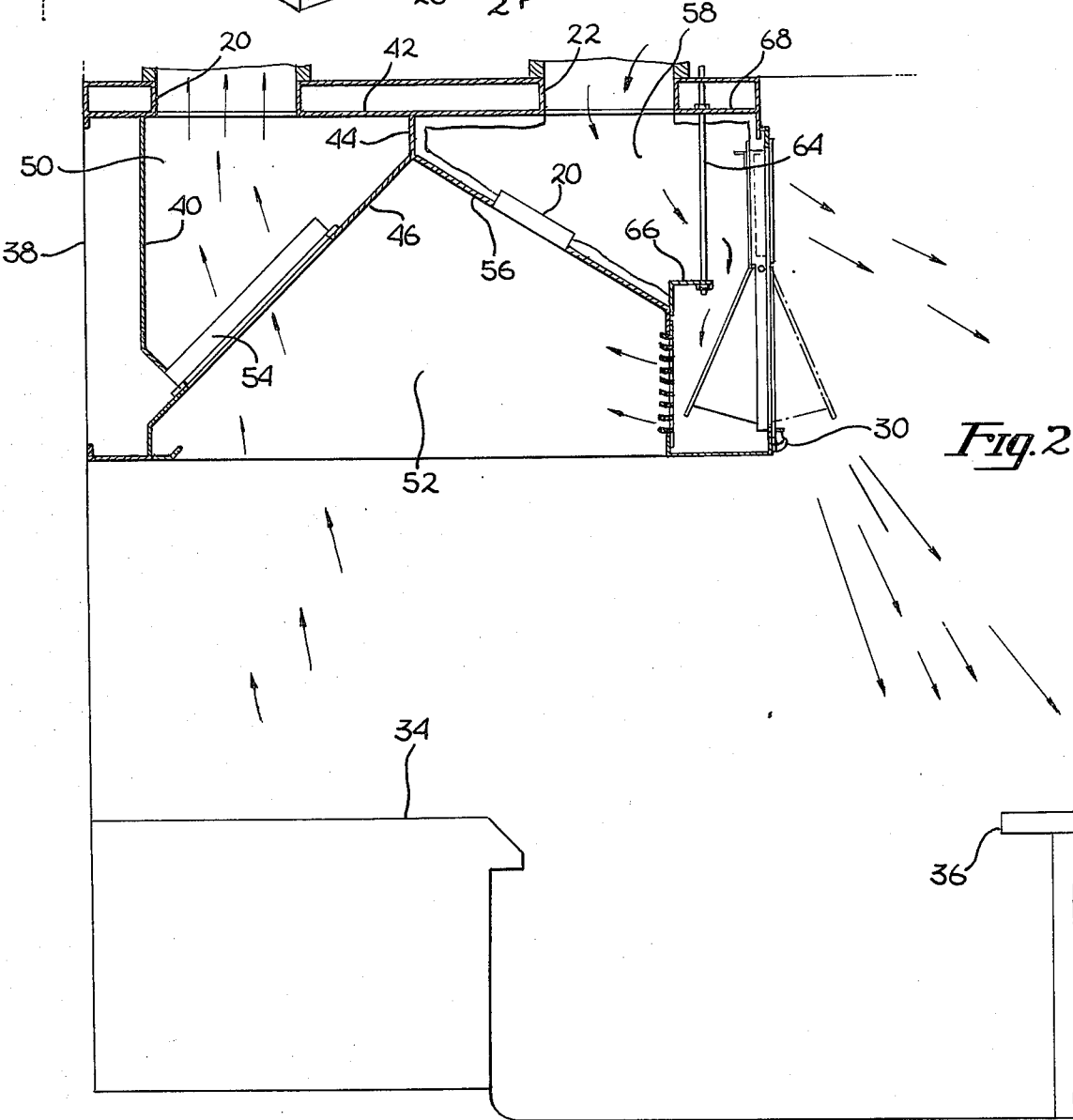
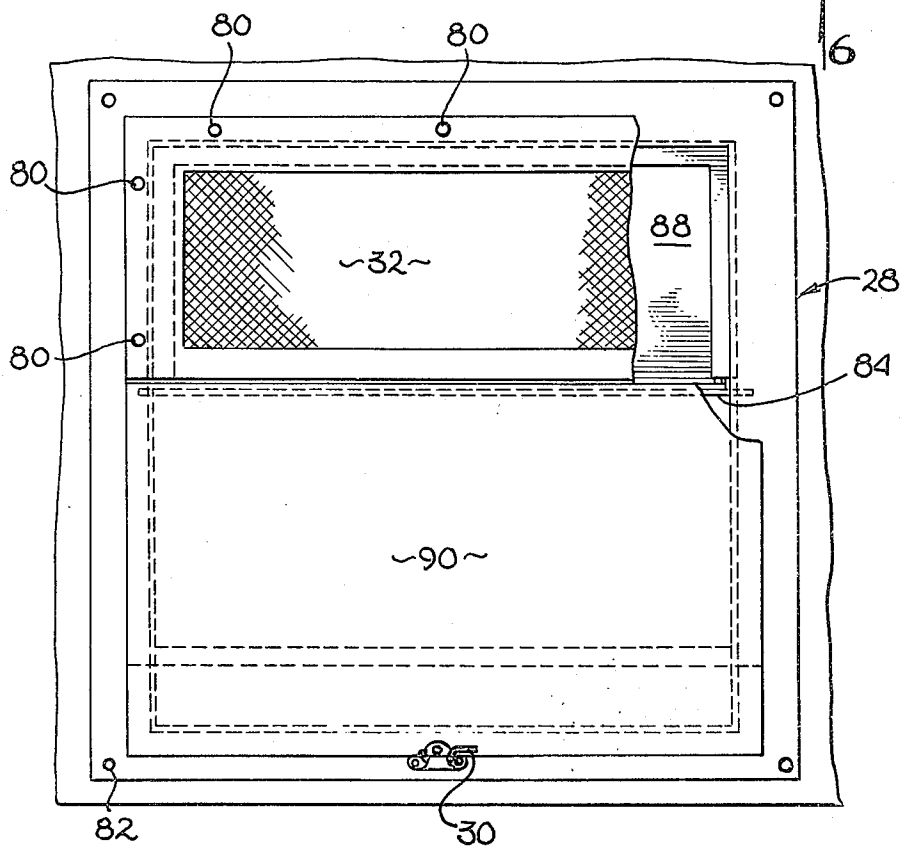
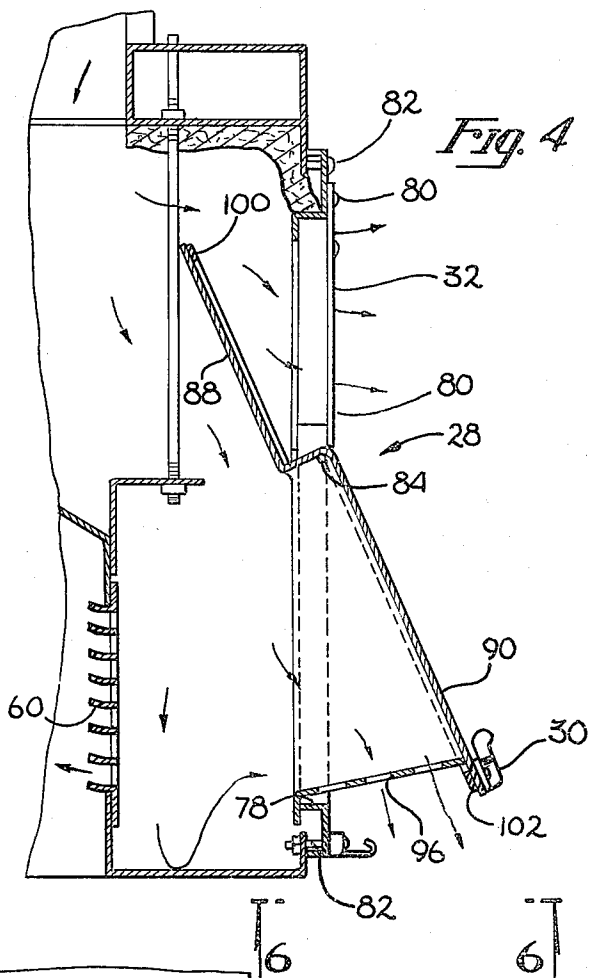
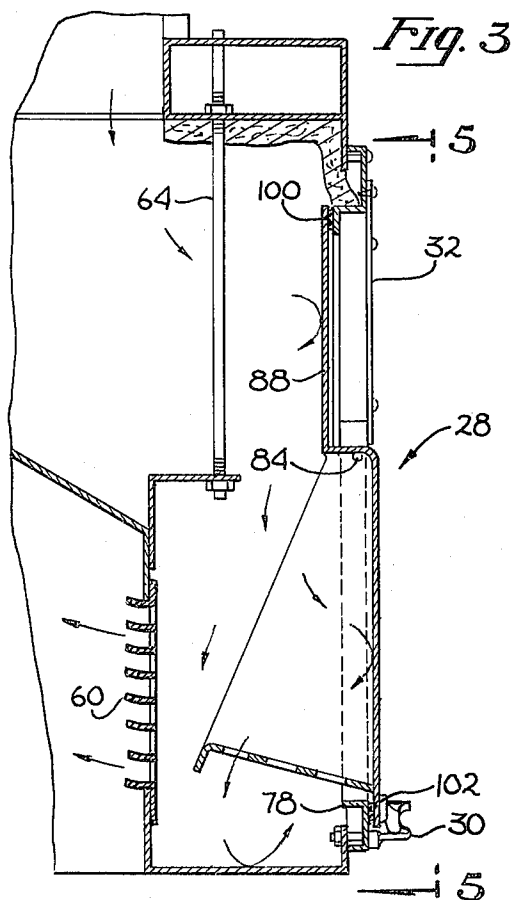


Fig. 2



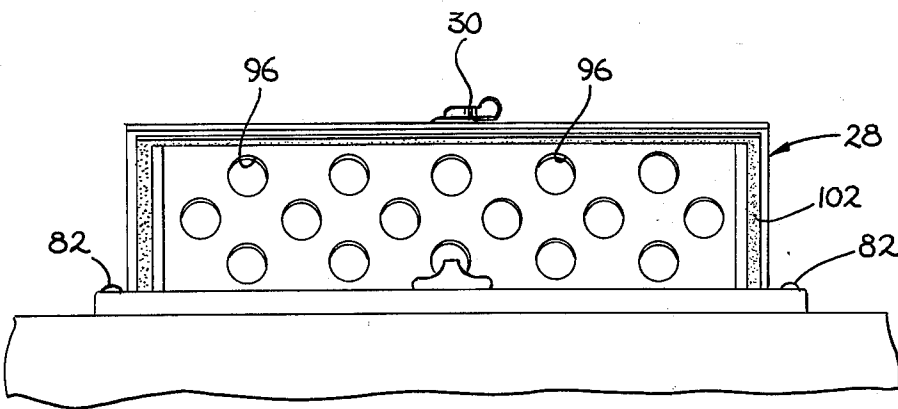


Fig. 6

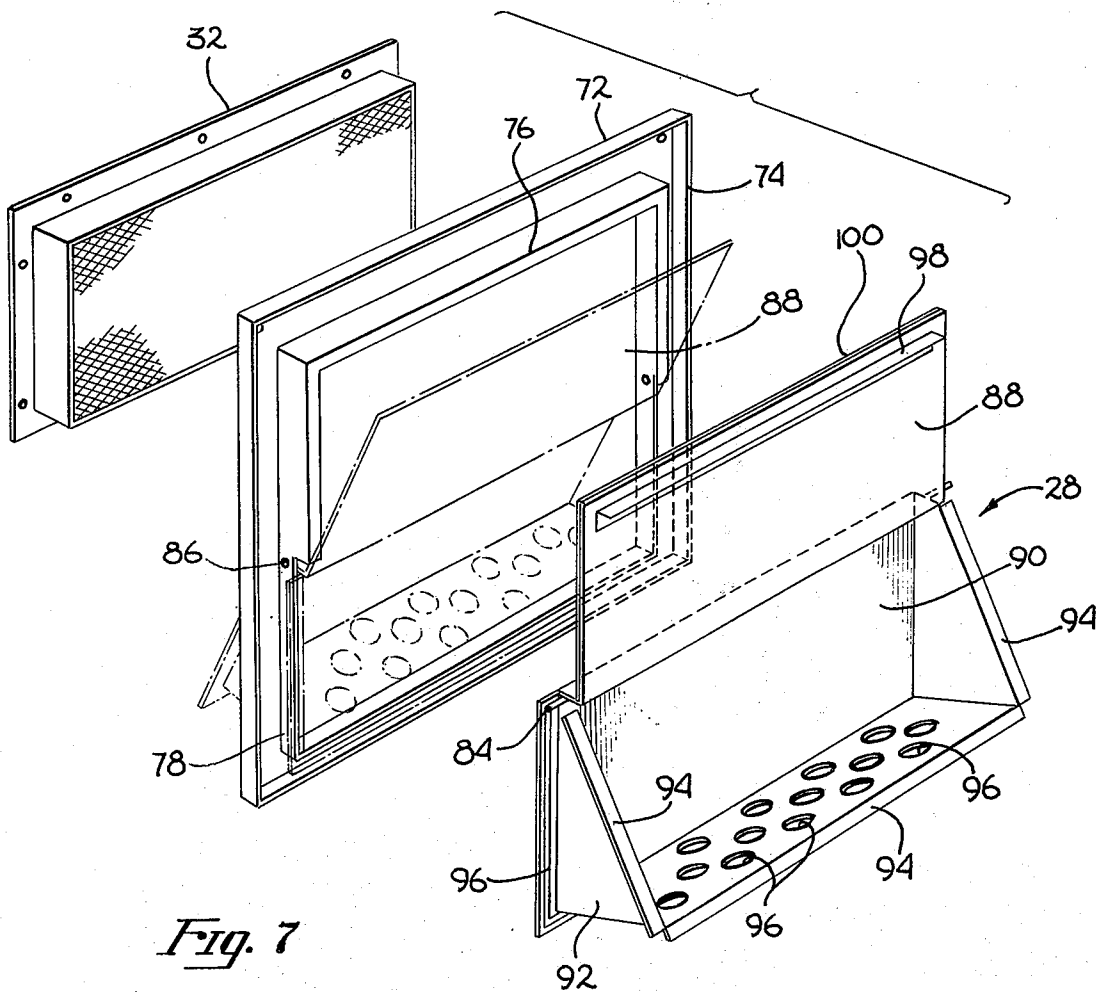


Fig. 7

EXHAUST HOOD

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to exhaust and ventilation apparatus, and particularly ventilation apparatus as is commonly used above cooking equipment.

2. Prior Art

Exhaust hoods designed for permanent installation over stoves, and particularly cooking appliances used for frying, broiling, and grilling, are well known in the prior art. Typically, such exhaust hoods are provided with a duct system and a fan of some type so that the hood captures most of the smoke, vapors and odors given off and exhausts these gases through the duct to the outside of the building in a continuous manner.

Prior art exhaust hoods, particularly that patented by those seeking this patent, under U.S. Pat. No. 3,457,850, also have a provision for providing fresh, cool air through the exhaust hood. Typically, this air is injected by the exhaust hood downward at the front thereof, which achieves a number of desirable objectives. Since the exhaust hood normally overlaps the cooking surface, this air is injected generally in the region where the cooks are standing, thereby providing cooler working conditions and a deterrent to the flow of smoke outwardly from the capture area of the exhaust hood. It also provides a controlled, filtered replacement for the air, smoke, etc. exhausted, and makes the exhausting easier.

Except for normal heating and air conditioning provisions for the kitchen of restaurants, institutions, etc., the exhaust hood is generally the only apparatus in the kitchen which may have a separate supply of controlled air for use at that station. However, other work stations in the kitchen may also be warm and/or uncomfortable unless a flow of fresh air is directed thereby. Therefore, it would be advantageous to incorporate into the exhaust hood apparatus which is adapted to control the flow of conditioned air delivered through the exhaust hood so as to serve the normal function and to also controllably direct the conditioned air outward into the kitchen to aid in the cooling and ventilation of other work stations in the kitchen.

BRIEF SUMMARY OF THE INVENTION

An improved exhaust hood of the type designed for disposal over a cooking surface and for connection to a ventilation system for removing smoke, vapors and cooking odors, and for providing fresh air to the same work area. Such as patented under U.S. Pat. No. 3,457,850. The Improved Exhaust Hood includes a ventilation door on the front thereof disposed in cooperation with the source of temperature controlled fresh air so as to direct the air toward the cooking surface when in one position and to direct air both outward and downward in front of the Exhaust Hood when in a second position to provide temperature controlled air to adjacent work stations and to personnel working under the hood. The ventilation door is mounted on the front of the hood and rotatable about a horizontal axis between the open and closed positions, with the door being sealed against the hood when in the closed position by a neoprene gasket.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of an Exhaust Hood embodying the present invention.

FIG. 2 is a cross-section of the Exhaust Hood taken along lines 2—2 of FIG. 1.

FIG. 3 is a cross-section of a portion of the Exhaust Hood taken along lines 3—3 of FIG. 1.

FIG. 4 is a cross-section similar to the cross-section of FIG. 3 illustrating the effect of the ventilation door when moved to the open position.

FIG. 5 is a front view, partially cut away, of a portion of the Exhaust Hood of FIG. 1 illustrating the ventilation door therein.

FIG. 6 is a bottom view of a portion of the Exhaust Hood illustrating the ventilation door in the open position.

FIG. 7 is an exploded perspective view of the grill, mounting frame, ventilation door assembly.

DETAILED DESCRIPTION OF THE INVENTION

First referring to FIG. 1, a perspective view of an exhaust hood embodying the present invention may be seen. The particular exhaust hood shown is generally rectangular in shape, having one or more air inlet ducts 22 and one or more exhaust ducts 24 on the top thereof. The side portions of the front of the hood are enclosed by panels 26, with the ventilation door of the present invention generally indicated by the numeral 28. The ventilation door 28 is outwardly characterized by a latch 30 secured to the lower portion thereof and has a grill 32 covering the top portion thereof.

Now referring to FIG. 2, a cross-section taken along line 2—2 of FIG. 1 and illustrating the Exhaust Hood in a typical installation may be seen. In this figure, a cooking apparatus, generally indicated by the numeral 34, is illustrated with the Exhaust Hood supported thereabove and extending outward over the front edge of the cooking apparatus. There is also illustrated a portion of a work table opposite the cooking apparatus which may be used, by way of example, as a salad table for making up salads. The Exhaust Hood is a generally self-contained assembly having at least one light 20 for illuminating the working surface. An inner back member 40 together with the inner top member 42, divider 44 and lower member 46 define an exhaust plenum 50 coupled to the exhaust ducts 20 for exhausting the air passing upward into the region 52. A replaceable grease filter 54 is generally provided to trap and condense grease at this location to prevent the unnecessary accumulation of grease in the exhaust ducts and the exhausting system. Divider 44 also cooperates with member 56, and a continuation 68 of member 42 and the front structure of the Exhaust Hood to define a plenum region 58, which is coupled through ducts 22 to a source of fresh, temperature controlled air. This air is typically directed inward by louvers 60 to combine with the cooking fumes and to be generally expelled as part of the exhaust.

The front of the Exhaust Hood is supported by a plurality of rods 64, which are fastened by nuts to a horizontal member 66 supporting the lower portion of the hood, and to member 68 integral with and forming an extension of member 42. The rods 64 are attached to the ceiling either by passing through a hole in a ceiling member and being attached to the framing of the struc-

ture by nuts, or by being threaded into an appropriately disposed wood member in the ceiling.

Fastened to the front of the Exhaust Hood is an assembly comprising the grill 32 and the ventilation door 28. These components are fastened into a frame member 72, which is best illustrated in FIG. 7. The frame member is characterized by a lip region 74 and an inward projecting flange member 76 in the top portion thereof, and a shallower inward projecting lip 78 at the lower portion thereof. The flange member 76 is of sufficient depth so as to receive the grill 32, which is fastened to the frame 72 by a plurality of screws 80. The frame itself is also fastened to the Exhaust Hood assembly by screws 82, thereby allowing the removal of the grill for cleaning, and, if necessary, the removal of the entire assembly for cleaning or other servicing.

Disposed within the frame assembly 72 is the ventilation door 28. The door is rotationally mounted approximately about its center line by an axle rod 84, which fits within holes 86 in the frame 72 provided for this purpose. The upper portion 88 of the door 28 is offset inward with respect to rod 84, whereas the lower portion of the door 90 is slightly offset outward with respect to the rod. Also attached to the lower portion 90 of the door is a member 92 having flanges 94 which together with extension 96 of the lower portion of the door 28 overlaps the sides of the frame 72 so as to thereby define the limits of motion of the door about the axis defined by rod 84. The lower portion of member 92 is provided with a plurality of holes 96 so as to provide supporting structure to the lower part 90 of the door and yet allow a flow of air therethrough. An angle member 98 is welded to the top portion 88 of the door to rigidify that portion of the door also. In the preferred embodiment, the door as well as most of the other panels and structure of the hood is fabricated from stainless steel sheet to eliminate unsightly corrosion and to provide maximum ease in cleaning. The assembly is generally a welded assembly except where cleaning and servicing may later require disassembly, in which case screws and/or bolts are utilized, of course other materials may be used, though stainless steel is preferred. There is also provided a latch 89 at the base of the door to hold the door in the position shown in FIG. 3. The top of the door has sufficient weight to encourage the door to the position shown in FIG. 4, when the latch is released.

Now referring to FIGS. 3 and 4, a cross-section taken along lines 3—3 of FIG. 1 illustrating the ventilation door in the closed position, and a similar cross-section illustrating the ventilation door in an open position may be seen. The two sides and the top edge of the front face of the top portion 88 of the door has a neoprene gasket 100 cemented thereto and disposed so as to engage the flanges on the flange member 76 of frame 72, thereby closing off grill 32 from the fresh air plenum 58 when the door is in the position shown in FIG. 3. Similarly, the two sides and the bottom of the lower portion 90 of the door are provided with a neoprene gasket 102 which seals against the outer portion of frame 72. Thus when the door 28 is in the position shown in FIG. 3 there is no flow of air outward from the front of the exhaust hood, but instead the air is directed inward by the louvres 60. When the door is in the position shown in FIG. 4, however, some of the cooling air is directed downward and outward through holes 96 at the base of

the door, thereby directing the cool air outward beyond the Exhaust Hood. Similarly, a portion of the cooling air is directed outward through the grill 32, thereby directing the air still further outward into the kitchen. At the same time, of course, some air will be directed inward through the louvres 60 in the normal manner. Thus the cool, often refrigerated temperature controlled air available in an Exhaust Hood as patented in prior U.S. Pat. No. 3,457,850, installation may be used to advantage through the present invention to cool other parts of the kitchen work area. Consequently, through the use of the present invention, the ventilation provided by the Exhaust Hood may be used to advantage at work stations other than the cooking station alone. Of course, while the invention has been disclosed and described with respect to a preferred embodiment thereof, various changes in form and detail may be made therein without departing from the spirit and scope of the invention.

We claim:

1. An Exhaust Hood comprising:

- a. means for defining an exhaust plenum for collecting fumes and vapors and delivering them to an exhaust outlet;
- b. means defining a front plenum for coupling to a source of air;
- c. means for directing air from said front plenum in a predetermined direction for passage at least in part along a flow path leading toward said exhaust plenum; and
- d. a ventilation door on the front of said Exhaust Hood and in communication with said plenum, said ventilation door being movable from a closed position to an open position to direct air from said plenum generally outward and downward from said Exhaust Hood, said ventilation door being rotatable about a horizontal axis between said closed position and said open position, and having an upper portion above said horizontal axis and a lower portion below said horizontal axis, the front of said upper portion of said door above said axis and the rear of the lower portion of said door below said axis engaging cooperatively disposed members on said plenum when said door is closed, said door being movable to said open position by movement of said lower portion of said door outward whereby air from the plenum may flow outward over the top of said door and between the lower portion of said door and the front of said Exhaust Hood.

2. The Exhaust Hood of claim 1 further comprised of a removable grill on the front of said hood and disposed over said upper portion of said ventilation door.

3. The Exhaust Hood of claim 1 wherein said lower portion of said ventilation door overlaps the edges of the opening therebehind to said plenum, said door further having a member fastened to the rear side thereof and projecting through said opening, said last named member having an outward and downward projecting flange overlapping the edges of said opening thereby defining the extent of rotation of said door about said horizontal axis.

4. The Exhaust Hood of claim 1, further comprised of a latch to retain said door in said closed position, said door being balanced so as to be self encouraging to said open position upon release of said latch.

* * * * *