The present invention relates to ventilators at cooking appliances and especially ovens that are built into walls and cabinets (for directing heat and fumes escaping from the appliance outwardly of a room), and it consists in the combination, construction, and arrangements of parts herein described and claimed.

Generally, there is provided a pair of very simple sub-assemblies, one consisting of a horizontally arranged duct unit adapted to be positioned directly above the oven either within the cabinet or behind the wall housing the oven, whichever the case may be, and the other, a hood member adapted for attachment to and in communication with the forward portion of the duct unit and to be arranged forwardly of the cabinet or wall and above the door opening to the oven. Mounted in the rear portion of the duct unit at an opening and an attachment for an exhaust-fan is a motor-driven fan for drawing hot air and fumes escaping from the oven outwardly into the hood, rearwardly in the duct, and outwardly through the exhaust flue.

It is accordingly an object of the invention to provide a ventilating apparatus that is closely associated with an oven built into a cabinet or behind a wall for directing heat and fumes escaping from the oven outwardly of a room and through an exhaust stack.

Another object of the invention is to provide, in a device of the character set forth, a novel construction and arrangement of units which can be quickly and conveniently assembled and installed on existing conventional cabinets or walls without extensive alteration to said cabinets or walls.

A further object of the invention is to provide, in a ventilator as set forth, novel and effective attachments of a duct unit and a hood member to a wall or a cabinet and to each other for efficiently supporting said unit and member in proper positions relative to one another.

It is also an object of the invention to provide a ventilator of the above-indicated character which is simple and substantial in construction, economical to manufacture, and thoroughly efficient and practical in use.

These, together with various auxiliary features and objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, wherein:

Figure 1 is a perspective view of a cabinet with an oven built therein and showing in full and dotted lines the improved ventilator associated therewith;

Figure 2 is a horizontal section through the cabinet looking down on the improved ventilator.

Figure 3 is a vertical section taken on line 3—3 of Figure 2.

Figure 4 is a rear perspective view of the hood member detached and with the central portion thereof taken away;

Figure 5 is a fragmentary enlarged sectional view taken on line 5—5 of Figure 2; and

Figure 6 is a section through the cabinet somewhat similar to Figure 3, but showing in full and dotted lines two positions of the duct unit during the procession of its assembly into the cabinet.

Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, attention is directed first to Figure 1, wherein it will be seen that there is indicated at 10 a tier of cabinets 11, 12, and 13 positioned at one side of other elevated storage cabinets 14 and a counter top 15 with a range 16 built therein and with drawers 17 thereunder. Built in the intermediate cabinet 12 of the tier of cabinets 10 is an oven 18 having the door 19 thereof substantially flush with the forward faces and doors of the other cabinets 11 and 13 of said tier of cabinets.

The improved ventilator forming the subject of this invention is constructed of two sub-assemblies, namely, a duct unit 20 which is installed in the lower portion of the cabinet 13 directly above the oven 18 and a hood member 21 which is attached to the forward portion of the duct unit 20 and to the facing of the cabinet 13 and overhangs the door 19 of the oven. In order to provide adequate space for the ventilator, the cabinet 13 is slightly shortened by elevating the bottom panel 22 thereof, using shorter doors thereon, and providing a wider, lower facing piece 23 which has a relatively large opening 24 there-through forming a part of the exhaust passageway. The duct unit 20 may rest upon a panel which would normally have been the bottom of the cabinet 13 had the shortening thereof not occurred, or may rest upon a horizontal framework of slats built between the cabinets 12 and 13, as indicated by the numeral 25 in Figures 2 and 3 of the drawings, with its open forward end registered with the opening 24 in the facing piece 23.

The duct unit 20, which is shallow and substantially triangular in plan, is arranged in the cabinet with one angle of the triangle parallel with and adjacent the inner side of the facing piece 23 and with its other converging angles extending rearwardly in the cabinet to a location in close proximity to the rear wall of the cabinet where the corner joining said other sides is rounded, as shown at 26. Thin sheet metal is used to form the walls of the duct, and in use, it has been found practical to attach by interlocking and crimping marginal edge portions of flat top and bottom walls 27 and 28, respectively, to the upper and lower edge portions of a narrow strip forming side walls 29. The narrow side wall strip extends around the rounded corner 26, along with the two above-mentioned rearwardly converging sides of the duct, and has its opposite ends turned in directions away from one another and parallel to the forward side of the triangle where they provide abrupt flanges 30 that engage the inner side of the facing piece 23 at opposite ends of the opening 24. Along substantially the entire forward edge portion of the top wall 27, there is welded or otherwise secured one flange of a thin sheet metal angle 31 extends through the opening 24 in the facing piece 23 with its other flange directed upwardly and attached to the forward side of the facing piece by screws 32, as best shown in Figure 5. Concentric with the rounded corner 26 of the angularly shaped duct housing, the top horizontal wall 27 of said housing is provided with a circular opening, and at said opening, there is secured an upstanding reducer coupling 33 for a stack 34. Directly beneath the opening in the top wall 27, a circular reinforcing plate 35 is welded to the inside of the bottom wall 28 and an electric motor of a fan 36 is supported on said plate by the extending of bolts 37 on said motor through.
both said plate and bottom wall. The fan is positioned within the reducer coupling and is rotated in a direction for drawing air into the duct and out through the stack.

Returning to the angle 31 on the forward marginal edge portion of the top wall 27 of the duct housing, it will be observed in Figure 5 that the edge portion of the flange of said angle secured to the forward side of the facing piece is angled slightly forward, as at 38, as it extends forwardly. This is for the purpose of engaging a downwardly directed flange 39 on the hood member 21 behind said flange of said angle to aid in the support of said hood member. The construction of the hood member is similar to that of a stationary awning and consists of a slanting top wall 40 from which depends a short forward apron 41, end walls 42 that are spaced a greater distance apart than the length of the rectangular opening 24 in the facing piece 23, and interned flanges 43 along the rearward vertical edges of the end walls 42. The lower and portion of each of the flanges 43 is apertured, as at 44, for the reception of a screw 45 threaded into the facing piece 23 after engagement of the flange 39 behind the upper edge of the angle 31.

Mounted on the underside of the slanting wall 40 of the hood member 21 is an electrical terminal box 46 to which is connected an electric switch 47 positioned centrally on the upper side of said slanting wall for controlling operation of the fan 46. The wires 48 extending from the box 46 and connected to the switch 47 pass through a notch (not shown) in the upwardly directed flange of the angle 31 and then overlie the top wall 27 of the duct housing in their run to another electrical terminal box 49 secured to one of the converging side walls 29 of the duct housing. From the box 49, electric wires 50 extend into the duct housing and are connected to the motor of the fan 36, while other wires 51, also extending from the box 49, lead to the source of current.

Referring more particularly to Figure 6, there is shown the manner of installing the duct unit 20 into a cabinet directly above an oven also installed in the same cabinet or another cabinet therebelow. In dotted lines, the duct unit is shown as being inserted through the door opening to the cabinet. Should the forward end of the duct unit be of greater width than the door opening, the duct unit may be tilted to one side for passing of the duct unit through such a confined door opening. Upon positioning the duct unit completely within the cabinet, the forward end of said duct unit is lowered to the position shown in full lines for passing the upwardly directed flange of the angle 31 through the opening 24 in the facing piece 23. By then moving the duct unit forwardly and at the same time lowering the rear portion thereof, the bottom wall 28 of said duct unit will come to rest on the slatted framework 25 with the flanges 30 engaging the inner side of the facing piece 23 and the upturned flange of the angle 31 engaging the outer or forward side of said facing piece. The screws 32 are then secured in place and the bottom panel 22 of the cabinet, which has a circular hole 22 therein, is placed over the duct unit with the reducer coupling 33 extended outwardly through the opening 23. After installing the stack 34 and making the wire connections between the duct unit 20 and hood member 21, said hood member is hung on the angle 31 and the screws 45 applied, as previously described.

As shown in Figure 3 of the drawing, it will be observed that the improved ventilator, which is especially adapted for use with ovens built into cabinets or walls and having their doors swinging downwardly to open, is closely associated with the oven by being positioned directly thereabove and by having the hood member of said ventilator overhanging the door of the oven. Thus, upon partial opening of the door to a position substantially that shown in dotted lines, heat and fumes from the oven will be drawn upwardly into the hood, through the duct, and out the stack, as shown by the arrows.

While there has been shown and described a certain type of wooden cabinet construction and arrangement to which the improved ventilator has been applied, it is to be understood that the invention may be used with other types of cabinet constructions and arrangements, and that the invention also may be used in connection with ovens built into walls by building the improved ventilator directly thereabove.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the construction, operation, and advantages of the ventilator will be quite apparent to those skilled in the art.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention, various changes may be made without departing from the spirit and full intention of the invention.

What is claimed is:

1. A ventilator in combination with an oven recessed in a building wall structure and with the door to said oven substantially flush with the facing of the building wall structure and hinged at its lower portion to swing forwardly and downwardly to an open position, said ventilator comprising a horizontally arranged duct unit also recessed in the building wall structure and positioned directly above and adjacent said oven and open through said facing, a venting stack in said building wall structure and extending upwardly through said oven, a hood member overhanging substantially the entire width of said door so as to receive heated fumes directed upwardly by said door upon partial opening of said door.

2. A ventilator in combination with an oven recessed in a building wall structure and with the door to said oven substantially flush with the facing of the building wall structure and hinged at its lower portion to swing forwardly and upwardly to an open position, said ventilator comprising a horizontally arranged duct unit also recessed in the building wall structure and positioned directly above and adjacent said oven and open through said facing, a venting stack in said building wall structure and extending upwardly through said oven, a hood member, and means attaching said hood member forwardly of the facing of the building wall structure and in communication with said duct unit, said hood member overhanging substantially the entire width of said door so as to receive heated fumes directed upwardly by said door upon partial opening of said door.

3. A ventilator in combination with an oven recessed in a building wall structure and with the door to said oven substantially flush with the facing of the building wall structure, said ventilator comprising a horizontally arranged duct unit also recessed in the building wall structure and positioned directly above and adjacent said oven and open through said facing, a venting stack in said building wall structure and extending upwardly through said oven, a hood member, and means attaching said hood member forwardly of the facing of the building wall structure and in communication with said duct unit, said hood member overhanging substantially the entire width of said door so as to receive heated fumes directed upwardly by said door upon partial opening of said door.

4. A ventilator in combination with an oven recessed in a building wall structure and with the door to said oven substantially flush with the facing of the building wall structure and hinged at its lower portion to swing forwardly and downwardly to an open position, said ventilator comprising a horizontally arranged duct unit also recessed in the building wall structure and positioned directly above and adjacent said oven and open through said facing, a venting stack in said building wall structure and extending upwardly through said oven, a hood member, and means attaching said hood member forwardly of the facing of the building wall structure and in communication with said duct unit, said hood member overhanging substantially the entire width of said door so as to receive heated fumes directed upwardly by said door upon partial opening of said door.

5. A ventilator in combination with an oven recessed in a building wall structure and with the door to said oven substantially flush with the facing of the building wall structure, said ventilator comprising a horizontally arranged duct unit also recessed in the building wall structure and positioned directly above and adjacent said oven and open through said facing, a venting stack in said building wall structure and extending upwardly through said oven, a hood member, and means attaching said hood member forwardly of the facing of the building wall structure and in communication with said duct unit, said hood member overhanging substantially the entire width of said door so as to receive heated fumes directed upwardly by said door upon partial opening of said door.
tioned forwardly of the opening in the facing piece, said hood member overhanging the door of the oven throughout the width of said door and communicating with said duct unit through the opening in the facing piece.

4. A ventilator as defined in claim 3 wherein outwardly directed flanges and a depending flange are provided on the forward ends of the side walls and lower wall, respectively, of said duct unit which abut the inner side of the facing piece at opposite ends and below the opening through said facing piece.

5. A ventilator as defined in claim 3 wherein the detachable connection of the hood member to the upstanding flange carried by the duct unit consists of a depending flange along the upper rear portion of said hood member that engages over and behind the upstanding flange on the duct unit, vertically extending inturned flanges on the opposite ends of said hood member that engage the forward side of the facing piece, and fastener elements that secure said inturned flanges to said facing piece.

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