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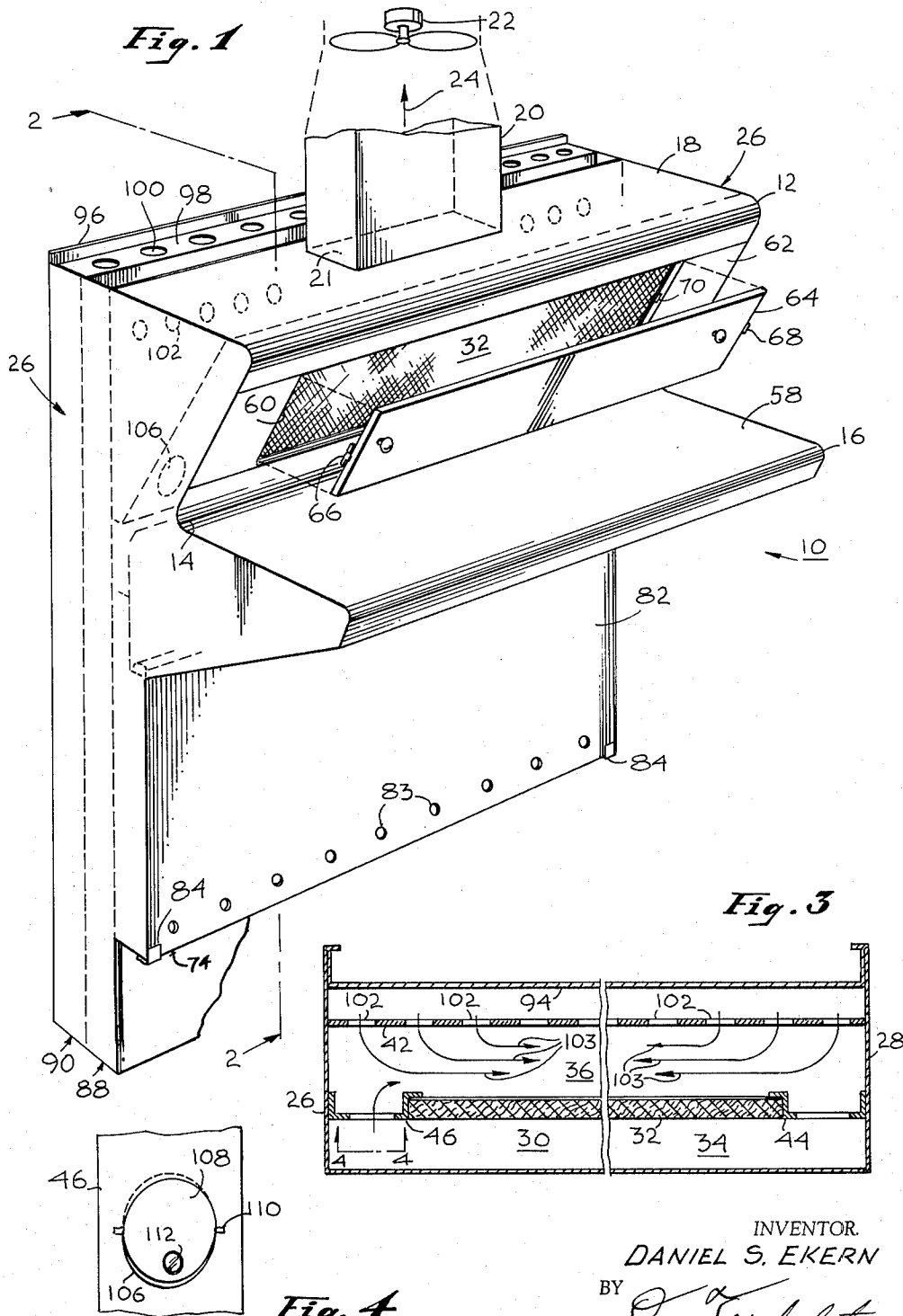
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RANGE VENTILATING HOOD

Filed Jan. 21, 1963

2 Sheets-Sheet 1



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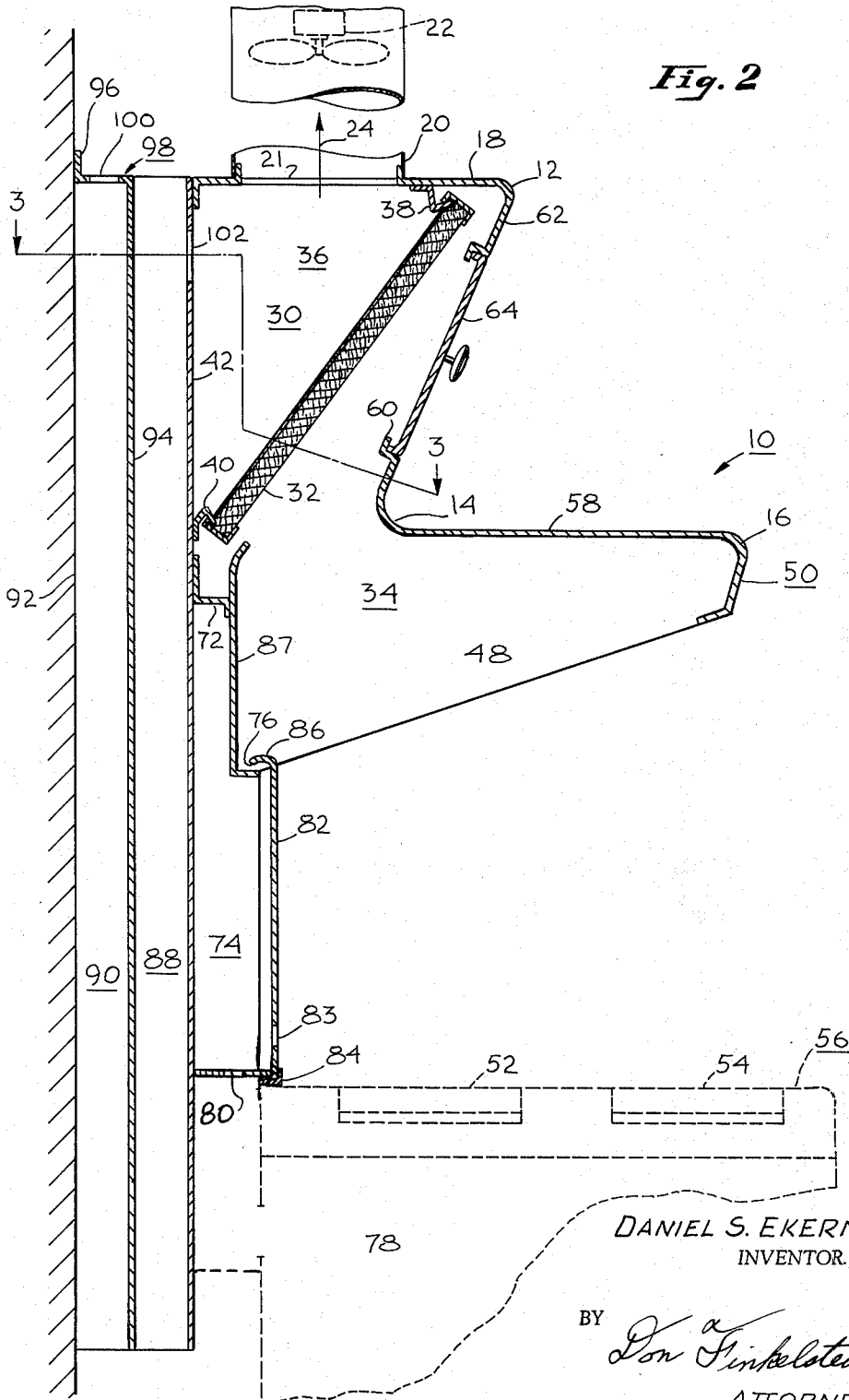
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2 Sheets-Sheet 2



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RANGE VENTILATING HOOD
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This invention relates to a ventilator for cooking appliances and more particularly to an improved ventilator providing increased insulation qualities between the appliance and its surroundings and more efficient and sanitary operation.

In most food preparation applications it is necessary to provide an efficient system for removal and disposal of heated products generated in various cooking appliances such as surface heaters, ovens, deep fat fryers, griddles, steam cooking units, broilers and the like, from the cooking area. The heated products may comprise products of combustion, heated air containing vapors of grease or other evaporation, steam, and the like. Further, the cooking appliance is often placed adjacent a building wall and it is necessary to insulate the wall from the cooking appliance to prevent overheating. Also, for obvious sanitary reasons, the arrangement utilized for the removal and disposal must be designed to allow easy maintenance in a sanitary condition.

Cooking appliance ventilators utilized in the past for accomplishing these objectives have generally not been completely satisfactory. Usually they have incorporated various air flow passages for disposing of the heated gases containing grease and evaporations of oil and other products generated at the cooking appliance. To avoid the dangers of fire spreading from heat generated in the cooking appliance to the structural wall of the building, it is desirable to have insulating passages or other forms of insulation between the cooking appliance and the structural wall. Since a ventilator arrangement generally includes an exhaust fan to draw off the products generated, the ventilator arrangement can generally incorporate some form of convective insulation between the stove and the structural wall.

The insulating properties of ventilators utilized in the past have not always proven to be completely satisfactory in that there is not only danger of overheating by direct radiation of the heat from the stove to the structural wall through the ventilator, but also, in some prior devices, air has been brought downwardly from regions above the ventilator adjacent the building wall. For such ventilators, if a fire did occur in the wall, the fresh supply of air constantly brought down would increase the burning of the structural wall.

In addition, since the ventilator is subjected not only to substantial temperatures but also contaminated gases containing both grease and various evaporations, the ventilator must be structurally compatible with such operations and also should preferably be easy to clean for obvious sanitary reasons. Prior ventilating devices often incorporated hinged members to provide access to the interior of the ventilator and with time the hinged members tended to warp due to the heat and provide improper sealing. Also, such ventilators are often provided with difficult to clean interior surfaces. These problems are particularly acute in industrial cooking establishments such as restaurants, factories and the like where heavy duty and extended periods of operation are present.

Accordingly, it is an object of this invention to provide an improved ventilator for a cooking appliance.

It is another object of this invention to provide an improved ventilator that incorporates improved insulating passages to protect the structural wall from the heat generated in the cooking appliance.

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It is another object of this invention to provide an improved ventilator that is easy to maintain in a sanitary condition.

It is still another object of this invention to provide an improved ventilator that incorporates a structurally sound construction capable of withstanding extended periods of subjection to heat.

It is another object of this invention to provide a ventilator having improved condensation arrangement for condensing vapors of grease or other evaporation products.

The above and other objects are achieved according to one embodiment of applicant's invention herein in a ventilator comprising a box-like structure extending substantially the width of a kitchen appliance. For convenience, applicant describes his invention herein as utilized in conjunction with a stove having surface heaters and an oven chamber. It will be appreciated, however, that this is not a limitation to applicant's invention, but rather has been done to permit a generalized description. Applicant's invention may be utilized on any desired form of cooking appliance. The kitchen stove may be either gas fired, charcoal fired, or the like. The ventilator is supported behind the stove and has portions extending from regions behind the stove to regions above the stove. The ventilator separates the stove from a wall of the building against which it is usually placed and has a forwardly-extending hood defining a passageway which is positioned above the surface heaters of the stove. Hot air, fumes, grease and evaporations generated by the action of the surface heaters are drawn upwardly through the passageway, through a filter means which filters and condenses the grease and other evaporations from the air, and out an exhaust stack in which an exhaust fan generates the forced draught for operation of the ventilator.

The filter is positioned in a cavity of the ventilator communicating with the passageway and dividing the cavity into a forward portion and a back portion. The forward portion of the cavity communicates directly with the above-described passageway.

An oven flue is provided, for stoves including an oven, that is adapted to receive the heated products generated in the oven chamber of the stove and the oven flue communicates with the passageway through which the oven chamber generated products are exhausted through the filter and into the exhaust fan. The forward portion of the oven flue comprises a removable wall which may be removed for cleaning the oven flue. A plurality of openings are provided in the removable wall to allow the admixture of cooler room air with the oven products to thereby cool and lower the temperature of the oven generated gases prior to their admission into the passageway and through the filter. This aids materially in condensing grease or other evaporation products when the oven generated gases pass through the filter.

A grease trough is positioned in condensate-receiving relationship to the filter and receives the filtered and condensed grease and evaporation products from the filter. A removable cup into which the grease trough empties is provided so that accumulated grease and condensate products may be removed periodically from the ventilator.

A portion of the ventilator extending between the oven and the building wall is provided with two normally convective insulating chambers extending substantially the width of the ventilator. The second of these chambers is open-ended, that is, the building wall that is to be insulated forms the rearmost wall defining the second normally convective insulating chamber. At the top of this chamber there is provided a closure member having a plurality of apertures therein which allows air from regions adjacent the floor and intermediate the stove and

the building wall to flow upwardly through the second normally convective insulating chamber and into regions external the ventilator. The size and number of these apertures is selected to provide a desired normally convective air flow rate in the second insulating chamber.

The first normally convective insulating chamber is intermediate the second normally convective insulating chamber and the oven and is substantially coextensive with the second normally convective insulating chamber. The first normally convective insulating chamber has a plurality of openings in a forward wall portion thereof that communicates with the back portion of the cavity. These openings are positioned near the sides of the ventilator at the top of the first normally convective insulating chamber and spaced from both the filter and the duct communicating the back portion of the cavity with the exhaust fan. Air is drawn through these openings and into the back portion of the cavity, over the back of the filter and then out through the exhaust fan duct. This air cools the filters to aid in the condensation action thereof.

In addition, there is a normally convective flow of air in the first normally convective insulating chamber upwardly from regions adjacent the floor of the building and intermediate the stove and the second normally convective insulating chamber, and this flow rate is at a different flow rate from the normally convective air flow rate in the second insulating chamber. This double insulating chamber construction is which there are substantially two different normally convective air flow rates and in which there is a partition intermediate the two normally convective insulating chambers materially reduces the temperature to which the building wall is exposed. Cooling is thus obtained by both normal convection and by the partition acting as a radiation shield.

Access to the filter for installation or removal thereof is provided by an excess opening in a forward portion of the walls defining the cavity and a spring catch loaded door is positionable within the access opening.

The corners of applicant's ventilator are rounded with a comparatively large radius to allow easy cleaning and to eliminate unsanitary conditions therein.

This invention may be better understood by reference to the following detailed description and the accompanying drawings, wherein similar reference characters refer to similar elements throughout and in which:

FIGURE 1 is a perspective view of applicant's improved ventilator;

FIGURE 2 is a vertical sectional view along the line 2—2 of FIGURE 1;

FIGURE 3 is a sectional view along the line 3—3 of FIGURE 2; and

FIGURE 4 is a partial sectional view along the line 4—4 of FIGURE 3.

Referring now to FIGURES 1, 2 and 3, there is shown the structure associated with one embodiment of applicant's improved ventilator generally designated 10. For convenience in describing applicant's invention, ventilator 10 is illustrated as utilized in conjunction with a stove comprising surface heaters and an oven chamber. Ventilator 10 is preferably made from weldable stainless steel and comprises an all-welded construction. Stainless steel is preferred for improved sanitary conditions during utilization of the ventilator 10. The corners of wall portions of the ventilator 10, such as 12, 14 and 16, are preferably curved with a comparatively large radius of curvature to allow easy cleaning thereof and to prevent accumulation of unsanitary matter in difficult to reach sharp corners. The sides 26 and 28 of the ventilator are preferably flat to allow a plurality of ventilators to be placed side by side and to provide a tight seal between each ventilator.

The ventilator 10 has a top portion 18 into which an exhaust duct 20 is coupled through opening 21. The exhaust duct 20 communicates with an exhaust fan 22 which

generates an updraught in the direction of arrow 24 through the exhaust duct 20.

The top 18 and oppositely disposed side portions 26 and 28 of ventilator 10 define a cavity 30. A filter 32, which may be of any conventional design, is positioned in the cavity 30 and divides the cavity 30 into a front portion 34 and a rear portion 36. The filter 32 is supported by a bracket means 38 depending from the interior of the top 18, bracket means 40 coupled to a rear wall 42 of the cavity 30 and by side brackets 46 and 44 coupled to side walls 26 and 28, respectively.

The forward portion 34 of the cavity 30 communicates with a passageway 48 contained in a hood portion 50 of the ventilator which extends over the surface heaters 52 and 54 of a stove 56. An upper surface 58 of the forwardly-extending hood 50 is substantially horizontal and provides a shelf upon which cooking utensils and other objects may be placed.

Access to the filter 32 is provided by an access opening 60 in the rearwardly-slanting forward wall 62. A removable door means 64 is positionable to close the access opening 60 and is retained therein by a pair of spring catches 66 and 68. The spring catches catch and hold on flanges 70, contained in the access opening 60.

A grease trough 72 extends beneath and substantially the full width of the filter 32 and is inclined slightly from the side 28 toward the side 26. The grease trough 72 is in grease-receiving relationship to the filter 32 and is adapted to catch the drippings of condensed grease and other evaporations condensed in the filter 32. A removable cup means (not shown) may be included at the lower end of the grease trough 72 to allow removal of accumulated grease and the condensed products therefrom.

For stoves such as stove 56, incorporating an oven chamber 78, an over flue 74 communicates with the passageway 48 through opening 76. The oven flue 74 extends substantially the whole width of the ventilator 10. The oven flue 74 receives heated gases generated within an oven chamber 78 of the stove 56 through the flue exit 80. A forward wall portion 82 of the oven flue 74 is detachably mounted on the ventilator 10 and is retained in place by clip means 84. An inwardly-curved portion 86 of the forward wall 82 provides the opening 76 through which the oven flue 74 communicates with the passageway 48. A bracket 87 spaced from the rear wall 42 and depending from the grease trough 72 provides the lower portion of the opening 76. The opening 76 is free and unrestricted. The forward wall 82 may be removed by lifting it from the clip means 84 to allow cleaning of the oven flue 74 as well as the forward wall 82, so as to be maintained in a sanitary condition. A plurality of apertures 83 are in the bottom portions of forward wall 82 to allow the introduction of cooling air into the oven flue 74 to reduce the oven gas temperature. The oven flue 74 may be omitted when applicant's ventilator is utilized with stoves or other cooking appliances incorporating only surface heaters. A first normally convective insulating passage 88 and a second normally convective insulating passage 90 are intermediate the stove 56 and the wall 92 of the building containing the stove 56. First and second normally convective insulating chambers 88 and 90 extend substantially the width of the ventilator 10 and extend from regions behind the stove 56 to regions adjacent the top 18 of the ventilator 10 to allow normally convective air flow from regions adjacent to bottom of the stove 56. The first convective insulating chamber 88 is formed by the rear wall 42, which forms the front wall of the first convective insulating chamber 88 and an intermediate wall 94 which forms the back wall of the first normally convective insulating chamber 88. The second normally convective insulating chamber 90 is formed by the intermediate wall 94 which forms the forward face thereof and by the building wall 92 which forms the back wall thereof. The sides of both the first normally convective insulating chamber 88 and the second normally

convective insulating chamber 90 are formed by the sides 26 and 28 of the ventilator 10. A spacer tab 96 is coupled to the side walls 26 and 28 and forms a brace for supporting the ventilator 10 against the wall 92.

The top of the second normally convective insulating chamber 90 is closed by a closure member 98 in which there are a plurality of apertures 100. The apertures 100 allow the flow of air through the second normally convective insulating chamber 90 to regions outside the ventilator 10 at a preselected flow rate.

A plurality of apertures 102 in the back wall 42 communicate the first normally convective insulating chamber 88 with the back portion 36 of the cavity 30. The apertures 102 are preferably spaced close to the sides 26 and 28 of the ventilator 10 and air flowing through the apertures 102 is directed along the back of the filter 32 before exiting through the exhaust duct 20 as indicated by arrows 103. This air flow through the apertures 102 and along the back of the filter 32 maintains the temperature of the filter 32 at a comparatively low value to aid in the condensation of the greases and evaporations therein. This prevents the accumulation of grease in exhaust duct 20 and other disposal passages.

Applicant has found empirically that in the preferred embodiment of his invention, one pair of apertures 102 in the wall 42 is desired for each foot of width of the ventilator 10 between the side portions 26 and 28. This selection of the number of apertures 102 provides the desired amount of cooling for the filter 32. The size of the apertures 102 has also been found empirically by applicant to vary, in the preferred embodiment of his invention, between $\frac{7}{8}$ inch diameter and $1\frac{1}{2}$ inches diameter, depending upon the length of the ventilator 10; that is, the distance it projects outwardly over the stove 56. The shorter this length is, the smaller the hole diameter need be. Those skilled in the art may readily find the desired size of hole for any given ventilator according to applicant's invention herein.

The placement of the apertures 102 is also a function of the negative pressure generated by the exhaust fan 22. That is, the amount of air flowing through the apertures 102 may be regulated by their spacing laterally away from the duct 20 to thereby increase the pressure drop between the apertures 102 and the exhaust fan 22.

The number of apertures 100 in closure 98 is selected to provide a desired flow of normally convective air through second normally convective insulating chamber 90. Since the top of the first normally convective insulating chamber 88 is open, the flow rates between the first and the second normally convective insulating chambers 88 and 90 are different to provide an improved insulation against heat transmission to the building wall 92.

In operation, the ventilator 10 is positioned as shown on FIGURE 2 with respect to a stove 56 having surface heater units 52 and 54 and an oven chamber 78. The exhaust fan 22 is energized and creates an updraught indicated by the arrow 24. This updraught, by reducing the pressure on the back side of the filter 32, draws in heated air, fumes, vapors of grease and evaporations generated in utilizing the surface heaters 52 and 54, through the passageway 48, through the filter 32, into the back portion 36 of the cavity 30 and out the exhaust duct 20 past the exhaust fan 22.

Oven generated gases from the oven chamber 78 pass through the opening 80 into the oven flue 74 where they are mixed with a preselected amount of air passing through the apertures 83 in forward wall 82, and then through the opening 76, where they mix with any of the heated air and other products from regions around surface heaters 52 and 54. From the passageway 48 the oven gases pass through the filter 32, where condensable materials contained therein are condensed out, into the back portion 36 of the cavity 30, and out the exhaust duct 20. The condensate products from the filter 32 drip into the grease trough 72 from which they may be periodically removed.

Since heat is generated in both the surface heaters 52 and 54 and the oven chamber 78, the wall portion 42 tends to become warmer than room temperature. This induces a normally convective flow of air in both the first insulating chamber and the second normally convective insulating chamber 90. As stated above, these flow rates are, in the preferred embodiment of applicant's invention, different in each of the two normally convective insulating chambers 88 and 90.

The negative pressure generated by the exhaust fan 22 in the back portion 36 of the cavity 30 draws air into the back portion 36 from the first normally convective chamber 88 through apertures 102. The apertures 102 are placed adjacent the top of the first normally convective insulating chamber 88 and consequently some of the air drawn in through the apertures 102 comes from regions outside the ventilator 10. Applicant has found that the total air flowing through the apertures 102 should comprise, in the preferred embodiment of his invention, 25% by normal convection upwardly in the first normally convective insulating chamber 88 and 75% from regions adjacent the top 18 of the ventilator 10.

The intermediate wall 94 operates, in addition to serving as a boundary between the first and second normally convective insulating chambers 88 and 90, as a radiation shield to reduce the amount of heat transferred to the wall 92 by radiation from the wall portion 42. Thus, there is a downward temperature gradient in traversing the distance between the wall portion 42 and the building wall 92. This tends to keep the building wall 92 at a temperature that will prevent overheating therein. The normally convective air flow rates in the first and second normally convective insulating chambers 88 and 90 have been found by applicant to be preferable to an induced downdraught flow rate adjacent the building wall 92 from regions above the ventilator 10 as, in some instances, this may tend to increase the amount of burning if a sudden flash fire occurred adjacent the wall 92.

In the event that the exhaust fan 22 is inoperative, applicant has provided a bypass means to allow the flow of products into the back portion 36 of the cavity 30 without going through and consequently suffering the pressure drop of traversing the filter 32. This is shown on FIGURE 4 which is a sectional view taken along the line 4-4 of FIGURE 3. As shown, there is an opening 106 in the bracket 46. A flapper means 108 is pivotally connected in the opening 106 by pivot pin means 110. The flapper 108 has a weight at the bottom 112 thereof and the bracket 46 is inclined toward the forward face 62 of the ventilator 10 in approximately the same angle as the filter 32. When the condition of the exhaust fan 22 is operative, a negative pressure is generated on the rear of the bracket 46 in the back portion 36 of the cavity 30 and this pivots the flapper door 108 to substantially close the opening 106. However, when the exhaust fan 22 is inoperative, gravity forces acting on the weight 112 and the flapper door 108 force the flapper door 108 to hang in a vertical position by pivoting about pivot pin means 110, thus providing an opening 106 through which heated products may rise by normal convection, and from there pass into the exhaust duct 20. The displacement of the pivot pin means 110 above the center of gravity of flapper means 108 aids in the operation of the bypass means. The bypass arrangement described may be of any well known design such as the Barometric Damper manufactured by Walker Manufacturing Company.

This concludes the description of applicant's invention herein. It is apparent that applicant has provided an improved ventilator that materially reduces the amount of heat transfer to the building wall induced by operation of an oven and/or surface heaters of a cooking appliance. Further, applicant's improved invention in his ventilator allows easy cleaning and easy maintenance of the ventilator in a sanitary condition. Those skilled in the art will find many adaptations and variations of applicant's invention and the following claims are intended to

cover all such variations and adaptations falling within the true scope and spirit of applicant's invention.

What is claimed is:

1. In a ventilator for a cooking appliance having surface heater units of the type adapted to be positioned adjacent a wall of a building, said ventilator of the type having walls defining a cavity, a filter adapted to condense vapors and positioned in said cavity dividing said cavity into a front portion and a back portion, a duct communicating at one end thereof with said back portion of said cavity and at the other end thereof adapted to be connected with an exhaust fan, the improvement comprising:

first wall members comprising a first pair of spaced-apart side walls, a front wall and a back wall defining a first open-ended normally convective insulating chamber extending from regions intermediate the cooking appliance and the wall of a building to regions adjacent the back portion of the cavity for allowing the flow of air therethrough by normal convection at a first flow rate; and

second wall members comprising a second pair of spaced-apart side walls and said second pair of spaced-apart side walls, said back wall of said first wall members and the wall of a building defining a second normally convective insulating chamber substantially coextensive with said first normally convective insulating chamber for allowing the flow of air therethrough by normal convection at a second flow rate different from said first flow rate, and means for controlling the amount of air flowing in said second normally convective insulating chamber, and said second flow rate being less than said first flow rate.

2. In a ventilator for a cooking appliance having surface heater units and an oven chamber of the type adapted to be positioned adjacent a wall of a building, said ventilator of the type having walls defining a cavity, a filter adapted to condense vapors and positioned in said cavity dividing said cavity into a front portion and a back portion, a first passageway having an opening positionable above said surface heater units and communicating with said front portion of said cavity, a duct communicating at one end thereof with said back portion of said cavity and at the other end thereof adapted to be connected with an exhaust fan, the improvement comprising:

first wall members comprising a first pair of spaced-apart side walls, a front wall and a back wall defining a first open-top and open-bottom normally convective insulating chamber extending from regions intermediate the oven chamber and the wall of a building to regions adjacent the back portion of said cavity for allowing the flow of air therethrough by normal convection at a first flow rate;

an oven flue adapted to transmit oven chamber generated gases from said oven chamber to said front portion of said cavity;

second wall members comprising a second pair of spaced-apart side walls and said second pair of spaced-apart side walls, said back wall of said first wall members and the wall of a building defining a second normally convective insulating chamber substantially coextensive with said first normally convective insulating chamber for allowing the flow of air therethrough by normal convection at a second flow rate different from said first flow rate, means coupled to the top of said second normally convective insulating chamber for controlling the amount of air flowing in said second normally convective insulating chamber and said second flow rate being less than said first flow rate, and said front wall of said first wall members defining a boundary between said first normally convective insulating chamber and the back portion of said cavity; and

a plurality of apertures in said front wall of said first

wall members adjacent the top thereof for admitting air from said first insulating chamber into said cavity, said plurality of apertures spaced in a preselected array to direct air into the back portion of said cavity and along the back of said filter to control the temperature thereof.

3. The arrangement defined in claim 2, wherein the number of said plurality of apertures is two apertures for substantially each foot of width of said ventilator.

4. A ventilator for a cooking appliance of the type having surface heaters, said ventilator adapted to be positioned intermediate said cooking appliance and a wall of a building, comprising in combination:

a filter chamber having walls defining a cavity;

a filter positioned within said cavity and dividing said cavity into a front portion and a back portion and inclined toward the front end of said cavity, for condensing vapors of greases and evaporations contained in gases passing therethrough;

a hood means having walls defining a passageway communicating with said front portion of said cavity and positioned above said surface heaters for accepting gases containing grease and evaporations emanating from regions adjacent said surface heater;

an exhaust fan;

duct means communicating with said rear portion of said cavity and registrably alignable with said exhaust fan whereby said exhaust fan draws said air containing grease and evaporations from said passageway through said filter and to regions exterior said ventilator;

grease trough means in condensate-receiving relationship to said filter for receiving condensates of grease and evaporations from said filter;

bypass means communicating said front portions of said cavity with said rear portion of said cavity, said bypass means comprising a closure means for closing said bypass means for the condition of said exhaust fan operative and opening said bypass means for the condition of said exhaust fan inoperative;

a first normally convective, open-top and open-bottom, insulating chamber having spaced apart first side walls portions, a front wall portion and a back wall portion, said front wall portion defining a boundary between said back portion of said cavity of said filter chamber, and said first normally convective insulating chamber for directing a normally convective flow of air from regions intermediate the cooking appliance and a wall of a building to regions adjacent the top of said filter chamber at a first normally convective flow rate;

a second pair of spaced-apart side wall portions coupled to said first pair of spaced-apart side wall portions and adapted to be abutted against a wall of a building and said second pair of side wall portions, said back wall portion of said first normally convective insulating chamber and a wall of a building defining a second normally convective insulating chamber for directing a normally convective flow of air from regions intermediate said cooking appliance and a wall of a building to regions adjacent the top of said first normally convective insulating chamber at a second normally convective flow rate different from said first normally convective flow rate;

closure means covering the top of said second normally convective insulating chamber, said closure means having a plurality of apertures therein for restricting said second normally convective flow rate and said second normally convective flow rate is less than said first normally convective flow rate;

means for transmitting a preselected amount of air from regions above the ventilator through upper portions of said first normally convective insulating chamber and into the back portion of said cavity and over the back of said filter for cooling said filter to

increase the condensations of greases and evaporations therein.

5. A ventilator for a stove having surface heaters and an oven chamber, said ventilator adapted to be positioned intermediate said stove and a wall of a building comprising, in combination:

- a filter chamber having walls defining a cavity;
- a filter positioned within said cavity and dividing said cavity into a front portion and a back portion and inclined toward the front end of said cavity, for condensing vapors of greases and evaporations contained in air passing therethrough;
- a hood means having walls defining a passageway communicating with said front portion of said cavity and positioned above said surface heaters for accepting air containing grease and evaporations emanating from regions adjacent said surface heaters;
- an exhaust fan;
- duct means communicating with said rear portion of said cavity and registrably alignable with said exhaust fan whereby said exhaust fan draws said air containing grease and evaporations from said passageway through said filter and to regions exterior said ventilator;
- grease trough means in condensate-receiving relationship to said filter for receiving condensates of grease and evaporations from said filter;
- bypass means communicating said front portions of said cavity with said rear portion of said cavity, said bypass means comprising a closure means for closing said bypass means for the condition of said exhaust fan operative and opening said bypass means for the condition of said exhaust fan inoperative;
- an oven flue duct for transmitting oven generated gases from said oven chamber to said front portion of said cavity;
- means for admitting air from regions outside said ventilator into said oven flue duct to cool said oven generated gases;
- a first normally convective, open-top and open-bottom, insulating chamber having spaced-apart first side wall portions, a front wall portion and a back wall portion, said front wall portion defining a boundary between said back portion of said cavity of said filter chamber, and said first normally convective insulating chamber for directing a normally convective flow of air from regions intermediate the cooking appliance and the wall of a building to regions adjacent the top of said filter chamber at a first normally convective flow rate;
- a second pair of spaced-apart side wall portions coupled to said first pair of spaced-apart side wall portions and adapted to be abutted against a wall of a building and said second pair of side wall portions, said back wall portion of said first normally convective insulating chamber and the wall of a building define a second normally convective insulating chamber for directing a normally convective flow of air from regions intermediate said cooking appliance and the wall of a building to regions adjacent the top of said first normally convective insulating chamber at a second normally convective flow rate different from said first normally convective flow rate;
- closure means covering the top of said second normally convective insulating chamber, said closure means having a plurality of apertures therein for restricting said second normally convective flow rate and said second normally convective flow rate is less than said first normally convective flow rate; and
- a plurality of apertures in said front wall portion of said first normally convective insulating chamber communicating with said back portion of said cavity of said filter chamber to transmit a preselected amount of air from regions outside said first normally convective insulating chamber, through top regions of said first normally convective insulating chamber

into said cavity, over back portions of said filter, and into said duct means.

6. A ventilator for a cooking appliance having surface heater units and an oven, said ventilator adapted to be positioned intermediate said cooking appliance and a wall of a building comprising, in combination:

- a filter chamber having walls defining a cavity;
- a filter positioned within said cavity and dividing said cavity into a front portion and a back portion and inclined toward the front end of said cavity, for condensing vapors of greases and evaporations contained in air passing therethrough;
- a hood means having walls defining a passageway communicating with said front portions of said cavity and positioned above said cooking appliance for accepting gases containing grease and evaporations emanating from the surface heating units;
- an exhaust fan;
- duct means communicating with said rear portion of said cavity and registrably alignable with said exhaust fan whereby said exhaust fan draws said gases containing grease and evaporations from said passageway through said filter and to regions exterior said ventilator;
- grease trough means in condensate-receiving relationship to said filter for receiving condensates of grease and evaporations from said filter;
- bypass means communicating said front portions of said cavity with said rear portion of said cavity, said bypass means comprising a closure means for closing said bypass means for the condition of said exhaust fan operative and opening said bypass means for the condition of said exhaust fan inoperative;
- an oven flue duct for transmitting gases from the oven of the cooking appliance to said front portion of said cavity;
- means for admitting air from regions outside said ventilator into said oven flue duct to cool said gases;
- a first normally convective, open-top and open-bottom, insulating chamber having spaced-apart first side wall portions, a front wall portion and a back wall portion, said front wall portion defining a boundary between said back portion of said cavity of said filter chamber, and said first normally convective insulating chamber for directing a normally convective flow of air from regions intermediate the cooking appliance and the wall of a building to regions adjacent the top of said filter chamber at a first normally convective flow rate;
- a second pair of spaced-apart side wall portions coupled to said first pair of spaced-apart side wall portions and adapted to be abutted against a wall of a building and said second pair of side wall portions, said back wall portion of said first normally convective insulating chamber and the wall of a building define a second normally convective insulating chamber for directing a normally convective flow of air from regions intermediate said cooking appliance and the wall of a building to regions adjacent the top of said first normally convective insulating chamber at a second normally convective flow rate different from said first normally convective flow rate;
- closure means covering the top of said second normally convective insulating chamber, said closure means having a plurality of apertures therein for restricting said second normally convective flow rate and said second normally convective flow rate is less than said first normally convective flow rate; and
- a plurality of apertures in said front wall portion of said second normally convective insulating chamber communicating with said back portion of said cavity of said filter chamber to transmit a preselected amount of air from regions outside said first normally convective insulating chamber, through top regions of said first normally convective insulating chamber, into

- said back portion of said cavity and into said duct means, said preselected amount of air passing over the back of said filter for cooling said filter to increase the condensation of greases and evaporations therein, and said plurality of apertures comprising spaced-apart pairs of holes and having one pair of said spaced-apart pairs of holes for each foot of width of said ventilator. 5
7. A ventilator for a stove having surface heaters and an oven chamber, said ventilator adapted to be positioned intermediate said stove and a wall of a building comprising, in combination: 10
- a filter chamber having walls defining a cavity;
 - a filter positioned within said cavity and dividing said cavity into a front portion and a back portion and inclined toward the front end of said cavity for condensing vapors of greases and evaporations contained in air passing therethrough; 15
 - a filter access opening in said walls defining said cavity for permitting installation and replacement of said filter; 20
 - a door means removably positionable in said filter access opening for closing said filter access opening;
 - spring catch means for normally retaining said door means in said filter access opening; 25
 - an exhaust fan;
 - a hood means having walls defining a passageway communicating with said front portion of said cavity and positioned above said surface heaters for accepting gases containing grease and evaporations emanating from regions adjacent said surface heater; 30
 - duct means communicating with said rear portion of said cavity and registrably alignable with said exhaust fan whereby said exhaust fan draws said gases containing grease and evaporations from said passageway through said filter and to regions exterior said ventilator; 35
 - grease trough means in condensate-receiving relationship to said filter for receiving condensates of grease and evaporations from said filter; 40
 - bypass means communicating said front portions of said cavity with said rear portion of said cavity, said bypass means comprising a closure means for closing said bypass means for the condition of said exhaust fan operative and opening said bypass means for the condition of said exhaust fan inoperative; 45
 - an oven flue duct for transmitting oven generated gases from said oven chamber to said front portion of said cavity;
 - a removable front wall defining forward wall portions of said oven flue duct; 50
 - a plurality of preselected spaced-apart apertures in said removable front wall for admitting air from regions outside said ventilator into said oven flue duct to cool said oven generated gases;

- a first normally convective, open-top and open-bottom, insulating chamber having spaced-apart first side wall portions, a front wall portion and a back wall portion, said front wall portion defining a boundary between said back portion of said cavity of said filter chamber, and said first normally convective insulating chamber for directing a normally convective flow of air from regions intermediate the cooking appliance and the wall of a building to regions adjacent the top of said filter chamber at a first normally convective flow rate;
- a second pair of spaced-apart side wall portions coupled to said first pair of spaced-apart side wall portions and adapted to be abutted against a wall of a building and said second pair of side wall portions, said back wall portion of said first normally convective insulating chamber and the wall of a building define a second normally convective insulating chamber for directing a normally convective flow of air from regions intermediate said cooking appliance and the wall of a building to regions adjacent the top of said first normally convective insulating chamber at a second normally convective flow rate different from said first normally convective flow rate;
- closure means covering the top of said second normally convective insulating chamber, said closure means having a plurality of apertures therein for restricting said second normally convective flow rate and said second normally convective flow rate is less than said first normally convective flow rate;
- a plurality of apertures in said front wall portion of said first normally convective insulating chamber communicating with said back portion of said cavity of said filter chamber to transmit a preselected amount of air from regions outside said first normally convective insulating chamber, through top regions of said first normally convective insulating chamber, into said back portion of said cavity and into said duct means, said preselected amount of air passing over the back of said filter for cooling said filter to increase the condensations of greases and evaporations therein, and said plurality of apertures comprising spaced-apart pairs of holes and having one pair of said spaced-apart pairs of holes for each foot of width of said ventilator.

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