

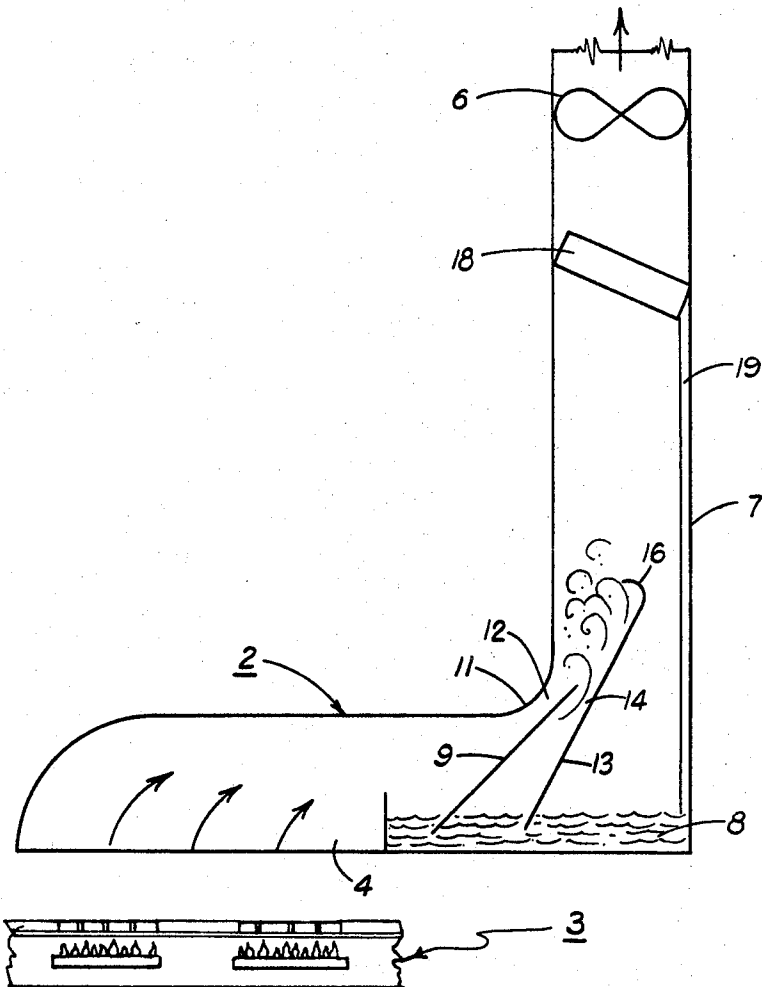
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VENTILATION AND SCRUBBING ASSEMBLY

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VENTILATION AND SCRUBBING ASSEMBLY
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ABSTRACT OF THE DISCLOSURE

A ventilating hood for scrubbing a gas stream from a cooking source including a scrubbing liquid supply means having a venturi-like aspirating passage cooperating therewith to permit aspiration of scrubbing liquids into the vented gas stream from the cooking source.

The present invention relates to ventilation apparatus and more particularly to ventilation and scrubber apparatus for a contaminant laden gas stream effluent emanating from a cooking source.

In accordance with the present invention, a novel ventilation hood arrangement is provided which is particularly adapted for use in conjunction with cooking ranges producing contaminant effluents with large concentrations of contaminants such as grease. The hood arrangement of the present invention insures rapid removal of contaminant laden effluents through a ventilating apparatus which presents a minimum of resistance to the effluent gas stream and which, at the same time, provides maximum contact between the scrubbing liquid and the contaminants in the effluents, the quantity of scrubbing liquid utilized being directly related to the rate of removal of the contaminant laden effluents. In addition, the present invention provides an arrangement which insures maximum liquid-contaminant contact with subsequent removal of contaminants from the liquid for further utilization of such liquid for contaminant scrubbing. In addition, the present invention provides a ventilating hood arrangement which is economical in construction, operation and maintenance, requiring a minimum of working parts and yet providing maximum removal and scrubbing efficiency.

Various other features of the present invention will become obvious to one skilled in the art upon reading the disclosure set forth hereinafter.

More particularly, the present invention provides a ventilating and scrubber assembly for a gas stream emanating from a cooking source comprising: ventilating hood means having a ventilating stack extending therefrom, the hood means being communicably positioned adjacent the cooking source to receive gases to be vented through the stack; baffle means disposed within the hood means and cooperating therewith to provide a venturi-like aspirating passage assembly through which the vented gas is passed; fan means to move the vented gases through the venturi-like aspirating passage assembly at a preselected velocity; and scrubbing liquid supply means cooperating with the baffle means to permit aspiration of scrubbing liquid into the vented gas stream. In addition, the present invention provides a liquid eliminator means in a ventilating hood downstream of the aspirating passage assembly for removal of contaminant laden liquid for subsequent cleaning and recycling purposes.

It is to be understood that various changes can be made in the arrangement, form, and construction of the apparatus disclosed herein without departing from the scope or spirit of the present invention.

Referring to the drawing, there is disclosed a schematic arrangement of one advantageous embodiment of the inventive ventilation and scrubber assembly.

As can be seen in such drawing, ventilating hood 2

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is positioned in spaced relation over cooking range 3 so that contaminant laden gases emanating from the cooking range pass through inlet 4 of hood 2. The ventilated gas effluents from cooking range 3 are moved through hood 2 by means of fan 6 located in the upper portion of ventilating hood stack 7. Positioned adjacent gas inlet 4 in hood 2 is scrubbing liquid tank 8. Tank 8 can be filled from a liquid supply source (not shown) with water or a suitable detergent liquid selected in accordance with the contaminant-laden gas effluents to be treated. In addition, tank 8 can be provided with a suitable liquid level control device (not shown) to insure that an adequate supply of liquid is fed from the liquid supply source and maintained at a proper level in the tank during operating procedures.

Arranged to extend into tank 8 is one end of inclined baffle member 9, the other end being spaced from the curved stack transition 11 of hood 2 to provide venturi-like passage 12 therebetween. A second baffle member 13 is disposed in inclined relation to baffle member 9 and suitably spaced therefrom to provide aspirating passage 14 adjacent venturi passage 12, baffle member 13 extending downwardly toward tank 8 advantageously with one end extending into the liquid of tank 8. The other end of baffle member 13 can be curved as at 16 to provide a liquid throw above the venturi-like and aspirating passages 12 and 14, respectively, to insure thorough contact of the vented gas effluents with the scrubbing liquid.

Positioned in stack 7 downstream of the aforescribed venturi-like and aspirating passages is liquid eliminator pad 18. Pad 18, which can be formed from any one of a number of suitable filter medium materials, such as chemically treated glass fiber or aluminum mesh, is arranged within stack 7 at an angle to the direction of gas flow. This permits the liquid contaminants separated from the vented gases by the pad 18 to gravity drain through conduit 19. Depending upon the nature of the contaminants to be removed, the drained liquid can be circulated back into the tank 8 where the contaminants are allowed to settle out and the liquid once again reutilized for scrubbing purposes.

From the foregoing description, it will be obvious that the contaminant-laden gas effluents in a typical operation, move from range 3 through gas inlet 4 over the face of baffle member 9 to pass through venturi-like passage 11 where the vented gases increase in velocity and cause liquid to be moved from tank 8 through aspirating passage 14 immediately adjacent venturi-like passage 12. Aspirated liquid is thrown into the vented gas stream directed by inclined baffle 9 and brought into contact with the fast moving gases to insure liquid-gas contact. The gases then proceed through liquid eliminator pad where liquid is removed from the gases and drained through drain pipe 19 to a suitable source. As before described, drain pipe 19 can be connected to the tank for recirculation of the liquid with the contaminant particles separating out by settling. It is to be understood that the scrubbing liquid advantageously can be maintained at a temperature below the vented gas to facilitate condensation of contaminant greases in such gas.

The invention claimed is:

1. A ventilating and scrubber assembly for a gas stream emanating from a cooking source comprising: ventilating hood means having a ventilating stack connected to and extending therefrom, said hood means being communicably positioned adjacent a cooking source to receive gases to be vented through said stack; baffle means disposed within said hood means and cooperating therewith to provide a venturi-like aspirating passage assembly through which the vented gases pass; fan means to move the vented gases through said venturi-like aspirating passage assembly at a preselected velocity; scrubbing liquid

supply means cooperating with said baffle means to permit aspiration of scrubbing liquid into the vented gas stream; said baffle means including a first baffle sheet selectively spaced from that portion of the wall of said ventilating hood connected to said ventilating stack to provide a venturi-like passage therebetween; and a second baffle sheet spaced from said first sheet and cooperating therewith to form an aspirating passage therebetween adjacent said venturi passage, said second baffle sheet extending toward said liquid supply means to conduct liquid therefrom through said aspirating passage.

2. The apparatus of claim 1, said second baffle sheet being curved at its extremity above said aspirating passage to provide a liquid throw across the vented gas stream.

3. The apparatus of claim 1, said ventilating stack extending from said hood means through a curved transition member along at least one side thereof; said first baffle sheet being selectively spaced at an angle from said transition member to provide said venturi-like pas-

sage and to direct said vented gases toward said aspirated scrubbing liquid.

4. The apparatus of claim 3, said second baffle sheet member extending at an angle to said first baffle sheet member and having one extremity thereof extending into said liquid scrubbing supply means and the other extremity extending above said aspirating passage in curved configuration to provide a liquid throw in said ventilating stack, said liquid scrubbing supply means being maintained at a temperature below said vented gases.

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