

Description

TECHNICAL FIELD

The invention relates to a ventless hood for a deep fat fryer, and more particularly to such a hood having conventional filter means together with a water tank into which steam and vaporized cooking oil from the cooking pot are introduced, the water in the tank being constantly recirculated through a cooling radiator.

BACKGROUND ART

Deep fat frying commercial pressure cookers are well known in the art. Prior art workers have also developed numerous types of ventless hoods for such pressure cookers. The most frequently encountered prior art ventless hoods employ a fan draw the cooking gasses through conventional filter means such as baffle filters, metallic mesh filters and charcoal filters. Prior art workers have also incorporated electrostatic precipitators in such ventless hoods. However, the electrostatic precipitators require constant maintenance.

US-A-4854949 discloses apparatus for cooking food including a ventless exhaust system whereby a fan pulls heated air through a filter system which includes an aluminum grease filter, an electrostatic precipitator, a flame arrester and a charcoal filter. A fire extinguisher is also included. The apparatus may be operated either as an open-faced, unpressurized fryer or as a pressurized or semi-pressurized fryer. The fan, located in the hood, draws vapours from the cooking pot, as well as ambient air, through the filter assembly and back into the room via an outlet in the top of the hood assembly.

In addition, prior art workers have incorporated circulating sheets or sprays of water as filtering means for cooking gasses. It has been determined, however, that ventless hoods using water sheets or sprays are complex in construction. Since the water sheets or sprays work by gravity, they place constraints on the design and size of the ventless hood structure.

The present invention is based upon the discovery that excellent results can be achieved easily and economically through the provision of a water bath into which the cooking gasses are first introduced. A major portion of the vaporized cooking oils and steam are condensed in the water bath. Residual non-condensables, uncondensed steam and cooking oils, and unabsorbed odors are vented directly from the water bath through the inlet side of a hood system which contains baffle filters, a metallic mesh filter and a charcoal filter. Under these circumstances, no electrostatic precipitator is required.

DISCLOSURE OF THE INVENTION

Accordingly, the present invention provides a ventless hood assembly for the cooking pot of a commercial deep fat frying pressure cooker, said cooking pot having a lockable cover and comprising a vessel in which cooking is performed by a heated bath of cooking oil and steam under pressure derived from the moisture in the food being cooked, said hood assembly comprising an inverted L-shaped structure having a vertical rearward portion extending upwardly from the rear of said cooker and a forward open-bottom portion spaced from and overlying said pot, filter means supported above said pot by and within said forward hood portion, a fan mounted in said rearward hood portion and positioned to draw ambient air and cooking gasses through said filter means, characterized by a water tank containing a water bath mounted on the rear of said cooker, a heat exchanging radiator mounted within said forward hood portion above said filter means and ahead of said fan, pump means to recirculate water from said tank through said radiator and back to said tank to cool said water bath, means to introduce excess steam and vaporized cooking oil into said water bath to maintain a predetermined pressure within said cooking pot, means at the end of the cooking cycle to introduce substantially all of the steam and vaporized cooking oil in said cooking pot into said water bath prior to opening said cooking pot cover, and means to vent non-condensables, uncondensed steam and vaporized cooking oil and unabsorbed odors directly from said water tank to said open bottom of said hood forward portion.

In a related aspect, the invention also provides a ventless hood assembly for the cooking pot of a deep fat frying pressure cooker, said cooking pot having a cover for sealing said pot, said hood assembly overlying said pot, filter means in said hood, a fan in said hood for drawing air through said filter means, characterized by a tank containing a water bath adjacent said pot, conduit means interconnecting said pot and said tank with one end of said conduit means located within said water bath, whereby gasses discharged from said pot percolate through said water bath, a vent conduit connecting the top of said tank with the underside of said hood and positioned to discharge gasses percolated through said water bath beneath said hood, a heat exchanger in said hood between said filter means and said fan, and means for circulating water from said bath through said heat exchanger.

During the cooking cycle, excess steam and vaporized cooking oil are introduced into the water bath by a pressure regulating valve to maintain the pot at the desired pressure. The water bath acts as

a scrubber and condenses the majority of the steam and vaporized cooking oil. Residual non-condensables, uncondensed steam, vaporized cooking oil, and unabsorbed odors are vented from the water tank directly to the bottom of the forwardly extending hood portion. At the end of the cooking cycle, all of the cooking gasses within the pot are vented to the water bath to relieve the pressure within the pot prior to opening the cooking pot cover. The water within the water tank is recirculated through the heat exchanging radiator throughout the cooking operation.

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is an isometric view of a pressure cooker provided with the ventless hood assembly of the present invention, with the right protective panel removed.

Figure 2 is a rear elevational view of the structure of Figure 1.

Figure 3 is a fragmentary side elevational view of the structure of Figure 1, with the ventless hood assembly shown in cross section.

Figure 4 is a cross sectional view taken along section line 4-4 of Figure 3.

DETAILED DESCRIPTION OF THE INVENTION

Reference is made to Figure 1. In this Figure, a conventional pressure cooker or deep fat fryer is generally indicated at 1. The pressure cooker 1 is provided with the ventless hood assembly of the present invention, generally indicated at 2.

The pressure cooker 1 is conventional. The precise construction of the pressure cooker does not constitute a limitation of the present invention. U.S. Patent 2,914,063 teaches a pressure cooker of the general type to which the present invention is directed.

Briefly, the pressure cooker 1 comprises a substantially rectangular cabinet having appropriate structural framework, a portion of which is shown at 3 in Figure 2. The cabinet has right and left side panels 4 and 5 and a front panel 6. The front panel 6 may be provided with a removable access panel or a hinged access door, as is shown at 7. The rear of the cabinet is open, as is apparent from Figure 2. The cabinet, per se, is completed by a horizontal top panel 8 provided with an appropriate edging structure 9, about its periphery. The cabinet is preferably fabricated of stainless steel sheet material.

The cabinet supports a stainless steel cooking pot 10 which is provided with a hinged cover 11. The cover 11 has a peripheral rubber sealing gasket (not shown) which, when the cover is closed, engages the upper edge of pot 10 and forms a seal

therewith.

A locking bar 12 extends longitudinally of cover 11. The rearward end of the locking bar 12 is pivotally affixed to a hinge element 13 mounted on the rear wall of pot 10. The forward end of locking bar 10 carries a pivoted, lever-actuated hook-like member 14, adapted to engage a latch 15 mounted on the front wall of pot 10. The cover has a spindle 16 which provides a connection between the locking bar 12 and the cover 11. As is well known in the art, the spindle can be rotated to cause the cover and its sealing gasket to exert a strong downward pressure against the upper edge of the pot 10.

The items to be cooked (chicken, potatoes, and the like), are placed on a rack within the pot 10 in a measured bath of cooking oil and are cooked under pressure. The pressure is obtained from moisture converted into steam. The moisture, in turn, is derived from the meats or vegetables being cooked. An outlet conduit 17 (see Figure 2) extends from the upper left portion of the rear wall of pot 10 and contains a dead weight or pressure regulating valve assembly 18. The valve assembly 18 will permit steam to escape from pot 10 via conduit 17 when the pressure within the pot exceeds a predetermined level (say about 12 psi). A conduit 19 extends from the upper right hand portion of the rear wall of pot 10 and is provided with a normally closed valve 20 operated by a solenoid 21. The solenoid actuated valve 20 is opened to discharge steam from pot 10 when the cooking cycle is over and it is desired to open the cooking pot 10. More will be said about the valves 18 and 20, and their respective conduits 17 and 19 hereinafter.

The pot 10 is heated by electric coils (not shown) located within the cabinet of pressure cooker 1. The cabinet 1 also contains the various operating instrumentalities of pressure cooker 1 including the controls therefor, safety devices and the like, all as is known in the art. The frame 3 of the pressure cooker cabinet may be supported by casters 22 so that the entire pressure cooker-ventless hood structure is easily moved from place to place. The structure is essentially self-contained, requiring no permanent connections to services. Pressure cookers of the type described are frequently encountered in delis, convenience stores, super markets, restaurants and the like.

The ventless hood assembly 2 is of inverted L-shape with a vertical portion extending upwardly of the pressure cooker 1 and a forwardly extending portion which overlies cooking pot 10. The ventless hood 2 is supported by a pair of vertical beams 23 and 24 (see Figure 2) which are attached to the frame 3 of the cabinet of pressure cooker 1 by any appropriate means (not shown) such as clamping means or the like. The upper ends of vertical

beams 23 and 24 support forwardly extending horizontal beams 25 and 26, respectively. Horizontal beam 26 is clearly shown in Figure 3.

Immediately above the top panel 8 of pressure cooker 1, the beams 23 and 24 support a stainless steel panel 27 which terminates at its side edges in rearwardly extending flanges 27a and 27b which lie along the sides of vertical beams 23 and 24, respectively. The steam conduits 17 and 19 from pot 10 extend through perforations in panel 27.

Above panel 27, the ventless hood 2 is provided with a pair of right and left, substantially vertical side panels 28 and 29. These panels are essentially mirror images of each other. The right panel 28 is shown in Figure 1 and the left panel 29 is shown in Figure 3. The bottom edges of panels 28 and 29 are joined together by a transverse horizontal panel 30 which forms a shelf. The front edges of panels 28 and 29 are joined by a panel 31. The panel 31 has a first vertical portion 31a, terminating in a horizontal portion 31b. The horizontal portion 31b, in turn, terminates in a vertical portion 31c which extends to the top of the ventless hood assembly 2. The portions 31a, 31b and 31c of panel 31 are shown in Figures 2 and 3. The rearward edges of panels 28 and 29 may be joined together by a vertical panel 32 (see Figure 3). The vertical panel 32 extends from the shelf 30 to the top of the ventless hood assembly 2. The vertical panel 32 has been removed in Figure 2 to expose the various elements located within the ventless hood assembly 2.

The ventless hood assembly 2 has additional side panels 33 and 34 which extend forwardly of side panels 28 and 29 respectively. Forward side panel 33 is clearly shown in Figure 1 and forward side panel 34 is illustrated in Figure 3. Forward side panels 33 and 34 are mirror images of each other. It will be noted that the upper edges of forward side panels 33 and 34 are horizontal and constitute a continuation of the upper horizontal edges of side panels 28 and 29. The bottom edges of forward side panels 33 and 34, however, slope upwardly and forwardly at an angle of about 9° to the horizontal. The front edges of forward side panels 33 and 34 are perpendicular to the bottom edges, and therefore slope upwardly and rearwardly. The front edges of forward side panels 33 and 34 are joined together by front panel 35. The front panel 35 has a pair of transverse slots 36 and 37 formed therein. The purpose of these slots will be apparent hereinafter. The slots 36 and 37 are normally closed by a removable panel 38. The removable panel 38 is affixed to panel 35 by any appropriate means. The exterior of the ventless hood assembly 2 is completed by horizontal top panel 39. All of the panel elements of ventless hood assembly 2, thus far described, are preferably

made of sheet stainless steel. It will be noted that that part of the ventless hood assembly defined by panel portion 31c, front panel 35, forward side panels 33 and 34 and top panel 39 is open at the bottom and overlies pot 10.

Referring to Figures 3 and 4, a stainless steel wall 40 extends across the hood assembly from forward side panel 33 to forward side panel 34 and is attached to both. The wall 40 has an inverted V-shaped cutout extending upwardly from its bottom edge, as is shown at 41 in Figure 4. It will be noted from Figure 3 that the wall 40 is parallel to front panel 35.

As is most clearly shown in Figure 3, a second wall 42 is attached to wall 40, just above the V-shaped cutout therein, and extends to and is affixed to panel portion 31c. The wall 42 also extends between and is attached to forward side panels 33 and 34. It will be noted that wall 42 is parallel to the bottom edges of forward side panels 33 and 34.

Returning to Figure 4, the bottom edges of forward side panels 33 and 34 are turned inwardly as at 33a and 34a, and upwardly as at 33b and 34b. A longitudinal stainless steel brace 43 extends from wall 40 to front panel 35. The brace 43 has rearward and forward upturned tabs 44 and 45 which are welded or otherwise appropriately affixed to wall 40 (just above the V-shaped cut out 41) and front panel 35. The longitudinal edges 43a and 43b of brace 43 are turned downwardly and outwardly, as is most clearly seen in Figure 4.

The inturned and upturned panel edges 33a-33b, 34a-34b, in conjunction with the downturned brace edges 43a and 43b cooperate to removably support a pair of conventional, kitchen-type baffle filters 45 and 46. The baffle filters 45 and 46 are so supported as to extend upwardly and inwardly toward each other, each at an angle of about 45° to the horizontal. The baffle filters 45 and 46 are made of metallic material and, as is well known in the art, serve well as collectors of oil and grease. The baffle filters also act as fire blocks, tending to prevent flame from reaching the other elements of the hood located above the baffle filters. It will be apparent from Figure 4 that the baffle filters can easily be lifted out of the hood assembly for purposes of cleaning.

As is well known in the art, the bottom edges of the baffle filters 45 and 46 are provided with a plurality of perforations (not shown) by which collected grease can run into the troughs formed by the inturned and upturned forward side panel bottom edges 33a-33b and 34a-34b. It will be remembered that these troughs extend rearwardly and downwardly at an angle of about 9° to the horizontal and extend to the panel portion 31c, as is clearly shown in Figure 3. The wall 40 has arcuate cut outs 47 and 48 (see Figure 4) allowing the

accumulated grease to flow down the troughs into the stainless steel grease trap or collector 49. The grease collector 49 comprises an open top, rectangular stainless steel pan having front and rear walls 49a and 49b, end walls 49c and 49d and a bottom 49e. The end walls 49c and 49d terminate at their upper edges in upwardly and inwardly extending tabs 50 and 51, respectively (see Figure 4). The panel portion 31b supports a pair of stainless steel, Z-shaped brackets 52 and 53. The intumed portions of tabs 50 and 51 having a sliding engagement with the brackets 52 and 53 so that the grease collector 49 can be easily removed for cleaning purposes.

A stainless steel bracket 54 is welded or otherwise appropriately affixed to the underside of brace 43 and terminates in downturned ends 55 and 56. A fire extinguisher conduit extends through a perforation in panel portion 31c, through the V-shaped cutout of wall 40, and through perforations in the downturned bracket ends 55 and 56. The forwardmost end of the fire extinguisher conduit 57 is turned downwardly, as is shown in Figure 3, and is provided with a conventional nozzle 58 provided with a fused link adapted to melt at a predetermined temperature to open the nozzle. The nozzle 58 and the downturned forward portion of conduit 57 have been deleted from Figure 4, for purposes of clarity.

Just below the fire extinguisher conduit 57, a steam deflector fitting 59 is removably affixed to the panel portion 31c. The steam deflector fitting 59 comprises a rectangular stainless steel box-like fitting having an open top, a front wall 59a, a bottom wall 59b, side walls 59c and 59d, and a rear wall 59e which extends above the front wall 59a. The rear wall 59e has a perforation 60 formed therein. The purpose of steam deflector fitting 59 will be apparent hereinafter.

The forward side panels 33 and 34 have welded thereto a pair of stainless steel Z-shaped brackets 61 and 62. The brackets 61 and 62 extend from a position near front panel 35 to the wall 40 and are parallel to the bottom edges of the forward side panels 33 and 34. Welded or otherwise appropriately affixed to the Z-shaped brackets 61 and 62 is a lower pair of stainless steel angle irons 63 and 64, respectively. An upper pair of stainless steel angle irons 65 and 66 is similarly welded to the Z-shaped brackets 61 and 62, respectively, above the lower angle irons 63 and 64. All four angle irons 63-66 extend from the front panel 35 to the wall 40 and are parallel to the bottom edges of their respective forward side panels 33 and 34. The intumed and opposed legs of angle irons 63 and 64 removably support a conventional metallic mesh filter 67. Similarly, the intumed and opposed legs of angle irons 65 and 66 support a conventional

charcoal filter 68. The mesh filter 67 and charcoal filter 68 are insertable into the hood assembly and removable from the hood assembly through the slots 37 and 36 respectively, of front panel 35 when cover panel 38 has been removed (see Figure 1). The aluminum mesh of the conventional mesh filter 67 will trap grease and particulate matter while the charcoal filter will trap odors and the like.

The forward portion of the hood assembly 2 of the present invention is completed by a stainless steel panel 69 which has an upturned flange 70 at its forward end. The flange 70 is welded or otherwise appropriately affixed to the inside surface of front panel 35 (see Figure 3). The upper end of wall 40 terminates in a forwardly extending flange 71. The rearward edge of panel 69 is welded or otherwise appropriately affixed to the flange 71. As is apparent from Figure 4, the panel 69 has a large opening 72 formed therein. The panel 69 supports a radiator 73. The radiator 73 comprises front and rear channel members 74 and 75 and a copper tube 76 arranged in a sinuous configuration. The plurality of flights of the copper tube 76 pass through and are supported by the channel members 74 and 75. Between the channel members, the copper tube 76 supports a plurality of heat dissipating fins 77, extending transversely of the radiator. One end of the copper tube 76 constitutes an inlet end 76a and extends through a perforation in panel portion 31c. The other end of the copper tube 76b constitutes the outlet end. It will be understood that the outlet end 76b will also extend through a perforation in panel portion 31c.

Referring to Figures 2 and 3, immediately behind panel portion 31c there is located a fan 78. The fan has a squirrel cage 79 which is driven by an electric motor 80. The fan 78 has an upwardly directed outlet 81 and an inlet 82 formed in its front face. The panel portion 31c has an opening 83 formed therein and corresponding to the inlet opening of fan 78. The fan will draw ambient air, steam, etc. upwardly through the baffle filters 45 and 46, the mesh filter 67, the charcoal filter 68 and the radiator 73. The radiator 73 is mounted at a slightly greater angle than the filters to assist the air in making the turn toward the fan as shown by arrow A. The fan discharges vertically upwardly through an opening 84 in the hood top panel 39 (see Figure 1).

The shelf panel 30 supports a fire extinguisher 85. As is shown in Figure 3, the fire extinguisher 85 is connected to the fire extinguisher conduit 57.

Behind the pressure cooker cabinet, and mounted on the cabinet framework 3, there is a substantially rectangular, vertically oriented water tank 86. The water tank 86 has an inlet 87 connected by a flexible hose 88 to the outlet 76b of radiator 73.

The tank 86 has an outlet 89 connected by a flexible hose 90 to the inlet of a pump 91. The pump 91 has an outlet 92 connected by a flexible hose 93 to the inlet 76a of radiator 73.

The normal water level within water tank 86 is indicated by broken line 94. The tank 86 is provided with an overflow pipe 95 provided with an elbow 96. The overflow pipe 95 extends downwardly to a condensate pan 97 located in the bottom of the pressure cooker cabinet and removable from the front thereof by means of access door 7 (see Figure 1).

The tank 86 is provided with a vent fitting 98 connected by a flexible hose 99 to a fitting 100 on hood panel portion 31c. The fitting 100 is aligned with the opening 60 in the rear wall 59e of steam deflector fitting 59 (see Figures 3 and 4).

The conduit 17 which extends from the upper lefthand corner of the rear wall of the pot 10 through panel 27, and which contains the dead weight or pressure regulating valve 18 (see Figure 3), is connected to a conduit 101 which extends into the tank and below the water level 94. The conduit 101 terminates in a steam discharge fitting 102. The conduit 19 which extends from the upper right hand corner of the rear wall of pot 10 through panel 27, and contains valve 20 with its actuating solenoid 21, is connected to conduit 17, as is clearly shown in Figure 2. Finally, the tank 86 is provided with a manually actuatable drain valve 103.

The ventless hood assembly 2 of the present invention is completed by a pair of stainless steel side protective panels 103 and 104 (see Figure 2). The protective panels 103 and 104 are mirror images of each other. Protective panel 104 is best shown in Figure 3. The protective panel 104 has welded to its inside surface a series of headed studs 105. The headed studs 105 are receivable in keyhole slots 106 formed in forward side panel 34. In this way, the protective panel 104 can be easily removed to clean the apparatus. It will be noted from Figures 1 and 3 that protective panel 104 extends downwardly below pot cover 11 and nearly to the top panel 8 of the pressure cooker 1. Protective panel 103 is mounted in an identical manner. While the protective panel 103 has been removed in Figure 1 for purposes of clarity, the keyhole slots to mount it are shown in forward side panel 33 at 107. It is within the scope of the invention to provide limit switches (not shown) actuated by the protective panels 103 and 104 when mounted in place, to enable the pressure cooker 1 to be operated. This will assure that the protective panels 103 and 104 are in place during the cooking operation.

The various elements making up the ventless hood 2 of the present invention having been described in detail, its operation can now be set forth.

With the safety panels 103 and 104 in place, the pot 10 is filled with a predetermined amount of liquid cooking oil, together with a rack supporting the food items to be cooked. The cover 11 is closed and locked in closed position by latch 14 and spindle 16. The heating coils are turned on and the cooking oil is heated. The pressure within pot 10 begins to rise as moisture from the items being cooked is converted to steam.

If the pressure within pot 10 exceeds a predetermined level (say about 12 psi), the regulator valve 18 will open and steam will be discharged via conduit 17, conduit 101 and the steam discharge fitting 102 into the water bath in tank 86. The ventless hood fan 78 and the water pump 91 are turned on at the same time as the heating coils. As a consequence, water is withdrawn constantly from tank 86 and pumped to the radiator 73 where it is cooled by ambient air drawn through the filter elements 45, 46, 67, 68 and the radiator 73. The air is discharged upwardly through fan outlet 81. The recirculating of the water bath in tank 86 through radiator 73, and the cooling of the water by, radiator 73 will assure that the majority of the steam and vaporized cooking oil introduced into tank 86 will be condensed. Any steam or vaporized cooking oil not so condensed will pass upwardly through the tank vent outlet 98, hose 99 and fitting 100 to the steam deflector fitting 59. The fitting 59 will direct the steam upwardly, as indicated by arrow B, and into that portion of the ventless hood containing the filters, via the V-shaped cut out in wall 40. The baffle filters 45 and 46 will condense and trap most of the water vapor and vaporized cooking oil which will be collected in the grease collector 49. The mesh filter 67 will trap the remaining vaporized cooking oil together with any particulate material. Odors will be trapped by the charcoal filter.

At the end of the cooking cycle, the solenoid actuated valve 20 will be opened, causing steam and vaporized cooking oils from the vat to pass via conduit 19 to conduit 17. From conduit 17 this material will pass via conduit 101 and steam discharge fitting 102 into the water bath 86 wherein the majority of it will be condensed. Should the water level rise in tank 86, the excess water will be conducted by conduit 95 to the condensate pan 97. When the pressure within the pot 10 reaches a low level of about 1 psi, the cover may be opened and the cooked food removed. When the cover 11 is opened, any steam or vaporized cooking oil remaining therein will be drawn up through the baffle filters 45 and 46, the mesh filter 67, and the charcoal filter 68 by fan 78.

From the above description, it will be apparent that the water tank 86 serves as a scrubber, causing most of the steam and vaporized cooking oils to condense within the tank. The tank 86 will con-

tinue to act as a scrubber since the temperature of the water therein is regulated by recirculation through radiator 73.

Modifications may be made in the invention without departing from its scope, as defined by the following claims.

Claims

1. A ventless hood assembly (2) for the cooking pot (10) of a commercial deep fat frying pressure cooker (1), said cooking pot (10) having a lockable cover (11) and comprising a vessel in which cooking is performed by a heated bath of cooking oil and steam under pressure derived from the moisture in the food being cooked, said hood assembly (2) comprising an inverted L-shaped structure having a vertical rearward portion extending upwardly from the rear of said cooker (1) and a forward open-bottom portion spaced from and overlying said pot (10), filter means (45, 46, 67, 68) supported above said pot (10) by and within said forward hood portion, a fan (78) mounted in said rearward hood portion and positioned to draw ambient air and cooking gasses through said filter means (45, 46, 67, 68), characterized by a water tank (86) containing a water bath mounted on the rear of said cooker (1), a heat exchanging radiator (73) mounted within said forward hood portion above said filter means (45, 46, 67, 68) and ahead of said fan (78), pump means (91) to recirculate water from said tank (86) through said radiator (73) and back to said tank (86) to cool said water bath, means (17, 18, 101, 102) to introduce excess steam and vaporized cooking oil into said water bath to maintain a predetermined pressure within said cooking pot (10), means (19, 20, 17, 101, 102) at the end of the cooking cycle to introduce substantially all of the steam and vaporized cooking oil in said cooking pot (10) into said water bath prior to opening said cooking pot cover (11), and means (98, 99, 100, 59) to vent non-condensables, uncondensed steam and vaporized cooking oil and unabsorbed odors directly from said water tank (86) to said open bottom of said hood forward portion.
2. The ventless hood assembly claimed in claim 1 characterized in that said filter means comprises a pair of baffle filters (45, 46) extending longitudinally of said forward hood portion and sloping transversely of said forward hood portion upwardly and toward each other in an inverted V-shaped configuration forming an angle therebetween of about 90°, said pair of baffle filters (45, 46) also sloping downwardly and rearwardly with respect to said forward portion of said hood assembly at an angle of about 9° to the horizontal, a metallic mesh filter (67) mounted above said pair of baffle filters (45, 46) and a charcoal filter (68) mounted above said metallic mesh filter (67).
3. The ventless hood assembly (2) claimed in claim 1 characterized in that said means to introduce excess steam and vaporized cooking oil into said water bath to maintain a predetermined pressure within said cooking pot (10) comprises a first conduit (17) extending from the upper rearward portion of said pot (10) and containing a pressure regulating valve assembly (18), said first conduit being connected to a second conduit (101) extending into said water tank (86), said second conduit (101) terminating in a steam discharging fitting (102) positioned within said water bath.
4. The ventless hood assembly (2) claimed in claim 1 characterized in that said means to vent said water tank (86) directly to said open bottom of said hood forward portion comprises a vent fitting (98) at the top of said water tank (86), a conduit (99) attached to said tank vent fitting (98) and to a steam deflector fitting (59) mounted on said rearward portion of said hood assembly (2) and configured to direct non-condensables, uncondensed steam and vaporized cooking oil and unabsorbed odors from said water tank (86) into said open bottom of said forward hood portion.
5. The ventless hood assembly (2) claimed in claim 1 characterized by an overflow pipe (95) connected to said water tank (86) just above the desired normal water bath level (94), a condensate pan (97) removably mounted in said pressure cooker (1) below said cooking pot (10), said overflow pipe (95) having an elbow (96) formed therein and leading to said condensate pan (97).
6. The ventless hood assembly claimed in claim 1 characterized by a fire extinguisher (85) mounted within said rearward hood portion, a fire extinguisher conduit (57) connected to said fire extinguisher (85) and extending into said forward hood portion beneath said filter means (45, 46, 67, 68), said fire extinguisher conduit (57) terminating in a fused link nozzle (58) automatically openable when subjected to a predetermined temperature.
7. The ventless hood assembly claimed in claim 1 characterized by a pair of protective panels



tinue to act as a scrubber since the temperature of the water therein is regulated by recirculation through radiator 73.

Modifications may be made in the invention without departing from its scope, as defined by the following claims.

Claims

1. A ventless hood assembly (2) for the cooking pot (10) of a commercial deep fat frying pressure cooker (1), said cooking pot (10) having a lockable cover (11) and comprising a vessel in which cooking is performed by a heated bath of cooking oil and steam under pressure derived from the moisture in the food being cooked, said hood assembly (2) comprising an inverted L-shaped structure having a vertical rearward portion extending upwardly from the rear of said cooker (1) and a forward open-bottom portion spaced from and overlying said pot (10), filter means (45, 46, 67, 68) supported above said pot (10) by and within said forward hood portion, a fan (78) mounted in said rearward hood portion and positioned to draw ambient air and cooking gasses through said filter means (45, 46, 67, 68), characterized by a water tank (86) containing a water bath mounted on the rear of said cooker (1), a heat exchanging radiator (73) mounted within said forward hood portion above said filter means (45, 46, 67, 68) and ahead of said fan (78), pump means (91) to recirculate water from said tank (86) through said radiator (73) and back to said tank (86) to cool said water bath, means (17, 18, 101, 102) to introduce excess steam and vaporized cooking oil into said water bath to maintain a predetermined pressure within said cooking pot (10), means (19, 20, 17, 101, 102) at the end of the cooking cycle to introduce substantially all of the steam and vaporized cooking oil in said cooking pot (10) into said water bath prior to opening said cooking pot cover (11), and means (98, 99, 100, 59) to vent non-condensables, uncondensed steam and vaporized cooking oil and unabsorbed odors directly from said water tank (86) to said open bottom of said hood forward portion.
2. The ventless hood assembly claimed in claim 1 characterized in that said filter means comprises a pair of baffle filters (45, 46) extending longitudinally of said forward hood portion and sloping transversely of said forward hood portion upwardly and toward each other in an inverted V-shaped configuration forming an angle therebetween of about 90°, said pair of baffle filters (45, 46) also sloping downwardly and rearwardly with respect to said forward portion of said hood assembly at an angle of about 9° to the horizontal, a metallic mesh filter (67) mounted above said pair of baffle filters (45, 46) and a charcoal filter (68) mounted above said metallic mesh filter (67).
3. The ventless hood assembly (2) claimed in claim 1 characterized in that said means to introduce excess steam and vaporized cooking oil into said water bath to maintain a predetermined pressure within said cooking pot (10) comprises a first conduit (17) extending from the upper rearward portion of said pot (10) and containing a pressure regulating valve assembly (18), said first conduit being connected to a second conduit (101) extending into said water tank (86), said second conduit (101) terminating in a steam discharging fitting (102) positioned within said water bath.
4. The ventless hood assembly (2) claimed in claim 1 characterized in that said means to vent said water tank (86) directly to said open bottom of said hood forward portion comprises a vent fitting (98) at the top of said water tank (86), a conduit (99) attached to said tank vent fitting (98) and to a steam deflector fitting (59) mounted on said rearward portion of said hood assembly (2) and configured to direct non-condensables, uncondensed steam and vaporized cooking oil and unabsorbed odors from said water tank (86) into said open bottom of said forward hood portion.
5. The ventless hood assembly (2) claimed in claim 1 characterized by an overflow pipe (95) connected to said water tank (86) just above the desired normal water bath level (94), a condensate pan (97) removably mounted in said pressure cooker (1) below said cooking pot (10), said overflow pipe (95) having an elbow (96) formed therein and leading to said condensate pan (97).
6. The ventless hood assembly claimed in claim 1 characterized by a fire extinguisher (85) mounted within said rearward hood portion, a fire extinguisher conduit (57) connected to said fire extinguisher (85) and extending into said forward hood portion beneath said filter means (45, 46, 67, 68), said fire extinguisher conduit (57) terminating in a fused link nozzle (58) automatically openable when subjected to a predetermined temperature.
7. The ventless hood assembly claimed in claim 1 characterized by a pair of protective panels



(103, 104), each of said panels (103, 104) being removably mountable on the sides of said hood forward portion, said panels (103, 104) extending below said pot cover (11) on either side thereof.

8. The ventless hood assembly claimed in claim 2 characterized by trough-like means (33a-33b, 34a-34b) supporting the lower edges of said baffle filters (45, 46), an open-top pan-like grease collector (49) mounted on said rearward portion of said hood, said trough-like means (33a-33b, 34a-34b) extending to said grease collector (49) whereby condensed cooking oil trapped by said baffle filters (45, 46) flows to and is accumulated in said grease collector (49).

9. The ventless hood assembly claimed in claim 3 characterized in that said means to introduce substantially all of the steam and vaporized cooking oil in said cooking pot (10) into said water bath at the end of the cooking cycle prior to opening said cooking pot cover (11), comprises a third conduit (19) extending from the upper rearward portion of said pot (10) and containing a normally closed valve (20), said third conduit (19) being connected to said first conduit (17) between said pressure regulating valve assembly (18) and said second conduit (101).

10. The ventless hood assembly claimed in claim 9 characterized in that said filter means comprises a pair of baffle filters (45, 46) extending longitudinally of said forward hood portion and sloping transversely of said forward hood portion upwardly and toward each other in an inverted V-shaped configuration forming an angle therebetween of about 90°, said pair of baffle filters (45, 46) also sloping downwardly and rearwardly with respect to said forward portion of said hood assembly at an angle of about 9° to the horizontal, a metallic mesh filter (67) mounted above said pair of baffle filters (45, 46) and a charcoal filter (68) mounted above said metallic mesh filter (67).

11. The ventless hood assembly claimed in claim 10 characterized in that said means to vent said water tank (86) directly to said open bottom of said hood forward portion comprises a vent fitting (98) at the top of said water tank (86), a conduit (99) attached to said tank vent fitting (98) and to a steam deflector fitting (59) mounted on said rearward portion of said hood assembly and configured to direct non-condensables, uncondensed steam and vaporized

cooking oil and unabsorbed odors from said water tank (86) into said open bottom of said forward hood portion.

5 12. The ventless hood assembly claimed in claim 11 characterized by an overflow pipe (95) connected to said water tank (86) just above the desired normal water bath level (94), a condensate pan (97) removably mounted in said pressure cooker (1) below said cooking pot (10), said overflow pipe (95) having an elbow (96) formed therein and leading to said condensate pan (97).

15 13. The ventless hood assembly claimed in claim 12 characterized by a fire extinguisher (85) mounted within said rearward hood portion, a fire extinguisher conduit (57) connected to said fire extinguisher (85) and extending into said forward hood portion beneath said filter means (45, 46, 67, 68), said fire extinguisher conduit (57) terminating in a fused link nozzle (58) automatically openable when subjected to a predetermined temperature.

25 14. The ventless hood assembly claimed in claim 13 characterized by a pair of protective panels (103, 104), each of said panels (103, 104) being removably mountable on the sides of said hood forward portion, said panels (103, 104) extending below said pot cover (11) on either side thereof.

35 15. The ventless hood assembly claimed in claim 14 characterized by trough-like means (33a-33b, 34a-34b) supporting the lower edges of said baffle filters (45, 46), an open-top pan-like grease collector (49) mounted on said rearward portion of said hood, said trough-like means (33a-33b, 34a-34b) extending to said grease collector (49) whereby condensed cooking oil trapped by said baffle filters (45, 46) flows to and is accumulated in said grease collector (49).

45 16. A ventless hood assembly (2) for the cooking pot (10) of a deep fat frying pressure cooker (1), said cooking pot (10) having a cover (11) for sealing said pot (10), said hood assembly (2) overlying said pot (10), filter means (45, 46, 67, 68) in said hood, a fan (78) in said hood for drawing air through said filter means (45, 46, 67, 68), characterized by a tank (86) containing a water bath adjacent said pot (10), conduit means (17, 101, 102) interconnecting said pot (10) and said tank (86) with one end (102) of said conduit means (17, 101, 102) located within said water bath, whereby gasses dis-



charged from said pot (10) percolate through said water bath, a vent conduit (98, 99, 100, 59) connecting the top of said tank (86) with the underside of said hood and positioned to discharge gasses percolated through said water bath beneath said hood, a heat exchanger (73) in said hood between said filter means (45, 46, 67, 68) and said fan (78), and means (91) for circulating water from said bath through said heat exchanger (73).

Patentansprüche

1. Abzugslose Haubenanordnung (2) für den Kochbehälter (10) eines handelsüblichen Friteuse-Druckkochers (1), wobei der Kochbehälter (10) einen verschließbaren Deckel (11) hat und ein Gefäß umfaßt, indem das Kochen durch ein erhitztes Bad von kochendem Öl sowie Dampf unter Druck durchgeführt wird, der aus der Feuchtigkeit in der im Kochvorgang befindlichen Nahrung stammt, wobei diese Haubenanordnung (2) eine umgekehrt L-förmige Struktur mit einem vertikalen hinteren Teil, der von der Rückseite dieses Kochers (1) nach oben sich erstreckt und einen vorderen Teil mit offenem Boden unter Abstand von und oberhalb dieses Behälters (10), Filtermittel (45, 46, 67, 68), die oberhalb dieses Behälters (10) durch und innerhalb dieses vorderen Haubenteils angebracht sind, ein Gebläse (78), das im hinteren Haubenteil montiert und so positioniert ist, daß es Umgebungsluft und Kochgase durch dieses Filtermittel (45, 46, 67, 68) zieht, aufweist, gekennzeichnet durch einen auf der Rückseite dieses Kochers (1) angebrachten ein Wasserbad enthaltenden Tank (86), einen wärmeaustauschenden Radiator (73), der innerhalb dieses vorderen Haubenteils oberhalb dieses Filtermittels (45, 46, 67, 68) und vor diesem Gebläse (78) gelagert ist, Pumpmittel (91), die Wasser aus diesem Tank (86) durch diesen Radiator (73) und zurück zu diesem Tank (86) zum Kühlen dieses Wasserbads rezirkulieren, Mittel (17, 18, 101, 102), die übermäßigen Dampf und verdampftes Kochöl in dieses Wasserbad einführen, um einen vorbestimmten Druck innerhalb dieses Kochbehälters (10) aufrechtzuerhalten, Mittel (19, 20, 17, 101, 102) am Ende des Kochzyklus, um im wesentlichen den gesamten Dampf und das verdampfte Kochöl in diesem Kochbehälter (10) in dieses Wasserbad vor dem Öffnen dieses Kochbehälterdeckels (11) einzuführen sowie Mittel (98, 99, 100, 59), um nicht kondensierbare Bestandteile, nicht kondensierten Dampf und verdampftes Kochöl und nicht absorbierte Geruchsstoffe direkt aus diesem Wassertank (86)

gegen diesen offenen Boden dieses Haubenvorderteils zu entlüften.

2. Die in Anspruch 1 beanspruchte abzugslose Haubenanordnung, dadurch gekennzeichnet, daß dieses Filtermittel ein Paar von Umlenkfiltern (45, 46) umfaßt, die sich in Längsrichtung dieses vorderen Haubenteils erstrecken und quer zu diesem vorderen Haubenteil nach oben und gegeneinander in einer umgekehrten V-förmigen Konfiguration schräg zulaufen und einen Winkel von etwa 90° hier zwischen bilden, wobei dieses Paar von Umlenkfiltern (45, 46) auch schräg nach unten und hinten bezogen auf den vorderen Teil dieser Haubenanordnung unter einem Winkel von etwa 9° zur Horizontalen zulaufen, wobei ein metallisches Maschenfilter (67) oberhalb dieses Paares von Umlenkfiltern (45, 46) angebracht und ein Kohlefilter (68) oberhalb dieses metallischen Maschenfilters (67) vorgesehen ist.
3. Die in Anspruch 1 beanspruchte abzugslose Haubenanordnung (2), dadurch gekennzeichnet, daß dieses Mittel zum Einführen von Dampf im Überschuß und von verdampftem Kochöl in dieses Wasserbad zur Aufrechterhaltung eines bestimmten Drucks innerhalb dieses Kochbehälters (10) eine erste Leitung (17) umfaßt, die vom oberen hinteren Teil dieses Behälters (10) abgeht und eine Druckregulierungs-Ventilanordnung (18) enthält, wobei diese erste Leitung mit einer zweiten Leitung (101) verbunden ist, die in diesen Wassertank (86) sich erstreckt, wobei diese zweite Leitung (101) in einem (Wasser)Dampfauslaß-Fitting (102), welches innerhalb dieses Wasserbads positioniert ist, endet.
4. Die in Anspruch 1 beanspruchte abzugslose Haubenanordnung (2), dadurch gekennzeichnet, daß dieses Mittel zum Entlüften dieses Wassertanks (86) direkt zu diesem offenen Boden dieses vorderen Haubenteils ein Entlüftungs-Fitting (98) am Kopf dieses Wassertanks (86), eine an diesem Tank-Entlüftungs-Fitting (98) und an einem Dampfdeflektor-Fitting (59) befestigte Leitung (99), die auf diesem hinteren Teil der Haubenanordnung (2) angebracht und so konfiguriert ist, daß sie nicht kondensierbare Bestandteile, nicht kondensierten Dampf und verdampftes Kochöl und nicht absorbierte Geruchsstoffe aus diesem Wassertank (86) in diesen offenen Boden dieses vorderen Haubenteils leitet, umfaßt.
5. Die in Anspruch 1 beschriebene abzugslose Haubenanordnung (2), gekennzeichnet durch



ein Überlaufrohr (95), das mit diesem Wassertank (86) gerade oberhalb des gewünschten normalen Wasserbadniveaus (94) verbunden ist; und einen Kondensat-Tiegel (97) entferntbar in diesem Druckkocher (1) unterhalb dieses Kochbehälters (10) angebracht ist, wobei dieses Überströmrohr (95) einen hierin ausgebildeten Krümmer (96) hat und zu diesem Kondensat-Tiegel (97) führt.

6. Die in Anspruch 1 beanspruchte abzugslose Haubenanordnung, gekennzeichnet durch einen Feuerlöscher (85) der innerhalb dieses hinteren Haubenteils angebracht ist, eine Feuerlöscherleitung (57), die mit diesem Feuerlöscher (85) verbunden ist und in diesen vorderen Haubenteil unterhalb dieses Filtermittels (45, 46, 67, 68) sich erstreckt, wobei diese Feuerlöscherleitung (57) in einer Verschmelzungs-Verbindungsdüse (58) endet, die automatisch, wenn sie einer bestimmten Temperatur ausgesetzt ist, sich öffnen kann.

7. Die in Anspruch 1 beanspruchte abzugslose Haubenanordnung, gekennzeichnet durch ein Paar von Schutzpanelen (103, 104), wobei jedes dieser Paneele (103, 104) entferntbar auf den Seiten dieses vorderen Teils der Haube anbringbar ist, wobei diese Paneele (103, 104) unter diesen Behälterdeckel (11) auf beiden Seiten hiervon reichen.

8. Die abzugslose in Anspruch 2 beanspruchte Haubenanordnung, gekennzeichnet durch rinnenartige Mittel (33a-33b, 34a-34b), die die unteren Ränder dieser Umlenkfilter (45, 46) tragen, wobei ein tiegelartiger oben offener Fettsammler (49) auf diesem hinteren Teil dieser Haube angebracht ist, wobei diese rinnenartigen Mittel (33a-33b, 34a-34b) sich bis zu diesem Fettsammler (49) erstrecken, wodurch kondensiertes durch diese Umlenkfilter (45, 46) eingefangenes Kochöl zu diesem Fettsammler (49) strömt und hierin gesammelt wird.

9. Die in Anspruch 3 beanspruchte abzugslose Haubenanordnung, dadurch gekennzeichnet, daß dieses Mittel zum Einführen im wesentlichen des gesamten (Wasser)Dampfes und des verdampften Kochöls in diesem Kochbehälter (10) in dieses Wasserbad am Ende des Kochzyklus vor dem Öffnen dieses Kochbehälterdeckels (11) eine dritte Leitung (19) umfaßt, die vom oberen hinteren Teil dieses Behälters (10) abgeht und ein normalerweise geschlossenes Ventil (20) enthält, wobei diese dritte Leitung (19) mit dieser ersten Leitung (17) zwischen dieser Druckeinstellventil-Anordnung

(18) und dieser zweiten Leitung (101) verbunden ist.

10. Die in Anspruch 9 beanspruchte abzugslose Haubenanordnung, dadurch gekennzeichnet, daß dieses Filtermittel ein Paar von Umlenkfiltern (45, 46) umfaßt, die in Längsrichtung dieses vorderen Haubenteils sich erstrecken und quer zu diesem vorderen Haubenteil nach oben und gegeneinander in einer Konfiguration eines umgekehrten V schräg verlaufen und einen Winkel hierzwischen von etwa 90° bilden, wobei dieses Paar von Umlenkfiltern (45, 46) auch nach unten und hinten bezogen auf den vorderen Teil dieser Haubenanordnung unter einem Winkel von etwa 9° zur Horizontalen schräg verläuft, wobei ein metallisches Maschenfilter (67) oberhalb dieses Paares von Umlenkfiltern (45, 46) sowie ein Kohlefilter (68) oberhalb dieses metallischen Maschenfilters (67) angebracht sind.

11. Die in Anspruch 10 beanspruchte abzugslose Haubenanordnung, dadurch gekennzeichnet, daß dieses Mittel zum Entlüften dieses Wassertanks (86) direkt zu diesem offenen Boden dieses vorderen Haubenteils ein Entlüftungs-Fitting (98) am Kopf dieses Wassertanks (86) umfaßt, wobei eine Leitung (99) an diesem Tankentlüftungs-Fitting (98) und an einem (Wasser) Dampf-Deflektor-Fitting (59) befestigt ist, das auf diesem hinteren Teil dieser Haubenanordnung angebracht und so konfiguriert ist, daß nicht kondensierbare Bestandteile, nicht kondensierbare (Wasser)Dampf und verdampftes Kochöl und nicht absorbierte Geruchsstoffe aus diesem Wassertank (86) in diesen offenen Boden dieses vorderen Haubenteils geleitet werden.

12. Die in Anspruch 11 beanspruchte abzugslose Haubenanordnung, gekennzeichnet durch ein Überströmrohr (95), das mit diesem Wassertank (86) kurz oberhalb des gewünschten normalen Wasserbadniveaus (94) verbunden ist, wobei ein Kondensat-Tiegel (97) abnehmbar in diesem Druckkocher (1) unterhalb dieses Kochtopfes (10) gelagert ist, wobei dieses Überströmrohr (95) einen hierin ausgebildeten Krümmer (96) hat und zu diesem Kondensat-Tiegel (97) führt.

13. Die abzugslose in Anspruch 12 beanspruchte Haubenanordnung, gekennzeichnet durch einen Feuerlöscher (85), der innerhalb dieses hinteren Haubenteils angebracht ist, eine mit diesem Feuerlöscher (85) verbundene Feuerlöscherleitung (57), die in diesen vorderen Haub-



enteil unterhalb dieses Filtermittels (45, 46, 67, 68) sich erstreckt, wobei diese Feuerlöschleitung (57) in einer Verschmelzungs-Verbindungsdüse (58) endet, die direkt, wenn sie einer bestimmten Temperatur ausgesetzt ist, sich öffnen kann.

14. Die in Anspruch 13 beanspruchte abzugslose Haubenanordnung, gekennzeichnet durch ein Paar von Schutzpanelen (103, 104), wobei jedes dieser Paneele (103, 104) entfernbar auf den Seiten dieses vorderen Haubenteils anbringbar ist, wobei diese Paneele (103, 104) unter diesen Behälterdeckel (11) auf beiden Seiten hiervon reichen.

15. Die in Anspruch 14 beanspruchte abzugslose Haubenanordnung, gekennzeichnet durch rinnenartige Mittel (33a-33b, 34a-34b), welche die unteren Ränder dieser Umlenkfilter (45, 46) tragen, wobei ein oben offener tiegelartiger Fettsammler (49) auf diesem hinteren Teil dieser Haube angebracht ist und diese rinnenartigen Mittel (33a-33b, 34a-34b) zu diesem Fettsammler (49) reichen, wodurch kondensiertes durch diese Umlenkfilter (45, 46) eingefangenes Kochöl zu diesem Fettsammler (49) strömt und hierin gesammelt wird.

16. Eine abzugslose Haubenanordnung (2) für den Kochbehälter (10) eines Friteuse-Kochers (1), wobei dieser Kochbehälter (10) einen Deckel (11) zum Schließen dieses Behälters (10) aufweist, diese Haubenanordnung (2) über diesem Behälter (10) angeordnet ist, Filtermittel (45, 46, 67, 68) in dieser Haube, ein Gebläse (78) in dieser Haube zum Abziehen von Luft durch diese Filtermittel (45, 46, 67, 68), gekennzeichnet durch einen Tank (86), der ein Wasserbad benachbart dieses Behälters (10) enthält; Leitungsmittel (17, 101, 102), die diesen Behälter (10) und diesen Tank (86) mit einem Ende (102) dieser Leitungsausbildungen (17, 101, 102), die innerhalb dieses Wasserbads positioniert sind, verbinden, wodurch aus diesem Behälter (10) ausgetragene Gase durch dieses Wasserbad perkolieren, wobei eine Entlüftungsleitung (98, 99, 100, 59) den Kopf dieses Tanks (86) mit der Unterseite dieser Haube verbinden und so angeordnet sind, daß sie Gase austragen, die durch dieses Wasserbad unterhalb dieser Haube perkolieren sind, einem Wärmeaustauscher (73) in dieser Haube zwischen diesen Filtermitteln (45, 46, 67, 68) und diesem Gebläse (78) sowie Mitteln (91), die Wasser aus diesem Bad durch diesen Wärmeaustauscher (73) zirkulieren lassen.

Revendications

- Ensemble formant hotte (2) sans évent d'aération pour le bac de cuisson (10) d'une friteuse autoclave industrielle profonde (1), ledit bac de cuisson (10) possédant un couvercle (11) pouvant être verrouillé et comportant une cuve, dans laquelle la cuisson est exécutée au moyen d'un bain d'huile de cuisson chaude et de vapeur sous pression tirée de l'humidité contenue dans la nourriture que l'on fait cuire, ledit ensemble formant hotte (2) comprenant une structure en forme de L renversé possédant une partie arrière verticale qui s'étend vers le haut à partir de l'arrière de ladite friteuse (1) et une partie avant, dont le fond est ouvert et qui est espacée dudit bac (10) et est en surplomb par rapport à ce dernier, des moyens formant filtres (45, 46, 67, 68) supportés au-dessus dudit bac (10) par et dans ladite partie avant de la hotte, un ventilateur (78) monté dans ladite partie arrière de la hotte et positionné de manière à entraîner l'air ambiant et les gaz de cuisson à travers lesdits moyens formant filtres (45, 46, 67, 68), caractérisé par un réservoir d'eau (86) contenant un bain-marie monté sur l'arrière dudit dispositif de cuisson (1), un radiateur d'échange de chaleur (73) monté dans ladite partie avant de la hotte au-dessus desdits moyens formant filtres (45, 46, 67, 68) et en avant dudit ventilateur (78), des moyens formant pompe (91) pour faire recirculer l'eau depuis ledit réservoir (86) en passant par ledit radiateur (73) et en revenant audit réservoir (86) pour refroidir ledit bain-marie, des moyens (17, 18, 101, 102) pour introduire la vapeur en excès et l'huile de cuisson vaporisée dans ledit bain-marie pour maintenir une pression prédéterminée à l'intérieur dudit bac de cuisson (10), des moyens (19, 20, 17, 101, 102) situés à l'extrémité du cycle de cuisson pour introduire sensiblement toute la vapeur et toute l'huile de cuisson vaporisée dans ledit bac de cuisson (10) dans ledit bain-marie avant d'ouvrir ledit couvercle (11) dudit bac de cuisson, et des moyens (98, 99, 100, 59) pour évacuer des gaz non condensables, de la vapeur non condensée et de l'huile de cuisson vaporisée ainsi que des odeurs non absorbées directement depuis ledit bain-marie (86) en direction dudit fond ouvert de ladite partie avant de la hotte.
- Ensemble formant hotte sans évent d'aération selon la revendication 1, caractérisé en ce que lesdits moyens formant filtres comprennent un couple de filtres à chicanes (45, 46) qui s'étendent dans la direction longitudinale de ladite



partie avant de la hotte et sont inclinés transversalement par rapport à ladite partie avant de la hotte vers le haut et en direction l'un de l'autre avec une configuration en forme de V renversé, en faisant entre eux un angle d'environ 90°, ledit couple de filtres à chicanes (45,46) étant également incliné vers le bas et vers l'arrière par rapport à ladite partie avant dudit ensemble formant hotte, en faisant un angle d'environ 9° par rapport à l'horizontale, un filtre à treillis métallique (67) disposé au-dessus dudit couple de filtres à chicanes (45,46) et un filtre à charbon (68) monté au-dessus dudit filtre à treillis métallique (67).

3. Ensemble formant hotte (2) sans évent d'aération selon la revendication 1, caractérisé en ce que lesdits moyens permettant d'introduire la vapeur en excès et de l'huile de cuisson vaporisée dans ledit bain-marie pour maintenir une pression prédéterminée à l'intérieur dudit bac de cuisson (10) comprennent un premier conduit (17) qui s'étend depuis la partie supérieure arrière dudit bac (10) et contenant un ensemble à soupape de régulation de pression (18), ledit premier conduit étant raccordé à un second conduit (101) et pénétrant dans ledit réservoir d'eau (86), ledit conduit (101) se terminant dans un raccord (102) de refoulement de la vapeur, disposé à l'intérieur dudit bain-marie.

4. Ensemble formant hotte (2) sans évent d'aération selon la revendication 1, caractérisé en ce que lesdits moyens pour aérer ledit bain-marie (86) directement en direction dudit fond ouvert de ladite partie avant de la hotte comprennent un raccord d'aération (98) situé à la partie supérieure dudit bain-marie (86), un conduit (99) raccordé audit raccord d'aération (98) du réservoir et à un raccord de déflecteur de vapeur (59), monté dans ladite partie arrière dudit ensemble formant hotte (2) et conformé de manière à diriger des produits non condensables, de la vapeur non condensée et l'huile de cuisson vaporisée et des odeurs non absorbées depuis ledit réservoir d'eau (86) audit fond ouvert de ladite partie avant de la hotte.

5. Ensemble formant hotte (2) sans évent d'aération selon la revendication 1, caractérisé en ce qu'une canalisation de trop-plein (95) raccordée audit réservoir d'eau (86) juste au-dessus du niveau normal souhaité (94) du bain-marie, une cuve (97) pour le condensat, montée de façon amovible dans ledit dispositif de cuisson sous pression (1) au-dessous dudit bac de cuisson (10), ladite canalisation de trop-plein

(95) possédant un coude (96) conformé en elle et aboutissant à ladite cuve à condensat (97).

6. Ensemble formant hotte sans évent d'aération selon la revendication 1, caractérisé par un extincteur (85) monté dans ladite partie arrière de la hotte, un conduit (57) de l'extincteur raccordé audit extincteur (85) et pénétrant dans ladite partie avant de la hotte au-dessous desdits moyens formant filtres (45,47,67,68), ledit conduit (57) de l'extincteur se terminant par une buse de liaison fusible (58) pouvant être ouverte automatiquement lorsqu'elle est soumise à une température prédéterminée.

7. Ensemble formant hotte sans évent d'aération selon la revendication 1, caractérisé par un couple de panneaux de protection (103,104), chacun desdits panneaux (103,104) étant monté de façon amovible sur les côtés de ladite partie avant de la hotte, lesdits panneaux (103,104) s'étendant au-dessous dudit couvercle (11) du bac, sur les côtés de ce dernier.

8. Ensemble formant hotte sans évent d'aération selon la revendication 2, caractérisé par des moyens en forme d'auge (33a-33b, 34a-34b) supportant les bords inférieurs desdits filtres à chicanes (45,46), un collecteur de graisse (49) en forme de cuve ouverte vers le haut et monté sur ladite partie arrière de ladite hotte, lesdits moyens en forme d'auge (33a-33b, 34a-34b) s'étendant jusqu'audit collecteur de graisse (49), l'huile de cuisson condensée, qui est piégée par lesdits filtres à chicanes (45,46) pénétrant et s'accumulant dans ledit collecteur de graisse (49).

9. Ensemble formant hotte sans évent d'aération selon la revendication 3, caractérisé en ce que lesdits moyens servant à introduire sensiblement toute la vapeur et l'huile de cuisson vaporisée situées dans ledit bac de cuisson (10), dans ledit bain-marie à la fin du cycle de cuisson et avant l'ouverture dudit couvercle (11) du bac de cuisson, comprennent un troisième conduit (19) qui s'étend depuis la partie arrière supérieure dudit bac (10) et contenant une soupape normalement fermée (20), ledit troisième conduit (19) étant raccordé audit premier conduit (17) entre ledit ensemble de soupape de régulation de pression (18) et ledit second conduit (101).

10. Ensemble formant hotte sans évent d'aération selon la revendication 9, caractérisé en ce que lesdits moyens formant filtres comprennent un couple de filtres à chicanes (45,46) qui s'étend-



dent dans la direction longitudinale de ladite partie avant de la hotte et sont inclinés transversalement par rapport à ladite partie avant de la hotte vers le haut et l'un vers l'autre selon une configuration en V renversé en faisant entre eux un angle d'environ 90°, ledit couple de filtres à chicanes (45,46) étant également incliné vers le bas et vers l'arrière par rapport à ladite partie avant dudit ensemble formant hotte sous un angle d'environ 9° par rapport à l'horizontale, un filtre à treillis métallique (67) monté au-dessus dudit couple de filtres à chicanes (45,46), et un filtre à charbon (68) monté au-dessus dudit filtre à treillis métallique (67).

11. Ensemble formant hotte sans événement d'aération selon la revendication 10, caractérisé en ce que lesdits moyens pour aérer ledit réservoir d'eau (86) directement en direction dudit fond ouvert de ladite partie avant de la hotte comprennent un raccord d'événement (98) situé à la partie supérieure du réservoir d'eau (86), un conduit (99) raccordé audit raccord d'événement (98) du réservoir et un raccord formant raccord déflecteur de vapeur (59), monté sur ladite partie arrière dudit ensemble formant hotte et agencé de manière à diriger des produits non condensables, la vapeur non condensée et l'huile de cuisson vaporisée et des odeurs non absorbées depuis ledit réservoir d'eau (86) dans ledit fond ouvert de ladite partie avant de la hotte.

12. Ensemble formant hotte sans événement d'aération selon la revendication 11, caractérisé par une canalisation de trop-plein (95) raccordée audit réservoir d'eau (86) juste au-dessus du niveau normal souhaité (94) du bain-marie, une cuve (97) pour le condensat, montée de façon amovible dans ledit dispositif de cuisson sous pression (1) au-dessous dudit bac de cuisson (10), ladite canalisation de trop-plein (95) possédant un coude (96) conformé en elle et aboutissant à ladite cuve à condensat (97).

13. Ensemble formant hotte sans événement d'aération selon la revendication 12, caractérisé par un extincteur (85) monté dans ladite partie arrière de la hotte, un conduit (57) de l'extincteur raccordé audit extincteur (85) et pénétrant dans ladite partie avant de la hotte au-dessous desdits moyens formant filtres (45,46,67,68), ledit conduit (57) de l'extincteur se terminant par une buse de liaison fusible (58) pouvant être ouverte automatiquement lorsqu'elle est soumise à une température prédéterminée.

14. Ensemble formant hotte sans événement d'aération selon la revendication 13, caractérisé par un couple de panneaux de protection (103,104), chacun desdits panneaux (103,104) étant monté de façon amovible sur les côtés de ladite partie avant de la hotte, lesdits panneaux (103,104) s'étendant au-dessous dudit couvercle (11) du bac, sur les côtés de ce dernier.

15. Ensemble formant hotte sans événement d'aération selon la revendication 14, caractérisé par des moyens en forme d'auge (33a-33b, 34a-34b) supportant les bords inférieurs desdits filtres à chicanes (45,46), un collecteur de graisse (49) en forme de cuve ouverte vers le haut et monté sur ladite partie arrière de ladite hotte, lesdits moyens en forme d'auge (33a-33b, 34a-34b) s'étendant jusqu'audit collecteur de graisse (49), ce qui a pour effet que l'huile de cuisson condensée, qui est piégée par lesdits filtres à chicanes (45,46) pénètre et s'accumule dans ledit collecteur de graisse (49).

16. Ensemble formant hotte sans événement d'aération (2) pour le bac de cuisson (10) d'une friteuse profonde sous pression (1), ledit bac de cuisson (10) possédant un couvercle (11) servant à fermer de façon étanche ledit bac (10), ledit ensemble formant hotte (2) s'étendant en surplomb au-dessus dudit bac (10), des moyens formant filtres (45,46,67,68) situés dans ladite hotte, un ventilateur (78) situé dans ladite hotte pour entraîner l'air à travers lesdits moyens formant filtres (45,46,67,68), caractérisé par un réservoir (86) contenant un bain-marie au voisinage dudit bac (10), des moyens en forme de conduites (17,101,102) reliant ledit bac (10) et ledit réservoir (86) à une extrémité (102) desdits moyens en forme de conduites (17,101,102) situés dans ledit bain-marie, ce qui a pour effet que des gaz évacués dudit bac (10) traversent ledit bain-marie, un conduit d'aération (98,99,100,59) raccordé à la partie supérieure dudit réservoir (86) au côté inférieur de ladite hotte et étant disposé de manière à évacuer des gaz ayant traversé ledit bain-marie et présent au-dessous de ladite hotte, un échangeur de chaleur (73) situé dans ladite hotte entre lesdits moyens formant filtres (45,46,67,68) et ledit ventilateur (78), et des moyens (91) pour faire circuler l'eau à partir dudit bain à travers ledit échangeur de chaleur (73).