Claims

1. An exhaust device, comprising:

a fan plenum with a fan configured to generate an air stream in the fan plenum;

a jet plenum having one or more jet openings aimed diagonally downward on a distal end thereof and configured to create a planar jet from the air stream generated in the fan plenum;

the jet plenum being movably attached at a proximal end thereof to the fan plenum to permit sliding movement of the jet plenum relative to the fan plenum;

the fan plenum and the jet plenum each having a respective flow-transfer opening that overlaps the opening of the other, the respective openings being shaped and arranged to remain overlapped in all positions to which the jet plenum is moved relative to the fan plenum such that an interior of the fan plenum and the jet plenum remain in fluid communication to allow air to flow from the fan to the jet plenum to the one or more openings and form a jet through the one or more jet openings, each of the one or more openings generating a jet that coalesces into the planar jet; and

the fan having an intake at a top of the fan plenum that is covered by a louvered grill of the jet plenum when the jet plenum is in a fully retracted position, thereby permitting air to flow into the intake.

2. The device of claim 1, further comprising:

at least one end panel that includes a second jet plenum, wherein

the second jet plenum includes one or more jet openings on a top end of the at least one end panel,

the one or more jet openings on the top end are configured to generate a second planar jet directed toward the jet plenum.

3. The device of claim 2, wherein

the second planar jet is aimed diagonally upward.

4. The device of claim 1, wherein

the jet plenum has a substantially planar shape.

5. The device of claim 1, further comprising an exhaust intake located beneath the fan plenum arranged to be covered by the fan plenum and forming a continuous flow guide from a distal end of the jet plenum leading to the exhaust intake.

6. The device of claim 1, wherein one of the fan plenum and the jet plenum has a larger flow transfer opening than the other of the fan plenum and the jet plenum.

7. The device of claim 1, wherein the flow transfer openings are interfaced with each other by a circumnavigating seal that retains air flowing from the fan plenum to the jet plenum.

8. The device of claim 1, further comprising a motor drive connected to the jet plenum.

9. The device of claim 8, further comprising a controller connected to control the motor drive to extend and retract the jet plenum responsively to a detected cooking state of an appliance.

10. The device of claim 9, wherein the cooking state of the appliance is applied by a signal from a communication system connected to the appliance.

11. The device of claim 1, further comprising:
a suction plenum adjacent to the fan plenum.

12. The device of claim 11, further comprising a filter located under the fan plenum.

13. A method of exhausting fumes from a fume source, the method comprising:
providing a fan plenum with a fan;
providing a jet plenum having one or more jet openings on a distal end thereof, the one or more jet openings being configured to generate a planar jet;
sliding the jet plenum relative to the fan plenum while continuously maintaining a fluid connection between the jet plenum and the fan plenum;
operating the fan to draw air through an intake at a top of the fan plenum and generate a flow of air in the fan plenum that flows through the fluid connection into the jet plenum; and

generating a planar jet at the distal end of the jet plenum, the planar jet being aimed diagonally downward toward a cooking appliance positioned underneath the jet plenum,

wherein the intake at the top of the fan plenum is covered by a louvered grill of the jet plenum when the jet plenum is in a fully retracted position, thereby permitting air to flow into the intake.

14. The method according to claim 13, further comprising:

providing the source of fumes below the jet plenum, wherein

the source of fumes has a distal boundary that extends horizontally beyond the distal end of the jet plenum, and

the sliding the jet plenum causes the distal end of the jet plenum to reach a position from which an initial direction of the planar jet extends at least to the distal boundary of the source of fumes.

15. The method according to claim 13, wherein

the sliding the jet plenum is controlled based on a cooking state of cooking appliance positioned below the jet plenum.

16. The method according to claim 13, further comprising:

providing an exhaust intake below the jet plenum; and

exhausting the fumes through the exhaust intake.

17. The method according to claim 13, wherein

the one or more jet openings point toward the source of fumes.

18. The method according to claim 13, wherein

the planar jet traps the fumes below the jet plenum.

19. The method according to claim 13, further comprising:

providing a second jet plenum below the jet plenum, the second jet plenum having one or more jet openings pointed above a horizontal direction.

20. The method according to claim 19, wherein

the one or more jet openings of the second jet plenum generate a second planar jet that intersects the planar jet generated at the distal end of the jet plenum.

21. The method according to claim 20, wherein

the planar jet and the second planar jet together prevent fumes from the fume source from escaping from below the jet plenum.