

[72] Inventor **Myron E. Hemmingson**
 Box 101, Fletcher, Okla. 73541
 [21] Appl. No. **814,682**
 [22] Filed **Apr. 9, 1969**
 [45] Patented **Mar. 16, 1971**

500,779 7/1893 Savage 110/184
 2,659,293 11/1953 Valensi..... 98/60
 2,713,301 7/1955 McKann..... 126/307x
 2,841,071 7/1958 Strawsine 126/307x
 2,956,495 10/1960 Sublette 98/60x

FOREIGN PATENTS

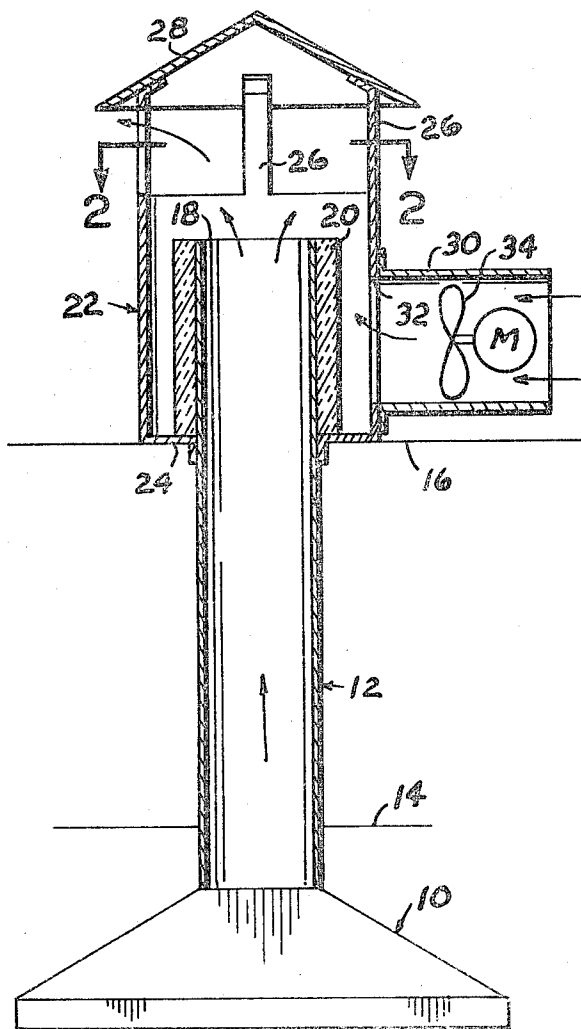
995,035 8/1951 France 98/60

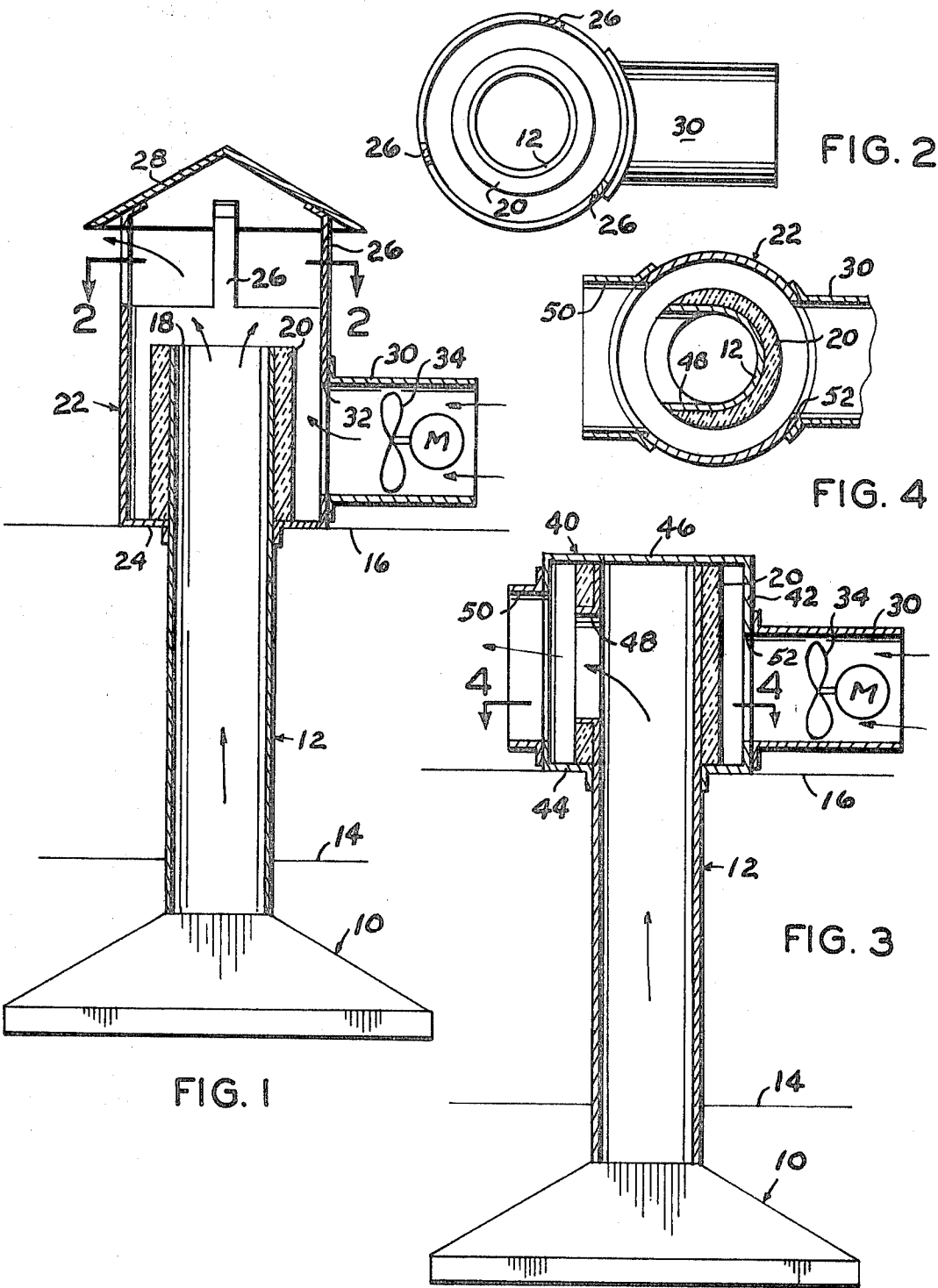
Primary Examiner—Edward G. Favors
 Attorney—Robert K. Rhea

[54] **CHIMNEY ASPIRATOR**
 1 Claim, 4 Drawing Figs.
 [52] U.S. Cl. 110/160,
 98/60, 126/307
 [51] Int. Cl. F23I 17/02
 [50] Field of Search..... 110/160,
 162, 184; 98/58, 59, 60; 126/307

[56] **References Cited**
UNITED STATES PATENTS
 401,836 4/1889 Hodel..... 98/60

ABSTRACT: Insulating material surrounds the outwardly disposed exhaust end portion of a chimney and a jacket, having inlet and outlet ports, loosely surrounds the insulated end portion of the chimney. A blower communicates with the inlet port of the jacket and moves ambient air therethrough generating a venturi action for the exhaust end of the chimney.





MYRON E. HEMMINGSON
INVENTOR.

BY
Robert K. Rhea
AGENT

CHIMNEY ASPIRATOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to chimneys and more particularly to an aspirator for exhausting burned gases from cooking stoves, and the like.

Restaurant stoves are normally provided with a hood for gathering smoke and burned gases and venting the latter to the atmosphere. The hood is usually equipped with filters which frequently become laden with grease particles carried by the smoke and become a fire hazard as a result of infrequent changing of the filters. Furthermore, that portion of the vent or chimney connected with the hood and projecting outside the building is subjected to colder air resulting in deposit of grease and lint around the wall forming the bore of the vent and hampers exhaust of burned gases therethrough.

2. Description of the Prior Art

The prior art discloses a plurality of draft inducing devices for chimneys, and the like, such as U.S. Pat. Nos. 1,454,561; 1,527,849; 1,533,898 and 1,689,241. The devices disclosed by these patents are generally intended to be formed as an integral part of a chimney during its construction or installation rather than for ease in modifying existing chimneys. These devices are, for the most part, intended to be installed within the dwelling below the roof line and in many existing facilities there is insufficient room to accomplish such installation. These patents do not disclose means to maintain the temperature of the burned gases outwardly of the building to avoid the resulting condensation of vaporized fat or grease carried by exhaust gases which tend to settle or deposit on the walls of the chimney.

This invention, on the other hand, by insulating that portion of the chimney projecting outwardly of a dwelling, eliminates temperature reduction and the resultant grease deposit within the chimney and further enhances the flow of exhaust gases in an aspirating action. This invention is particularly adapted for installation on most existing chimneys or stove vents.

SUMMARY OF THE INVENTION

A layer of insulating material is circumferentially applied to the exhaust end portion of a chimney or stove vent particularly in that area projecting outwardly of a building. A housing or jacket, having an exhaust port diametrically greater than the cross-sectional area of the chimney and having an inlet port, is connected to the exhaust end of the chimney in loosely surrounding relation. A motor driven fan communicates with the housing inlet port for moving ambient air therethrough generating a venturi effect around the exhaust opening of the chimney for exhausting burned gases therefrom.

The principal object of this invention is to provide chimney aspirating means for installation on or connection with new and existing chimneys which may be manufactured and installed at a relatively low cost.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a vertical cross-sectional view, partially in elevation, of one embodiment of the invention;

FIG. 2 is a horizontal cross-sectional view, partially in elevation, taken substantially along the line 2-2 of FIG. 1;

FIG. 3 is a view similar to FIG. 1 of another embodiment of the invention; and

FIG. 4 is a horizontal cross-sectional view taken substantially along the line 4-4 of FIG. 3.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Like characters of reference designate like parts in those FIGS. of the drawings in which they occur.

Referring more particularly to FIGS. 1 and 2, the reference numeral 10 indicates a conventional hood supported in vertical spaced relation above the burners of a stove, grill, or the like, not shown, for gathering exhaust gases, fumes and the

like to be vented. The upper portion of the hood is usually connected with an exhaust pipe or chimney 12 which preferably extends upwardly of the hood through the ceiling and roof, indicated respectively by the lines 14 and 16, terminating in an open end portion 18 outwardly of the establishment. This open end portion 18 of the chimney 12 is subjected to ambient air resulting in condensation of fats and greases on the inner wall of the chimney as mentioned hereinabove. This outer end portion of the chimney is surrounded by a layer of insulating material 20. A cylindrical housing or jacket 22 surrounds the insulating material 20 in spaced relation and projects upwardly beyond the free end 18 of the chimney. The depending end portion of the jacket is provided with an annular flange 24 adjacent the roof 16 which is connected with the periphery of the chimney. The upwardly disposed end of the jacket 22 is open and is provided with a plurality of spaced-apart upstanding supports 26 connected with a vent cap 28.

A tube 30 projects laterally of the jacket and communicates with an inlet opening 32 formed in the housing wall below the upper limit of the free end of the chimney. The tube 30 contains a motor driven fan 34 for drawing air into the jacket and exhausting it out of its open end in the direction of the arrows. Obviously the motor driven fan 34 may be of the vane type, commonly referred to as "a squirrel cage fan," if desired, which moves a proportionally greater quantity of air than the type illustrated, with the exhaust of such fan communicating with the jacket inlet 32.

Referring now more particularly to FIGS. 3 and 4, a modified form of the jacket is illustrated at 40 comprising a substantially cylindrical wall 42 similarly loosely surrounding the outer end portion of the chimney 12. The depending end of the jacket 40 is similarly provided with a flange 44 which surrounds and is connected with the chimney 12 adjacent the roof line 16 while the upper end of the jacket 40 is provided with an end wall or top 46 overlying and substantially closing the upper end 18 of the chimney 12. In this embodiment the upper end portion of the chimney outwardly of the roof line 16 is provided with a lateral outlet port or opening 48 diametrically substantially equal to the cross-sectional area of the chimney. The wall of the jacket 40 is provided with a lateral opening 50 coaxial with and diametrically greater than the chimney port 48. The wall of the jacket 40 is similarly provided with an inlet port 52 diametrically opposite its exhaust port 50 for connection with and coaxially receiving the tube 30 and motor driven fan 34 which may be substituted for a squirrel cage type fan, not shown, as mentioned hereinabove, for the embodiment of FIG. 1.

While the discharge end portion of the chimney 12 has been shown and described as vertically disposed, it seems obvious that this invention is equally adaptable for installation on horizontally disposed chimney discharge end portions.

OPERATION

In operation the motor driven fan 34 is connected with a source of electrical energy, not shown, which operates the fan to draw air into and through the respective jacket in the direction of the arrows. The volume of air thus moved, by the venturi action of its outlet port, having a greater diameter than its inlet port, tends to draw exhaust gases out of the chimney 12 in an aspirated or suction action thus enhancing the normal flow of heated gases out of the chimney. The insulating material 20 prevents a reduction of temperature of the exhaust gases within the chimney which prevents condensation of grease particles, and the like, on the inner walls of the chimney.

Obviously the invention is susceptible to changes or alterations without defeating its practicability, therefore, I do not wish to be confined to the preferred embodiments shown in the drawings and described herein.

I claim:

1. In a heated gas exhaust system including a chimney having its exhaust end portion projecting through a building wall and exposed to the atmosphere, the improvement comprising:

3

4

insulating material surrounding the exhaust end portion of said chimney;
 means for increasing heated gas flow through said chimney including a jacket having a wall coaxially surrounding the exhaust end portion of said chimney in spaced-apart relation;
 a ring closing one end of said jacket and connecting said jacket to the periphery of said chimney adjacent said building wall,

said jacket having an inlet opening in its wall adjacent its closed end, the other end of said jacket being open and projecting beyond the exhaust end of said chimney;
 a laterally extending tube connected with said jacket around the inlet opening; and
 a blower forcing air into said jacket through said tube, a vent cap shielding the open end of said jacket.

10

15

20

25

30

35

40

45

50

55

60

65

70

75