

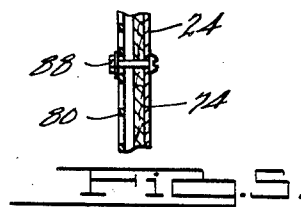
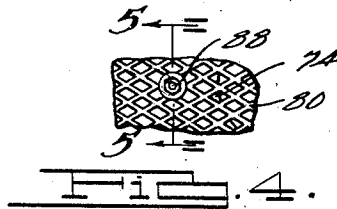
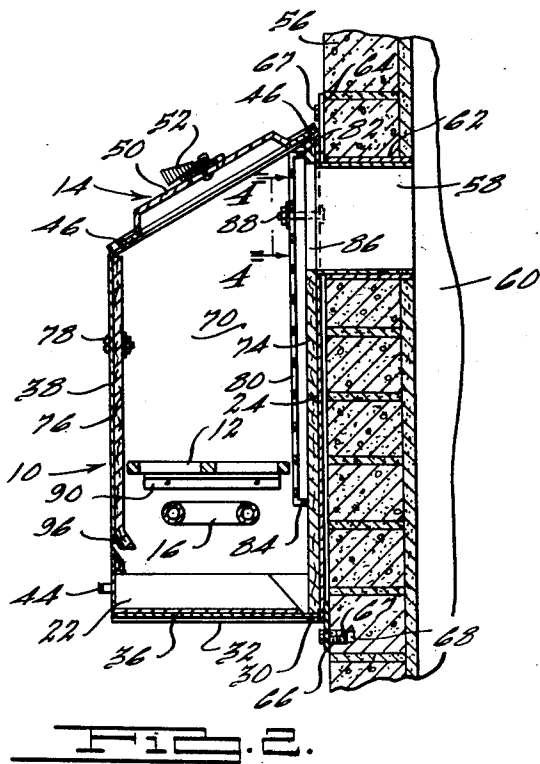
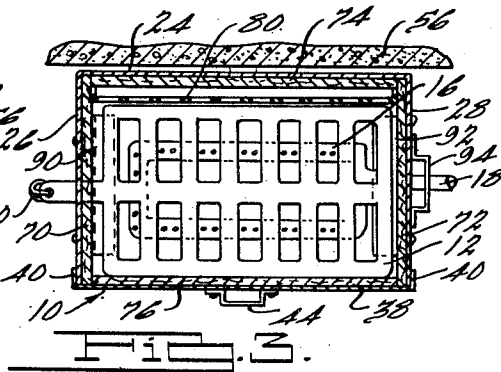
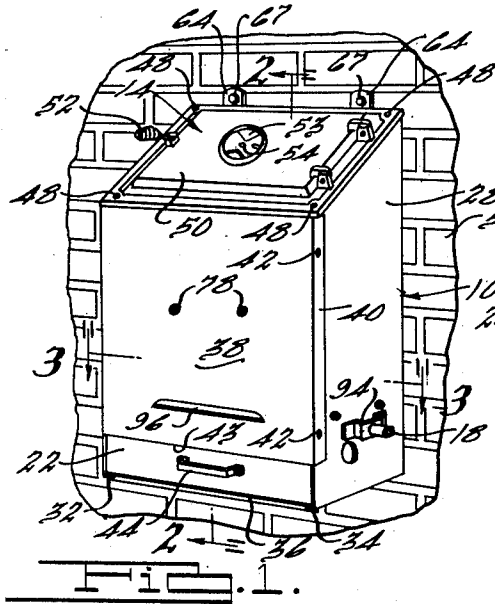
Sept. 15, 1953

G. H. WILLETT, JR., ET AL

2,652,010

CHIMNEY WALL MOUNTED INCINERATOR

Filed June 7, 1951



INVENTOR.
George H. Willett Jr.
William R. Vroman
BY

Harness, Dickey & Pierce
ATTORNEYS

UNITED STATES PATENT OFFICE

2,652,010

CHIMNEY WALL MOUNTED INCINERATOR

George H. Willett, Jr., Birmingham, and William R. Vroman, Detroit, Mich., assignors to Incinerator Products Company, Detroit, Mich., a corporation of Michigan

Application June 7, 1951, Serial No. 230,288

5 Claims. (Cl. 110—18)

1

This invention relates broadly to new and useful improvements in incinerators and more particularly to small, domestic incinerators of the type adapted for mounting, as an auxiliary unit, directly on a chimney.

Although the incinerator embodying the present invention can be installed when the dwelling or other building in which it is used in being constructed, it is adapted primarily and pre-eminently suited for installation in a completed building. The arrangement is such that the incinerator can be readily installed as an auxiliary unit and attached directly to the chimney wall. Novel means are provided for supporting the weight of the incinerator on the chimney wall and for fastening the incinerator securely to the wall. Also, the construction is unique to prevent smoke, noxious gases, and products of combustion from seeping out around the connection to the chimney.

From the foregoing it will be apparent that an important object of the present invention is to provide a small domestic-type incinerator that can be easily and quickly installed on a chimney and that can be securely attached to the chimney wall.

Another object of the invention is to provide an incinerator of the above-mentioned character that is sturdily constructed for efficient operation and that is relatively inexpensive to manufacture.

Still another object of the invention is to provide an incinerator of the above-mentioned character having a spark-arrester screen that is uniquely assembled in the incinerator housing to serve additional functions of retaining heat-insulating lining in the housing and of providing a by-pass at the back of the housing through which gases and the like pass to the chimney flue in the event that normal passage upwardly through the grate is blocked by material being burned or otherwise.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawing forming a part of this specification and wherein like numerals are employed to designate like parts throughout the same,

Fig. 1 is a perspective view showing an incinerator embodying the present invention mounted on a chimney,

Fig. 2 is a vertical sectional view taken on the line 2—2 of Fig. 1,

Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 1,

Fig. 4 is a fragmentary view looking in the direction of the arrows 4—4 of Fig. 2, and

2

Fig. 5 is a fragmentary vertical sectional view taken on the line 5—5 of Fig. 4.

In the drawing, wherein for the purpose of illustration is shown a preferred embodiment of the invention, the numeral 10 designates a generally boxlike, vertically elongated housing which preferably is built of sheet metal and the interior of which is lined with asbestos or other heat-insulating material. A horizontal grate 12 is mounted in the lower portion of the housing 10 for supporting refuse to be burned, and the refuse is inserted into the housing through a door 14 in the top thereof. The particular incinerator shown is equipped with a gas burner 16 which is disposed in the housing 10 below the grate 12, and gas is supplied to the burner from any suitable source through a pipe 18 which enters the housing through one side thereof. The grate 12 is movable back and forth by a shaker 20. Ashes and noncombustible materials are collected in a pan 22, and the latter is removable through the front of the housing 10 as perhaps best shown in Fig. 2.

With the above general description as an introduction to the invention, a detailed description of the construction and operation is now given.

As suggested, the housing 10 here shown is formed of sheet metal. Conveniently, the back 24 and the two sides 26 and 28 can be formed in one piece. An intumed flange 30 and intumed flanges 32 and 34 at the lower edges of the back 24 and sides 26 and 28 respectively support the bottom 36 which preferably is spot-welded or otherwise attached thereto. The front 38 has rearwardly turned flanges 40 at opposite sides thereof which overlie the two sides 26 and 28 and are securely fastened in any suitable manner as, for example, by screws 42.

As perhaps best shown in Figs. 1 and 2, the lower edge of the front panel 38 is spaced sufficiently above the bottom 36 to provide a front opening 43 at the bottom of the housing to accommodate the pan 22. The opening 43 preferably extends the full width of the housing, and the pan 22 is inserted into the housing through this opening. Preferably the pan 22 covers the entire bottom of the housing, and the front of the pan extends flush with the front of the housing. A handle 44 on the front of the pan permits easy insertion or removal thereof.

Intumed flanges 46 are provided at the upper edges of the back 24, sides 26 and 28, and front 30, and the cover 14 is longitudinally supported on and fastened securely to these flanges. In the

3

form of the invention here shown, the cover 14 is fastened to the flanges by screws 48. The cover 14 is equipped with the usual hinged door 50 equipped with the usual handle 52 and having a draft opening 53 controlled by a rotatable member 54. In order to facilitate insertion of refuse into the housing and to facilitate opening and closing of the door 50, the top 14 preferably is mounted to slope downwardly and forwardly as shown in the drawing.

In order to mount the housing 10 on a chimney wall here shown at 56, a metal collar 58 is inserted through an opening in the back wall 24 and welded or otherwise fixedly attached thereto. This collar 58 is adapted to extend through an opening in the chimney 56 and to provide communication between the interior of the incinerator and the chimney flue 60. In practice, an opening of suitable size and shape is cut through the chimney 56, and a metal sleeve 62 is set into the opening thus provided. If necessary or desirable, space between the sleeve and the opening can be filled with cement or the like. The collar 58 fits snugly into the sleeve 62 to prevent smoke and products of combustion from passing back into the room between the collar and the sleeve. Also, the collar 58 supports the full weight of the incinerator and assists in holding the housing attached securely to the chimney. Manifestly, a snug fit between the collar 58 and the sleeve 62 forms a frictional connection between the housing and the chimney.

In addition, means is provided for fastening the housing to the wall. The fastening means, however, are not intended to support the weight of the incinerator but merely to hold it against the chimney 56. Specifically, two upstanding lugs 64 and a depending lug 66 are welded or otherwise attached to the back 24, and expansion bolts 67 extending through the lugs into holes 68 cut partially through the wall of the chimney 56 with a star drill or the like holding the housing attached to the wall. It will be readily apparent in this connection that the expansion bolts 67 are not intended to support the weight of the housing. Their sole function is to hold the incinerator attached to the wall so as to prevent the collar 58 from pulling out of the sleeve 62.

Heretofore various means have been devised for fastening an incinerator of this type to a chimney wall without necessity of supporting it from below. It is not desirable, particularly in a domestic installation, to provide a supporting structure for the incinerator which rests on the floor below the same. Support means of this type occupies valuable space and increases the cost of the incinerator. Large-size expansion bolts have been used, but in general these alone are not adequately secure. Toggle bolts which anchor in the chimney flue 60 require relatively long holes to be formed through the chimney wall and this provides passages through which smoke and noxious gases can work back into the basement or utility room containing the incinerator. The particular mounting here shown overcomes all the objections described above for conventional-type mountings. It is simple, efficient, and conservative of materials. It accomplishes its intended purpose efficiently without materially affecting or increasing the cost of the incinerator unit.

As suggested, the sides of the incinerator housing are lined with sheets of asbestos 70 and 72 and the back 24 and front 38 are similarly lined

4

with additional sheets of asbestos or the like, 74 and 76. As perhaps best shown in Fig. 3, the front and rear asbestos linings 74 and 76 abut against the side linings 70 and 72 to hold the latter flatly against the sides of the housing 10. The front lining 76 is fastened to the front wall 38 of the housing 10 by screws 78. The rear lining 74 is fastened to the back of the housing by a novel means which is considered to be a feature of this invention.

Specifically, a spark-arranger screen 80 preferably in the form of a perforate metal plate is provided in the housing 10 at the back thereof, and the screen 80 is formed at the upper and lower edges thereof with rearwardly turned flanges 82 and 84. The asbestos lining 74 is provided with an opening 86 in register with the collar 58, and the upper flange 82 bears against the asbestos lining 74 above the opening. As perhaps best shown in Fig. 2, the screen 80 extends downwardly to a point below the grate 12, and the lower flange 84 bears against the lower portion of the lining 74. Screws 88 at opposite sides of the opening 86 and in such other locations as are required to hold the screen 80 attached securely to the housing hold the flanges 82 and 84 pressed securely against the asbestos lining 74. It will be observed, however, that the main body of the screen 80 is spaced inwardly from the asbestos lining. By reason of this construction the screen 80 serves a double function in the combination of holding the rear lining 74 against the back wall of the housing 10 and also of providing a gas by-pass through which smoke and gases trapped in the housing below the grate 12 may discharge to the flue 60. In this latter connection it sometimes happens that soggy or wet material such as garbage or the like in the incinerator prevents the smoke and gases from passing upwardly through the grate 12 in the normal manner and some means must be provided for by-passing the refuse in order to prevent noxious and harmful gases from passing into the room in which the incinerator is placed. The instant construction achieves this in a novel and highly efficient manner and at the same time utilizes the by-pass screen both as a spark arrester and as a fastening device for the rear heat-insulating lining 74.

As best shown in Figs. 2 and 3, the grate 12 is supported by brackets 90 and 92 at opposite sides of the housing 10 and the brackets are sufficiently wide to permit the grate to slide back and forth thereon. The grate 12 preferably fills substantially the entire space between the front asbestos layer 76 and the screen 80, and it is moved back and forth to shake down ashes and the like thereon by means of the handle 20.

The gas burner 16 can be supported within the housing in any suitable manner. In the form of the invention shown, it is supported by the gas inlet pipe 18 and the latter is suitably reinforced by a bracket 94 on the side wall 28. A louver 96 is provided in the front wall of the housing below the burner 16 to provide air necessary to support combustion.

From the foregoing it will be readily apparent that the instant construction achieves the objects of the invention. A small domestic-type incinerator is provided that is simple and inexpensive yet sturdy in construction. It can be easily and quickly installed, and novel means are provided for holding the incinerator attached securely to the chimney wall. Parts of the incinerator are uniquely correlated to perform a

number of functions in the interest of economy and this is done without sacrificing either strength or efficiency in operation.

Having thus described the invention, we claim:

1. A wall-type incinerator comprising a sheet-metal housing, a horizontal grate in the lower portion of the housing adapted to support refuse to be burned, a metal collar fixed to the rear wall and extending exteriorly of the housing above the grate and opening into the housing, said collar adapted to fit snugly into a vent hole in a chimney and forming a primary means for supporting the weight of the incinerator and also adapted to conduct gases and products of combustion from the incinerator housing into the chimney flue, at least one lug on and extending outwardly from the housing having an opening therein through which a bolt is insertible to fasten the housing to the wall of the chimney, layers of heat-insulating material on the inner walls of said housing, and a perforate metal screen in the housing parallel with and fastened to the rear wall thereof, said screen having rearwardly turned flanges bearing against the heat-insulating layer at the back of the housing and holding the main body of the screen spaced therefrom, said screen extending from below the grate to a point above the vent opening defined by said collar and serving both as a retaining member for the heat-insulating layer on the back of the housing and as a gas by-pass at the back of the housing.

2. A wall-type incinerator comprising a housing, a grate in the housing for supporting refuse to be burned therein, a collar on the outside of the housing fixed to the rear wall thereof and communicating interiorly of the housing for conducting gases and products of combustion therefrom, said collar adapted to fit snugly into a vent or in a chimney so as to discharge vented gases and the like into the chimney flue and also adapted, by reason of its engagement with the wall of the flue opening, to support the weight of the incinerator, auxiliary means on the housing providing an opening through which a bolt is insertible to fasten the housing to the wall of the chimney, heat-insulating material lining the inner walls of the housing, a perforate metal screen in the housing parallel to the rear wall thereof and extending from below the grate to at least the vent opening defined by said collar, spacer means between the screen and the insulating layer on the rear wall of the housing holding the screen spaced from said insulating layer, and means fastening the screen to the housing, said screen, spacer means and fastening means jointly co-operating to hold the mentioned heat-insulating layer attached to the housing and also defining a gas by-pass at the back of the housing extending from a point below the grate to said vent opening.

3. A wall-type incinerator comprising a sheet-metal housing having a vent opening in the rear wall thereof, a grate in the lower portion of the

housing adapted to support refuse to be burned, means for fastening the housing to the wall of a chimney, layers of heat-insulating material on the inner walls of the housing, and a perforate metal screen in the housing parallel with and fastened to the rear wall thereof, said screen having rearwardly turned flanges bearing against the heat-insulating layer at the back of the housing and holding the main body of the screen spaced therefrom, said screen extending from below the grate to a point above the vent opening and serving both as a retaining member for the heat-insulating layer on the back of the housing and as a gas by-pass through which fumes accumulating in the housing below the grate pass to the vent.

4. A wall-type incinerator comprising a housing having a vent opening in the rear wall thereof, a grate in the housing below said vent opening, heat-insulating layers on the inner walls of the housing and including said rear wall, a rigid screen member in the housing parallel to the rear wall thereof, spacer means between the screen and the insulating layer on said rear wall holding the screen spaced from said insulating layer, and means fastening the screen to the rear wall of the housing with the spacer means pressed against said heat-insulating layer and holding the insulating layer against the rear wall of the housing, said screen extending from below the grate to a point above the vent opening and defining a gas by-pass through which fumes confined in the lower portion of the housing pass to said vent opening.

5. In combination with a chimney wall, said chimney wall having a vent hole therein, a wall type incinerator comprising a sheet metal housing having a vent opening in the rear wall thereof, a metal collar on the outside of the housing fixed to the rear wall thereof around said vent opening, a sleeve fitted into said vent hole in said chimney wall, said collar fitted into said sleeve and, by reason of its engagement therewith supporting the weight of the incinerator and also serving to conduct gases and products of combustion from the incinerator housing into the chimney flue, at least one lug on and extending outwardly from the housing and having an opening therein, and a bolt extending through the lug opening and partially through said chimney wall to fasten said housing to said chimney wall.

GEORGE H. WILLETT, Jr.

WILLIAM R. VROMAN.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
774,871	Force	Nov. 15, 1904
949,986	Lowe	Feb. 22, 1910
1,131,188	Weaver	Mar. 9, 1915
1,886,760	Tierney	Nov. 8, 1932
1,943,132	Maul	Jan. 9, 1934
2,010,460	McKinley	Aug. 6, 1935