May 25, 1937. H. E. NICOL 2,081,554

INCINERATOR HOPPER

Filed Aug. 12, 1935

Fig. 1.

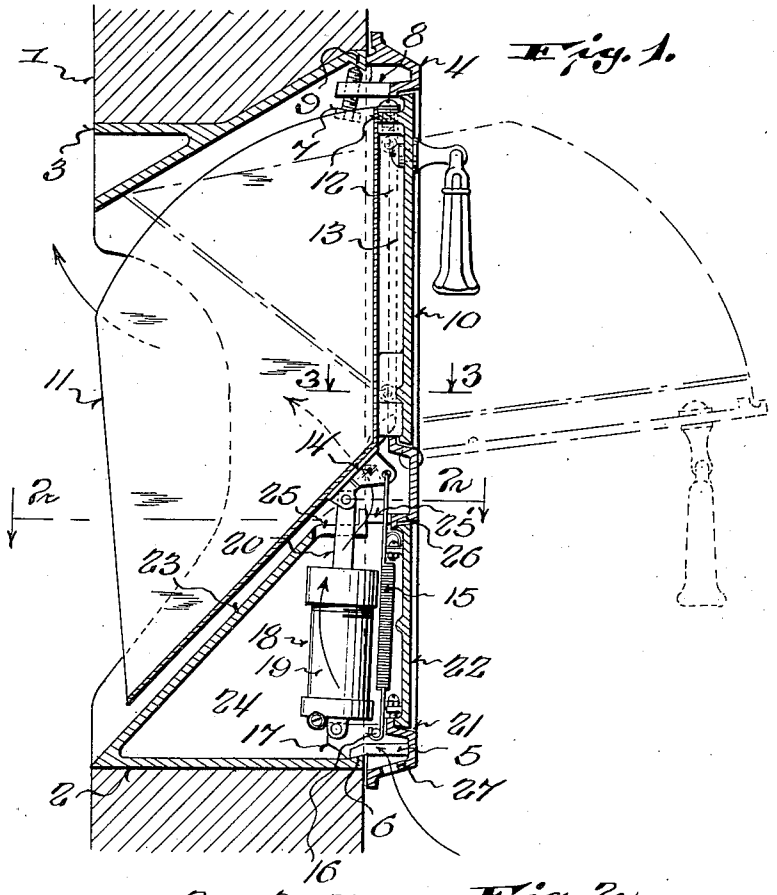


Fig. 2.

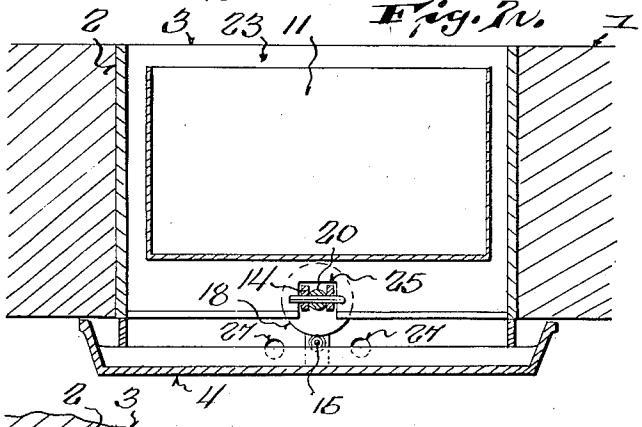
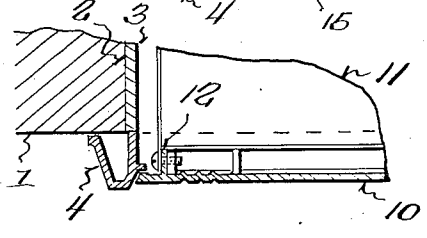


Fig. 3.



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INCINERATOR HOPPER

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3 Claims. (Cl. 193—34)

This invention pertains to incinerator hoppers, and more particularly to a chimney hopper of the self-closing pivotal type.

In many localities the law requires incinerator hoppers to be of the self-closing type, with the result that a spring or weight actuated hopper closes with an objectionable noise when released by the operator. To overcome the foregoing, dash pots have been resorted to, but due to the heat and gases developed within the flue, and to which the dash pots are subjected, the piston washers, usually made of leather or composition, quickly deteriorate and require frequent replacement.

It is therefore the primary object of the present invention to overcome the foregoing objection by the provision of a self-closing pivotal hopper assembly, having means for effectively shielding the dash pot from heat and gases within the flue, and at the same time providing for a cooling circulation of outside air past the dash pot.

Incidental to the foregoing, a more specific object of the invention is to provide a casing having a partition forming a segregated compartment for housing the dash pot disposed between the hopper and casing, and provided with openings in the casing and hopper door frame to cause a directed circulation of outside air past the dash pot.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the novel construction, combination, and arrangement of parts, substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawing is illustrated one complete example of the physical embodiment of the present invention constructed according to the best mode so far devised for the practical application of the principles thereof.

In the drawing:

Figure 1 is a vertical section through a portion of the incinerator chimney, with the preferred form of the present invention installed therein.

Figure 2 is a transverse section taken on the line 2—2 of Figure 1, and

Figure 3 is a fragmentary detailed section taken on the line 3—3 of Figure 1.

Referring more particularly to the accompanying drawing, the numeral 1 designates a fragmentary portion of an incinerator chimney wall provided with an opening 2 extending therethrough for reception of a casing 3 permanently installed therein. Secured to the front of the casing is a frame 4 detachably connected to the casing by a lip 5 carried by the lower end of the frame, and projecting over a lug 6 formed on the casing. When the frame is assembled as shown in Figure 1, it is detachably locked in that position by a set screw 7 passing through a lug 8 carried by the upper portion of the frame 4 and engaging a tapered surface 9 formed on the upper edge of the casing.

Pivotally mounted within the frame 4 is a door 10 to which the hopper 11 is secured for pivotal movement with the door, the hopper being secured to flanges 12 extending inwardly from the door, the flanges further serving to provide an insulating air space 13, which eliminates undue heating of the door by the hot gases developed within the chimney.

Secured to the bottom of the hopper is a bracket 14 to which a contractile spring 15 is connected, and attached at its lower end to a pin 16 carried by a web 17 projecting inwardly from the frame 4. Obviously, the spring 15, being connected to the hopper 11 at one side of the pivotal axis of the door which carries the hopper, will cause the door and hopper to swing inwardly when released by the operator.

To retard closing movement of the hopper, a dash pot 18 is disposed between the hopper and casing to oppose the action of the spring 16. The dash pot 18 is of conventional type, comprising a cylinder 19 pivotally connected to the web 17, and having its plunger 20 pivotally connected to the bracket 14 carried by the hopper. As heretofore stated, the dash pot 18 is of conventional structure and employs the usual piston (not shown) provided with cups or washers formed of leather, or any other suitable composition. To facilitate access to the dash pot 18 and spring 15, for the purpose of replacement or repair, the frame 4 is provided with an opening 21 in its lower portion, the same being closed by a removable panel 22.

The structure thus far described is more or less conventional, and may be readily varied in numerous ways without affecting the principles of the present invention. Therefore, it is to be understood that the structure shown and described is merely for illustrative purposes, and forms no part of the present invention other than

in the general combination, as hereinafter set forth in the claims.

As stated in the objects, the salient feature of the present invention resides in the provision of means for shielding the dash pot 18 against gases and heat developed within the chimney. In that form of the invention illustrated, the casing 3 is provided with an inclined partition 23, extending across the width of the casing and conforming in general to the bottom of the hopper when in closed position to form a compartment 24 of maximum capacity, without obstructing or interfering with the discharge of material from the hopper.

As best shown in Figure 1, the dash pot 18 is mounted within the compartment 24, while its plunger 20 projects through an opening 25 formed in the top of the partition 23. A corresponding opening 25' for the spring 15 is also formed within the intermediate transverse flange 26 of the frame 4. Cooperating with the openings 25 and 25' the frame 4 is provided with spaced openings 27 in its bottom flange, thus permitting air to enter the compartment 24 upon opposite sides of the dash pot 18, and because of the draft, or reduced pressure within the incinerator chimney, the air will be drawn past the dash pot, and pass around the side of the hopper, as indicated by the arrows.

From the foregoing it will be apparent that the dash pot, being housed within the compartment 24, is effectively shielded from the hot gases generated within the chimney, and in addition heating of the air in the compartment 24, which would occur through heating of the casing, and particularly the partition 23, is reduced to a minimum by the circulation of the outside air past the dash pot, thus reducing deterioration and insuring maximum life of the dash pot cups or washers, and also prolonging the life of the contractile spring 15.

I claim:

1. An incinerator flue hopper comprising, a casing, a self-closing pivotal hopper mounted within the casing, a dash pot disposed between the hopper and casing for retarding the closing movement of said hopper, and an inclined partition carried by the casing below the hopper and extending downwardly from the front wall of the casing to its rear bottom edge for shielding the dash pot from heated gases within the flue and prevent the accumulation of refuse below the hopper.

2. An incinerator flue hopper comprising, a casing, a self-closing pivotal hopper mounted within the casing, a dash pot disposed between the hopper and casing for retarding the closing movement of said hopper, and an inclined partition carried by the casing below the hopper and extending downwardly from the front wall of the casing to its rear bottom edge for shielding the dash pot from heated gases within the flue and prevent the accumulation of refuse below the hopper, said partition and casing being provided with perforations to allow circulation of outside air past the dash pot.

3. An incinerator flue hopper comprising, a casing for insertion within the flue, a door frame detachably secured to the casing, a door pivotally carried by the frame adjacent its upper end, a hopper carried by the door, resilient means for closing the door, a dash pot positioned below the hopper in said casing to oppose the action of said spring, a partition carried by the casing forming a compartment to house the dash pot, said partition being vented at the top of the compartment, and said door frame having a vent in its lower portion to permit air to enter said compartment and circulate past the dash pot through the vent in the top of the compartment for reducing the temperature within said compartment.

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