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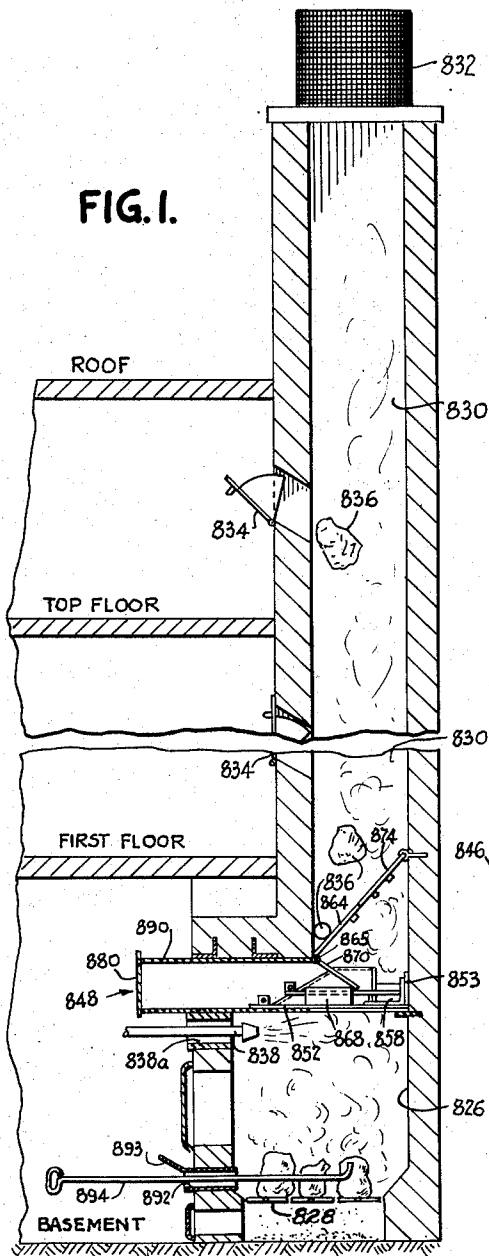
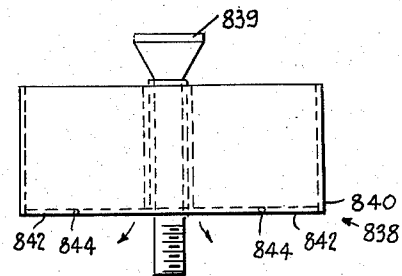
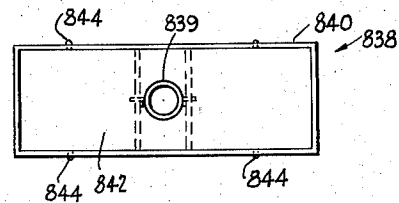
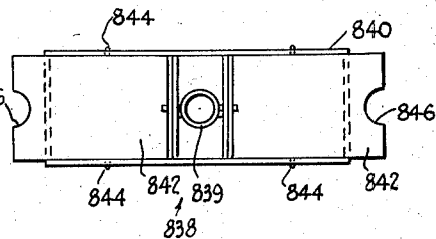
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INCINERATOR CONSTRUCTION

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2 Sheets-Sheet 1



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INCINERATOR CONSTRUCTION

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2 Claims. (Cl. 110—18)

This invention relates to novel incinerators and to structures employed therein.

When refuse is burned in incinerators the resulting gases emanating from the stack are obnoxiously odorous carrying with them into the surrounding atmosphere, a combination of offensive scents of the partially burned refuse and also unburned particles of annoying bits of carbon.

The invention has as its object and purpose to provide novel incinerators and systems in which refuse may be so completely burned and the burning of the refuse so well controlled as to insure complete combustion of all the gases before they leave the stack thereby deodorizing and decarbonizing the gases, resulting in a reduction and elimination of the smoke and odor emanating from the incinerator.

The invention proposes an inexpensive and effective incinerator for carrying out the objects of the invention, one that is simple in construction and has proven economical in operation.

Other and further objects of my invention reside in the structures and arrangements hereinafter more fully described with reference to the accompanying drawings in which:

Fig. 1 is a vertical section of a novel incinerator constructed in accordance with the teaching of the invention and as incorporated in an apartment house, with draft control means forming a part thereof in an operative position.

Fig. 2 is a view of the draft control means of the incinerator shown in Fig. 1 and with the parts thereof in a retracted position.

Fig. 3 is a view of the draft control means shown in Fig. 2 in another adjusted position.

Fig. 4 is a view of the draft control means shown in Fig. 2 in still a further operative position.

Fig. 5 is a view of the draft control means shown in Fig. 4 in its active position.

Fig. 6 is a front view of the draft control means shown in Fig. 2.

Fig. 7 is a top view of the diverter plate and grate.

Fig. 8 is a front view of a gas nozzle with air packings thereabout in closed position.

Fig. 9 is a top view of a nozzle shown in Fig. 8.

Fig. 10 is a front view of the gas nozzle shown in Fig. 8.

Referring now to the drawings and in particular to Fig. 1 thereof wherein the novel incinerator structure may be particularly applicable to an apartment house. In such a case the incinerator will comprise a firebox 826 having a base or ash grate 828.

Communicating in direct alignment with the firebox 826 is a flue or stack 830. As is generally the custom, the flue or stack 830 extends beyond the roof of the building as shown in Fig. 1, and is sometimes provided with a wire or mesh screen 832 to prevent the spraying of sparks into the atmosphere. The first floor and the top floor and other intermediate floors of the apartment building have

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communicating louvers 834 by way of which trash or refuse of any kind may be deposited into the stack and thence into the firebox 826 communicating therewith below.

5 Heretofore when the refuse 836 deposited into the stack and firebox 826 was burned in the firebox, obnoxious scents and odors were carried with the waste gases resulting from the burned refuse 836, and carried by way of the flue or stack 830 into the surrounding air therebeyond. 10 It has been found that the obnoxious odors carried in the gases are a natural consequence of a failure to completely burn the refuse 836 and thereby failing to completely deodorize and eliminate bits of carbon from the waste gases. The present invention recognizes the need 15 for complete control of the combustion of the refuse and also of the resulting gases. Such complete combustion will substantially deodorize the waste gases and at the same time burn remaining bits of carbon in the gases so that the gases that are finally commingled with the outer 20 atmosphere by way of the stack 830 are substantially deodorized and decarbonized.

In order to effectively remove the odors and bits of carbon from the resulting refuse gases there must be a means for providing a complete combustion of either the refuse or the gases. In the instant invention such complete combustion is contemplated by the provision of 25 combustion means 838 located within the incinerator structure just prior to the point where the waste gases enter into the flue or stack 830. The combustion means 30 838 may be any well known source of ignition or burning for example, a gas flame. Hence the waste gases resulting from the burning of the refuse 836 within the firebox 826 is ignited and more completely and controllably burned by the combustion means 838 just prior to their 35 entry into the flue or stack 830. A graphic illustration of this complete combustion and of the location of the secondary combustion may be seen in Figs. 1 and 5.

This complete burning of the waste gases by the combustion means 838 just before the gases enter the flue or 40 stack 830 or dissemination into the atmosphere may be controlled by the provision of air inlets of vents or packings provided about the nozzle of the combustion means 838. For this purpose reference will now be had to Figs. 8, 9, and 10.

The combustion means 838 comprises a housing or casing 840 through which extends nozzle 839. Mounted for pivotal movement on the casing 840 and at the end 45 thereof remote from the burning end of the nozzle 839 are a pair of closures 842. The closures 42 are pivotable on rods 844 and have at one of their edges a semi-circular opening 846 (see Fig. 10) which when the closures 842 are in their closed position such as shown in Figs. 7 and 8 fit congruously along the sides of the nozzle 839 and close the same from the venting of outside air.

50 However when the closures 842 are pivoted about their pivots 844 relative to the nozzle of the combustion means, air admitted from outside the firebox 826 through auxiliary air inlet 838a and therinto cooperates with the igniting nozzle to control the burning of the gases that are 55 about to enter the flue 830. Thus by variable adjustment of the closures 842 of the combustion means 838 the burning of the waste gases may be more accurately controlled.

To further aid the complete combustion of the waste 60 gases before they enter the flue or stack 830 for dissemination into the outer atmosphere there is provided a draft control means or transverse air duct generally identified by the numeral 848. This draft control means 848 is conveniently positioned within the flue or stack 70 830 for a purpose to be described.

The draft control means 848 comprises a slidable plate 850 having an upstanding ear 851 for engagement by a

poker in order to adjustably slide the same. A portion of the slidable plate is cut away to provide a damper opening 852. The slidable control plate 850 is guided on runners 890 for movement into and out of the connection between the flue and firebox. An upstanding toe 853 is formed at the forward end of the slidable plate for a purpose which will be described. The opening 852 serves as a damper opening when the plate 850 is moved into communication between the flue 830 and the firebox 826 therebelow.

Extending upwardly and over the damper opening 852 is a canopy 854 enclosed at its forward end by a wire screen or mesh 856 to prevent the escape of particles up the flue (see Figs. 2 and 6). Mounted on the slidable plate 850 is a damper control plate 858 having an upstanding leg 859. The control plate 858 is movable relative to the opening 852 and its upstanding leg 859 is movable to cover against the wire mesh 856 by operation of the control rod 860 having a control ear 862 in which a poker may be applied. By thus moving the control plate 858 it is possible to close off or open both the damper opening 852 and also the front of the canopy 854 at the mesh portion 856.

When the slide plate 850 is moved from its inactive position such as is shown in Fig. 2 to its active position such as is shown in Fig. 5, its upstanding toe 853 initially contacts the back portion of a diverter 864 associated with the slide unit to pivot the same about its pivot 865. After a period of forward movement of the slidable plate 850 and the pivoting of the diverter 864 by the forward toe 853, continued forward movement of the slidable plate will bring into play a pair of spaced blocks 868 that are positioned on opposite sides of the canopy 854.

The spaced blocks 868 coact with downwardly extending fingers 870, also positioned on opposite sides of the canopy 854. Hence, as the diverter plate 864 is moved forwardly and upwardly by the upstanding toe 853, the fingers 870 pivoted and integrally connected to the diverter plate, are brought into cooperation with the spaced blocks 868, thereby to be further moved forwardly and pivoting the diverter 864 upwardly into the position as is shown in Fig. 5.

During its upward pivoting movement, a pair of pins 871 reach under the forward end of a diverter grille 874 to engage the same and pivot the same therewith. The diverter grille 874 and the diverter plate 864 form a smooth surface with the diverter being open in spaces between the diverter grilles 876 permitting the gases to rise from the firebox 826 therebelow and diverting refuse 836 dropped from the flue 830 to rest on the diverter plate 864 as is shown in Fig. 5. Varied damper control of the opening 852 and the screen mesh portion 856 of the canopy 854, may be controlled by the control plate 858 and its upstanding leg 859.

The draft or Venturi effect created by the cooperation of the damper opening and the damper control plate 858, may be controlled further by an air vent 880. Adjustment of the air vent 880 will prevent a draft of varying magnitude to increase or decrease the movement of the waste gases from the firebox 826 into the flue 830 and out from the flue into the outer atmosphere.

In Figure 1 of the drawing, it will be noted that an opening or access port 892, normally closed by the door 893, is provided at the lower portion of the fire box 826 to permit the entry of a poker or other stoking means whereby the refuse 836 may be stoked or lifted by the poker 894 in an effort to provide a complete combustion of the refuse.

While there have been shown and described and pointed out the fundamental novel features of the invention as applied to several preferred embodiments

thereof, it will be understood that various omissions and substitutions and changes in the form and details of the devices illustrated and in their operations may be made by those skilled in the art, without departing from the spirit of the invention. It is the intention, therefore, to be limited only as indicated by the scope of the claims appended hereto.

I claim:

1. In a refuse incinerator of the type having a firebox, a grate, and an upright flue in communication with the firebox for delivery to said firebox of a gravity-directed downward flow of refuse to be burned; the combination of a transverse air duct communicating with the lower end of the flue where it joins the firebox for admitting atmospheric air, a horizontally slidable plate having an opening therethrough, a pair of runners extending transversely across the flue on opposite sides thereof from said transverse air duct, said slidable plate being movable on said runners between an inactive position out of the flue and an active position within the flue on a line separating the transverse air duct from the firebox, a canopy carried by said slide and extending upwardly and over said opening, a wire mesh screen constituting a wall of said canopy adjacent said opening to intercept and retard the passage from the firebox to the flue of air-entrained partially combusted materials to subject said materials to more complete combustion, a diverter plate pivoted at the junction of the upper wall of transverse air duct and the flue wall to swing in the path of the said slide, said diverter plate being swung on its pivot forwardly and upwardly by forward movement of the slide into the flue whereby when the slide is in active position across the flue, the diverter plate will catch and hold refuse until the slide is again moved to inactive position, at least one auxiliary air inlet near the top of the firebox in the path of the air-entrained partially combusted material toward the screen to supply additional air for more complete combustion.

2. In a refuse incinerator of the type having a firebox, a grate, and an upright flue in communication with the firebox for delivery to said firebox of a gravity-directed downward flow of refuse to be burned; the combination of a transverse air duct in communication with the lower end of the flue where it joins the firebox for admitting atmospheric air, a horizontally slidable plate having an opening therethrough, a pair of runners extending transversely across the flue on opposite sides thereof from said transverse air duct, said slidable plate being movable on said runners between an inactive position out of the flue and an active position within the flue on a line separating the transverse air duct from the firebox, a wire mesh screen carried by said slide to intercept and retard the passage from the firebox to the flue of air-entrained partially combusted materials to subject said materials to more complete combustion, a diverter plate pivoted at the junction of the upper wall of transverse air duct and the flue wall to swing in the path of the said slide, said diverter plate being swung on its pivot forwardly and upwardly by forward movement of the slide into the flue whereby when the slide is in active position across the flue, the diverter plate will catch and hold refuse until the slide is again moved to inactive position, at least one auxiliary air inlet near the top of the firebox in the path of the air-entrained partially combusted material toward the screen to supply additional air for more complete combustion.

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