

July 11, 1967

J. A. WAGLE

3,330,232

INCINERATOR

Filed April 18, 1966

2 Sheets-Sheet 1

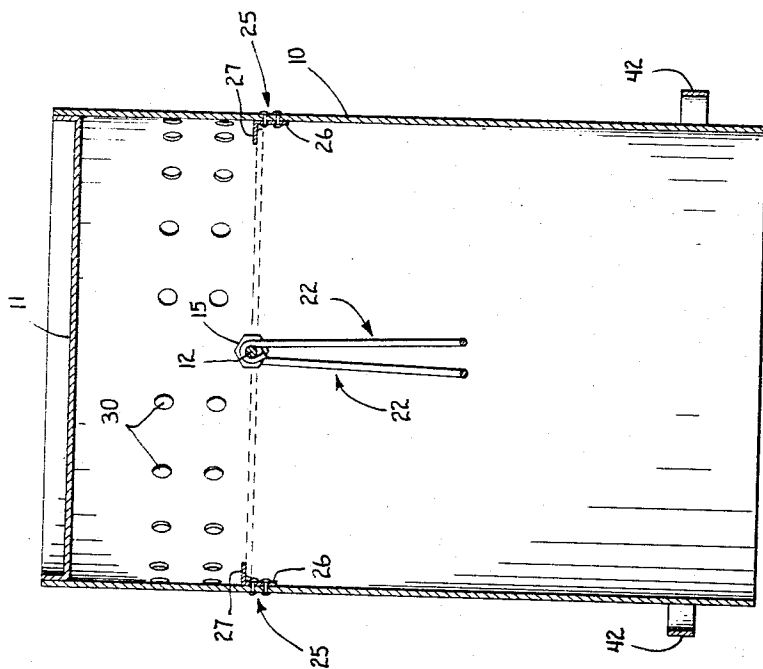


Fig. 2.

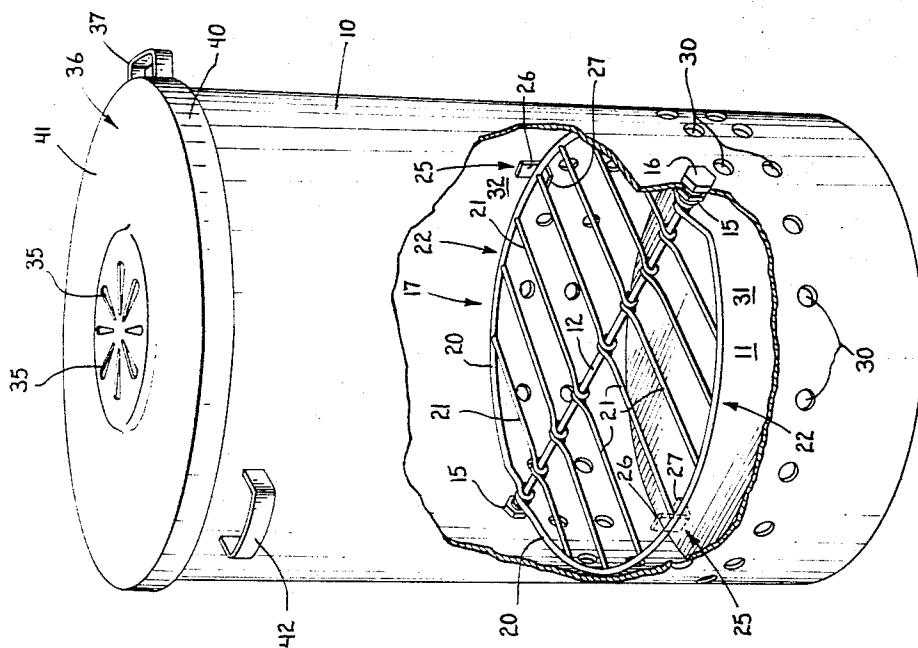


Fig. 1.

INVENTOR.
JOSEPH A. WAGLE

BY
Lockwood, Woodard, Smith & Wickett
Attorneys

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2 Sheets-Sheet 2

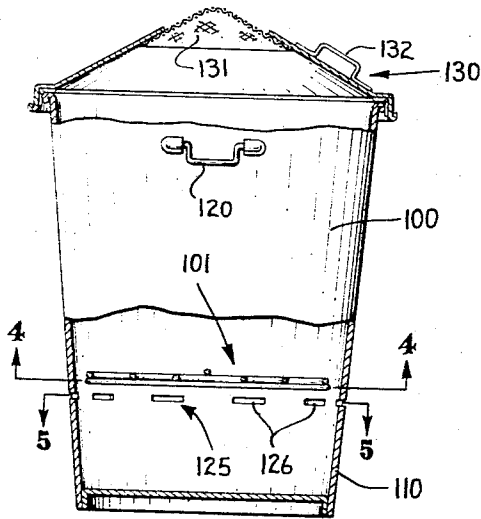


Fig. 3.

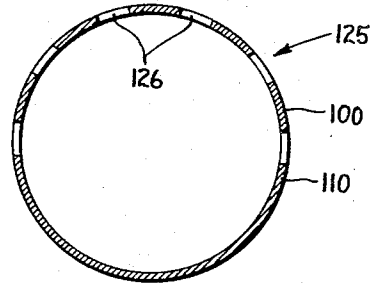


Fig. 5.

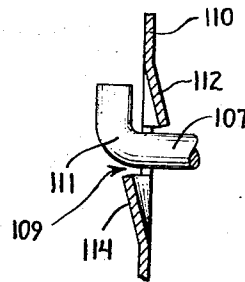


Fig. 6.

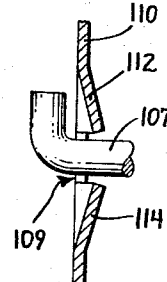


Fig. 7.

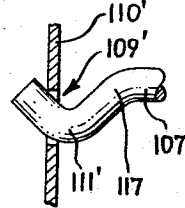


Fig. 8.

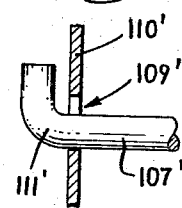


Fig. 9.

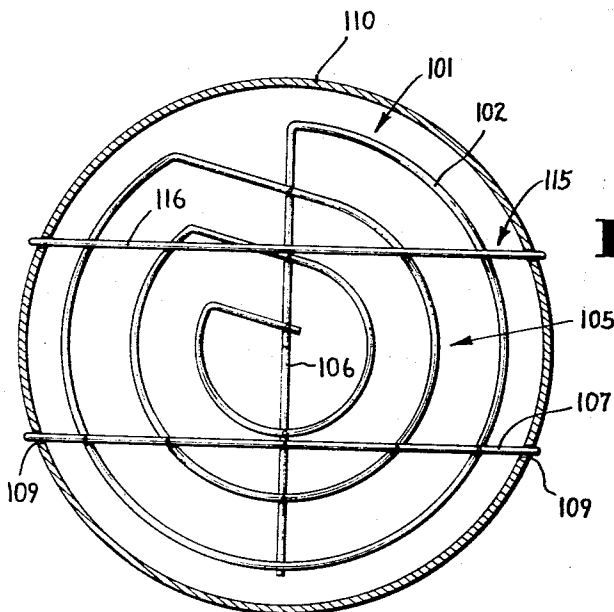


Fig. 4.

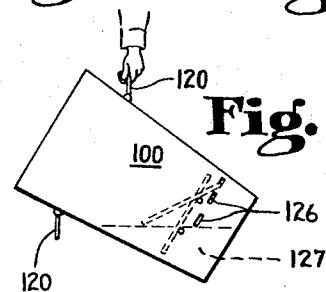


Fig. 10.

INVENTOR.
JOSEPH A. WAGLE

BY

Woodard, Weikert, Emhardt & Naughton
Attorneys

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3,330,232

INCINERATOR

Joseph A. Wagle, 6503 W. 71st St.,
Indianapolis, Ind. 46278

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8 Claims. (Cl. 110-18)

This application is a continuation-in-part application of my copending application Ser. No. 342,479, now abandoned.

The present invention relates to an incinerator.

One type of commonly available incinerator which might be termed the open type is relatively light, inexpensive and is easy to dump. Such open type incinerators, however, are subject to corrosion and do not properly retain the burning material within the incinerator so that a portion of the burning material may be blown away from the incinerator creating a fire hazard and unsightly litter. Another type of incinerator, which might be referred to as closed, is more permanent and expensive in nature and relies more upon the draft principle to burn the trash. Such closed type incinerators are usually less subject to corrosion and do incorporate means for preventing the blowing about of the burning material. One important disadvantage, however, of the closed type incinerator is difficulty of cleaning. An important object of the present invention is to provide an incinerator incorporating the advantages of the above two types of incinerator and eliminating the disadvantages thereof.

Another object of the invention is to provide an incinerator incorporating means facilitating the efficient dumping thereof.

A further object of the invention is to provide an incinerator which is easily fabricated from standard commercially available cans or drums.

Another object of the invention is to provide an incinerator incorporating efficient means for conveying away of smoke but for preventing movement of sparks away from the incinerator.

Related objects and advantages will become apparent as the description proceeds.

One embodiment of the invention might include an incinerator comprising an upright can having sides and a closed bottom and a top, grate means swingably mounted about a horizontal axis through said can at a position spaced from the bottom and the top of said can, said top being removable for dumping of said can, said can having a rigid construction capable of retaining its shape upon overturning of the can, said bottom being fixed to the sides of said can, support means secured to the inside wall of said can and supporting said grate means in horizontally extending position, said grate means when in said horizontally extending position dividing said can into an ash chamber between said bottom and said grate means and a combustion chamber between said top and said grate means, said can having a plurality of holes therethrough which lead into said ash chamber, said grate means being swingable to downwardly extending position upon the overturning of said can permitting the dumping of material from both the ash chamber and the combustion chamber of said can, said grate means being secured to the can in such a manner as to prevent said grate means from falling out of said can when said can is overturned.

The full nature of the invention will be understood from

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the accompanying drawings and the following description and claims:

FIG. 1 is a perspective view of an incinerator embodying the present invention.

FIG. 2 is a vertical section taken through the incinerator of FIG. 1 along the axis thereof and showing the incinerator in inverted position.

FIG. 3 is a side elevation partially in section of an alternative embodiment of the incinerator of the present invention.

FIG. 4 is an enlarged horizontal section taken along the line 4-4 of FIG. 3 in the direction of the arrows with portions removed for clarity in showing the grate in detail.

FIG. 5 is a horizontal section taken along the line 5-5 of FIG. 3 in the direction of the arrows with portions removed for clarity in showing slot locations in detail.

FIGS. 6 and 7 are sections through the side of the incinerator showing serially one procedure for mounting a grate and support wire on the incinerator.

FIGS. 8 and 9 are sections through the side of the incinerator showing serially another procedure for mounting a grate and support wire on the incinerator.

FIG. 10 is a side elevation of the incinerator of FIGS. 3-5 showing one operating position thereof.

For the purposes of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings and specific language will be used to describe the same. It will nevertheless be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated therein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring more particularly to the drawings, there is illustrated an incinerator which includes a cylindrical can or container 10 having a closed bottom 11. Such cans or containers are commercially available and find usual application as trash cans or garbage containers. The present container, however, is modified by having a horizontally extending straight rod 12 fixed to the walls of the container so as to extend diametrically of the cylindrical shape.

The rod 12 may be fixed in the illustrated position by means of nuts 15 welded to the inside surface of the container so as to surround openings through the container walls. A pair of screws 16 having external threads corresponding to the internal threads of the nuts 15 are tightly threaded into the nuts and have internal hollowed out portions which receive the opposite ends of the rod 12. Of course, various other means can be used for mounting the rod 12. However, the above described construction permits removal and replacement of the grate assembly 17 if desired.

The grate assembly 17 includes a pair of semi-circular grate wires 20 swingably connected at their opposite ends to the rod 12. A plurality of parallel wires 21 are fixed at one end to one of the grate wires 20 and at the other end are swingably connected to the rod 12. The parallel wires 21 are spaced at equal intervals from one another and define with the semi-circular grate wires 20 a pair of semi-circular grates 22 for the incinerator.

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Each of the semi-circular grate wires 22 is supported in a horizontal position by means of an angle 25, one leg 26 of each angle being fixed to the inside wall of the container 10 and the other leg 27 projecting inwardly of the container and supporting the semi-circular grate 22. The angles 25 are positioned oppositely of one another and at 90 degrees around the container relative to the rod 12. The angles 25 are also positioned at the same axial location along the cylinder as the rod 12. In other words, the angles 25 are the same distance from the bottom 11 as is the rod 12 and are positioned in the same plane perpendicular to the axis of the cylinder 10 as is the rod 12.

Referring to FIG. 2, when the container 10 is overturned, the semi-circular grates 22 swing together to an axially extending position. It can be appreciated that any unconsumed material which is resting upon the grates 22 will drop out of the container 10. Also, any ashes which are located below the grates in FIG. 1 can be easily removed from the incinerator by such overturning thereof.

In constructing the illustrated embodiment of the incinerator, the conventional garbage or trash can is further modified by placing a plurality of holes 30 around the container below the grate assembly 17. The semi-circular grates 22, when in the position of FIG. 1, define a pair of chambers 31 and 32, the chamber 31 being an ash pit or chamber and 32 being a combustion chamber. When the incinerator is in operation, fresh air passes through the holes 30 into the ash chamber upwardly through the grate assembly 17, through the material being burned, thence out of the upper end of the incinerator through a plurality of radially extending openings 35 in the top 36 of the incinerator. The top 36 has a handle 37 secured to a flange 40 which extends completely around the top and perpendicular to the central, generally circular portion 41 thereof. The openings 35 are relatively small in area in comparison to the total area of the central portion 41 of the top 36.

The container 10 is also provided with a pair of oppositely located handles 42 which facilitate the overturning and other handling of the incinerator.

It will be evident from the above description that the present invention provides an incinerator incorporating highly efficient means for dumping of the contents of the incinerator. It can also be appreciated that the incinerator of the present invention is easily fabricated from standard, easily available cans or drums and other easily available parts. It will be further evident that the incinerator of the present invention includes efficient means for the conveying away of smoke in the openings 35 but that the openings 35 prevent movement of sparks away from the incinerator.

The embodiment of the invention shown in FIGS. 3-10 is similar to the embodiment of FIGS. 1 and 2 and in most respects operates according to the same principles as the embodiment of FIGS. 1 and 2. The embodiment of FIGS. 3-10, however, includes a container 100 which is tapered instead of cylindrical in order to make possible stacking of the containers in nested condition for minimum volume storage and shipment. More important, the container 100 is provided with a single grate 101 which includes a wire 102 formed in an externally circular configuration and extending through a progressively more sharply curved spiral configuration 105. The grate 101 is reinforced by the straight portion 106 of the wire 102 which extends across and is secured by welds or the like to the various curved loops of the wire 102. The grate 101 is also reinforced by a straight wire 107 which is secured by welds or the like to the various curved loops of the wire 102 and to the straight portion 106.

The straight wire 107 serves as a pivotal or swingable mounting for the grate 101 and is rotatably received in suitable apertures 109 in the sides or sidewall 110 of the container 100. FIGS. 6-9 show two ways of mounting the wire 107 in the sidewall 110. In FIGS. 6 and 7 the wire 107 has an initial right angle bend 111 which is inserted

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through the aperture 109 which has an initial shape wherein a portion 112 is bent inwardly of the container and a portion 114 is bent outwardly of the container. The container is then deformed so that the portion 114 is also bent inwardly of the container as shown in FIG. 7 thereby securing the wire 107 to the sidewall 110. Of course, both of the opposite ends of the wire 107 are so secured to the container 100 whereby the grate is pivotally mounted on the container and is prevented from becoming disconnected therefrom because the right angle bends 111 cannot move to the inside of the container.

The grate 101 is normally supported in the horizontal position of FIGS. 3 and 4 by support means 115 which consists of a straight wire 116 secured to the sidewall 110 in exactly the same manner as the wire 107. Referring again to FIGS. 8 and 9 an alternative procedure is illustrated for attaching either the wire 116 or the wire 107 to the container. As shown in FIG. 8, the wire 107' has an initial right angle bend 111' as well as an initial 45° angle bend 117. The aperture 109' is a simple bore in the sidewall without the sidewall having the bends 112 and 114. In other words, the sidewall 110' adjacent aperture 109' has the same shape as it does away from the aperture 109'. The wire 107' is inserted through the apertures 109' in the sidewall 110' and then the 45° angle bends 107' at both ends of the wire 107' are straightened to produce the configuration of FIG. 9.

It will be noted that the wire 115 is positioned below the grate 101 so that when the container 100 is overturned the grate 101 swings about the axis of the wire 107 to a vertically extending position. This occurs because the center of gravity of the grate 101 is substantially removed from the axis of wire 107.

In FIGS. 10 and 3 the container 100 is shown as having handles 120 which are swingably connected to the container. One of the handles is used as a center for the pattern 125 (FIG. 5) of holes or slots 126 which correspond to the holes 30 of FIGS. 1 and 2. The holes or slots 126 are positioned close to the grate 101 and the pattern 125 extends only through approximately 180 degrees at the center of which is the one handle 120. This arrangement permits the container 100 to be moved from place to place with ashes 127 therein as shown in FIG. 10 without causing the ashes to trickle out through the slots 126 and also permits overturning to empty without ashes passing through the slots 126.

In all other respects the embodiment of FIGS. 3-10 is identical or similar to the embodiment of FIGS. 1 and 2. It will be noted that the top or cover 130 has a dome 131 at its center formed of screen wire. The dome 131 functions similarly to the slots 35. The cover 130 also has a handle 132 fixed thereto for removing the cover from the container 100.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention and the scope of the claims are also desired to be protected.

The invention claimed is:

1. An incinerator comprising an upright can having sides and a closed bottom and a top, grate means swingably mounted about a horizontal axis through said can at a position spaced from the bottom and the top of said can, said top being removable for dumping of said can, said can having a rigid construction capable of retaining its shape upon overturning of the can, said bottom being fixed to the sides of said can, support means secured to the inside wall of said can and supporting said grate means in horizontally extending position, said grate means when in said horizontally extending position dividing said can into an ash chamber between said bottom and said grate means and a combustion chamber between

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said top and said grate means, said can having a plurality of holes therethrough which lead into said ash chamber, said grate means being swingable to downwardly extending position upon the overturning of said can permitting the dumping of material from both the ash chamber and the combustion chamber of said can, said grate means being secured to the can in such a manner as to prevent said grate means from falling out of said can when said can is overturned, a handle secured to said can to one side thereof above said grate, said can having a configuration which is circular in horizontal cross section, said plurality of holes being elongated slots which extend horizontally, said slots being arranged in a horizontal pattern which extends approximately 180 degrees around said can, said slots being located on the same side of said can as said handle.

2. An incinerator comprising an upright can having sides and a closed bottom and a top, grate means swingably mounted about a horizontal axis through said can at a position spaced from the bottom and the top of said can, said top being removable for dumping of said can, said can having a rigid construction capable of retaining its shape upon overturning of the can, said bottom being fixed to the sides of said can, support means secured to the inside wall of said can and supporting said grate means in horizontally extending position, said grate means when in said horizontally extending position dividing said can into an ash chamber between said bottom and said grate means and a combustion chamber between said top and said grate means, said can having a plurality of holes therethrough which lead into said ash chamber, said grate means being swingable to downwardly extending position upon the overturning of said can permitting the dumping of material from both the ash chamber and the combustion chamber of said can, said grate means being secured to the can in such a manner as to prevent said grate means from falling out of said can when said can is overturned, said grate means comprising a pair of grates, said support means comprising a pair of supports supporting said grates in oppositely extending horizontal positions in the same plane.

3. An incinerator comprising an upright can having sides and a closed bottom and a top, grate means swingably mounted about a horizontal axis through said can at a position spaced from the bottom and the top of said can, said top being removable for dumping of said can, said can having a rigid construction capable of retaining its shape upon overturning of the can, said bottom being fixed to the sides of said can, support means secured to the inside wall of said can and supporting said grate means in horizontally extending position, said grate means when in said horizontally extending position dividing said can into an ash chamber between said bottom and said grate means and a combustion chamber between said top and said grate means, said can having a plurality of holes therethrough which lead into said ash chamber, said grate means being swingable to downwardly extending position upon the overturning of said can permitting the dumping of material from both the ash chamber and the combustion chamber of said can, said grate means being secured to the can in such a manner as to prevent said grate means from falling out of said can when said can is overturned, said grate means comprising a single grate, said grate comprising a grate wire formed in an externally circular configuration and extending through a progressively more sharply curved spiral configuration toward the center of said grate, said support means comprising a first straight wire secured to the sides of said can and extending beneath said grate, and a further straight wire attached to said grate in parallel relation to said first straight wire and extending through the sides of said can to provide the swingable mounting of said grate means to said can, said top including a central dome formed of screen wire.

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4. An incinerator comprising an upright can having sides and a closed bottom and a top, grate means swingably mounted about a horizontal axis through said can at a position spaced from the bottom and the top of said can, said top being removable for dumping of said can, said can having a rigid construction capable of retaining its shape upon overturning of the can, said bottom being fixed to the sides of said can, support means secured to the inside wall of said can and supporting said grate means in horizontally extending position, said grate means when in said horizontally extending position dividing said can into an ash chamber between said bottom and said grate means and a combustion chamber between said top and said grate means, said can having a plurality of holes therethrough which lead into said ash chamber, said grate means being swingable to downwardly extending position upon the overturning of said can permitting the dumping of material from both the ash chamber and the combustion chamber of said can, said grate means being secured to the can in such a manner as to prevent said grate means from falling out of said can when said can is overturned, said grate means comprising a single grate, said support means comprising a first straight wire secured to the sides of said can and extending beneath said grate, and a further straight wire attached to said grate in parallel relation to said first straight wire and extending through the sides of said can to provide the swingable mounting of said grate means to said can.

5. The invention of claim 4 wherein said can sides have four apertures, said first straight wire extending through a first and second of said four apertures to mount said first wire on said can, said further straight wire extending through a third and fourth of said four apertures to mount said further wire on said can, each of said first and further wires having opposite end portions which are bent at right angles to retain said wires in mounted relation on said can.

6. The invention of claim 5 wherein said can sides have four indented portions which project inwardly of said can, each of said indented portions having one of said apertures therein.

7. An incinerator comprising an upright can having a cylindrical shape and a closed bottom, a straight rod fixed to the walls of said cylinder and extending diametrically of said cylinder at a position spaced from the bottom of said can, a pair of semi-circular shaped grate wires each swingably connected at their opposite ends to said rod, a plurality of parallel wires fixed at one end to one of said grate wires and at the other end swingably connected to said rod, said parallel wires being spaced at equal intervals from one another to define with said grate wires a pair of semi-circular grates for said incinerator, a pair of angles each fixed to the inside of said can opposite to one another at the same axial location along said cylinder as said rod but displaced 90 degrees around the cylinder relative to said rod, each of said angles having one leg secured to said incinerator wall and its other leg projecting inwardly of said cylinder, each of said angles supporting one of said grate wires centrally thereof whereby said semi-circular grates are supported in the same plane perpendicular to the axis of said cylindrical can and said grates thus define an ash chamber between said bottom and said grates and a combustion chamber between said grate and the top of the can, said can having a plurality of apertures around the can and below said plane, said grates being swingable upon the overturning of said can to an axially extending position permitting the pumping of ashes and unburned materials from said can.

8. An incinerator comprising an upright metal can having a cylindrical shape and a closed bottom, a straight rod fixed to the walls of said cylinder and extending diametrically of said cylinder at a position spaced from the bottom of said can, a pair of semi-circular shaped grate wires each swingably connected at their opposite

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ends to said rod, a plurality of parallel wires fixed at one end to one of said grate wires and at the other end swingably connected to said rod, said parallel wires being spaced at equal intervals from one another to define with said grate wires a pair of semi-circular grates for said incinerator, a pair of angles each fixed to the inside of said can opposite to one another at the same axial location along said cylinder as said rod but displaced 90 degrees around the cylinder relative to said rod, each of said angles having one leg secured to said incinerator wall and its other leg projecting inwardly of said cylinder, each of said angles supporting one of said grate wires centrally thereof whereby said semi-circular grates are supported in the same plane perpendicular to the axis of said cylindrical can and said grates thus define an ash chamber between said bottom and said grates and a combustion chamber between said grate and the top of the can, said can having a plurality of apertures around the can and below said plane, a removable top for said can, said top having a plurality of holes therethrough which are small

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relative to the total area of said top, said grates being swingable upon the overturning of said can to an axially extending position permitting the dumping of ashes and unburned materials from said can.

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FREDERICK L. MATTESON, JR., *Primary Examiner.*

20 H. B. RAMEY, *Assistant Examiner.*