Nov. 5, 1940. K. C. HERRICK 2,220,369

REFUSE BURNER

Filed July 5, 1938

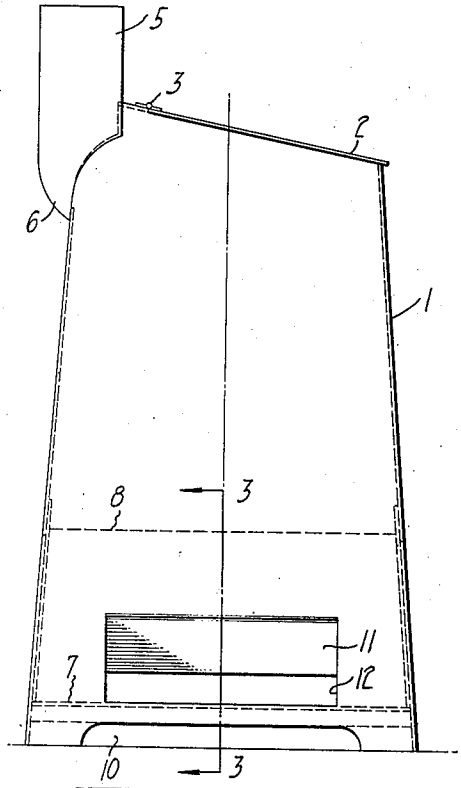


FIG. 1

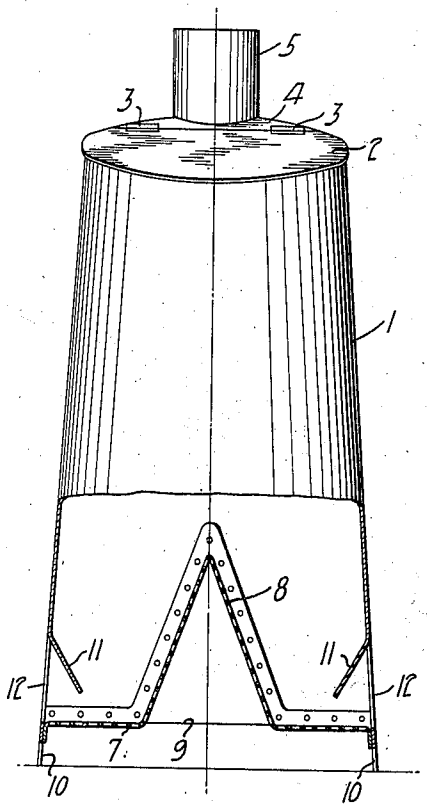


FIG. 3

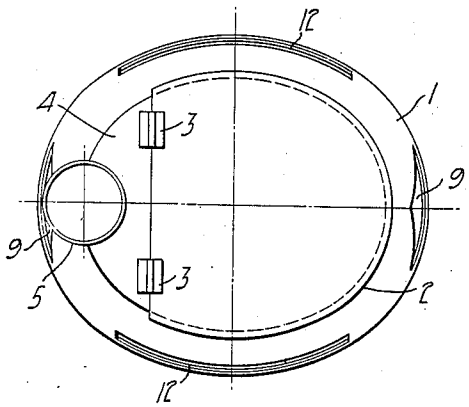


FIG. 2

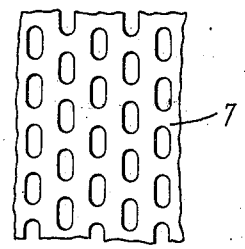


FIG. 4

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REFUSE BURNER

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Application July 5, 1938, Serial No. 217,379

6 Claims. (Cl. 110—18)

This invention relates to refuse burners and has for its objects a highly efficient refuse burner that is economical to manufacture, and which burner is provided with means for breaking up refuse that is dumped into the burner and for insuring rapid and complete burning of such refuse. Other objects are the provision of improved construction to facilitate cleaning the burner and to prevent egress of unburnable particles from the grate, and also to insure proper access of air to the refuse therein to promote combustion of such refuse. Other objects and advantages will appear in the description and drawing annexed hereto.

In the drawing, Fig. 1 is an elevational view of my improved refuse burner.

Fig. 2 is a plan view of my improved refuse burner.

Fig. 3 is a sectional view taken along the line 3—3 of Fig. 1.

Fig. 4 is an enlarged plan view of the sheet metal grate, approximately actual size.

In detail, the burner illustrated in the drawing comprises a vertically disposed, vertically elongated, tubular shell 1, preferably formed from a single sheet of metal, the sides of which shell extend convergently upwardly from the lower end to the upper end. In horizontal cross section, the shell is preferably generally elliptical in contour, but it may obviously be rectangular or circular, but the elliptical shape insures better distribution of the refuse for burning, as will later appear, and also eliminates corners and is more economical to make.

The upper end of the shell is closed by a lid 2, hinged at 3 adjacent one of the sides at one end of the major horizontal axis of the shell, a partial permanent closure 4 (Fig. 2) being secured at said end over the top for supporting approximately half of a vertical flue 5 that is secured to said closure, the other half of the flue extending at 6, down the side of the shell, and to which the edges of said other half are secured, thus said extension 6 of the flue provides a rigid brace for the main upwardly extending portion of the flue on the side opposite the cover 2, which enables the lid to lean against the flue when the latter is open without loosening the flue or tending to flex the latter at its connections with the shell.

The upper edges of the shell are preferably disposed in an inclined plane extending downwardly from the lower end of the flue, thus guiding the smoke to the chimney to facilitate the creation of a draft through the shell and chimney when the refuse within the shell is ignited, since the cover 2 lies in substantially the same inclined plane as said upper edges.

The lower edges of the shell are adapted to rest on the ground or any suitable supporting surface, and within the lower end of the shell, but spaced above said lower edges, is a horizontally disposed grate 7, preferably of perforated sheet metal, which grate is centrally formed to provide an inverted V-shape channel 8 extending longitudinally of the major horizontal width of the shell. The inclined sides of said channel are relatively steep with the edges of the channel at its open lower side spaced about ⅓ the width of the grate and the depth of the channel being slightly greater than said width, so that refuse dropped onto the outer sides of the channel will be deflected oppositely outwardly of said sides.

Thus any refuse dumped into the burner will be broken up in the central portion of the grate by striking the outer sides of the channel. Air for combustion to within the channel is admitted at opposite ends thereof through openings 9 (Fig. 3) in the sides of the shell, which openings extend fully across the open ends of the channels. The sides of the channel are, of course, perforated, since said sides are preferably formed integrally with the plate forming the entire grate, and which perforations are sufficiently small, but numerous, to prevent refuse from falling therethrough, but sufficiently large to furnish ample air for combustion. Fig. 4 is representative of a fragment of the grate.

The opposite sides of the shell along the greatest horizontal width of the shell, as seen in Figs. 1, 2, are relieved from the lower edges to provide elongated recesses 10 for admission of air for combustion to below the horizontal portions of the grate extending outwardly from opposite sides of the channel 8, and some of said air also will pass to within said channel to further augment the amount of air entering said channel through openings 9.

Above the level of the grate, and over the recesses 10, I provide a louver 11 at each side of the shell, which louvers are inclined inwardly into the shell from their connection with the shell sides at their upper edges. Thus the louvers extend slightly over the opposite margins of the grate. The lower edges of the louver openings 12 are preferably substantially flush with the upper surface of the grate margins adjacent thereto, and the vertical width of the louvers is about a fourth less than the horizontal length of said openings, thus admitting air

for combustion through said louver openings, and at the same time providing easy access to the top of the grate for drawing rocks, and non-burnable refuse out of the shell through said openings. Also the openings provide easy access to the refuse on the grate for stirring up the refuse or for cleaning the grate by use of a poker or like object.

The dimensions of my burner may, of course, be varied, but I find the proportions illustrated in the drawing to be highly satisfactory. Also, it is obvious that legs may be attached to the shell instead of supporting the same by extensions of the shell, but this would add to the expense and is unnecessary.

The degree of offsetting of the flue over the lateral side of the shell may also be varied, but should not be such as to project the flue laterally beyond a vertical plane extending upwardly from the lower edge of the shell that is directly below the flue, since this would require special care in storing and crating and packing, whereas the burner, as shown, may be placed directly against other burners, or against a wall, or may be packed in common rectangular crates or cartons, without the flue incurring injury.

The grate itself may be welded, riveted or otherwise secured to the shell at its edges, the drawing showing upwardly turned flanges at the edges of the grate adjacent the ends of the channel for securing to the sides of the shell adjacent thereto, while downwardly turned flanges are along the edges adjacent the louvers to avoid any obstruction to the free drawing of unburned refuse over said edges and through the louver openings.

Having described my invention, I claim:

1. A burner of the character described comprising a generally vertically disposed tubular shell open at its lower end, a perforated grate in the lower end of said shell formed with an inverted V-shaped channel projecting upwardly into the shell, said channel extending horizontally from one side of the shell to the opposite side, grate portions extending laterally outwardly from the lower edges of the sides of said channel providing horizontal supporting surfaces for material to be burned, the sides of said channel and said grate portions being perforated, and an air inlet in the side of said shell at one end of said channel and in register therewith for admitting air to within the channel independently of air within said shell and below said channel, an air inlet in the side of said shell adjacent one of said grate portions for admitting air to material adapted to be supported on said one of the grate portions, an outlet in the upper end of said shell for smoke, and the sides of said shell between the air inlets and the said outlet being substantially imperforate for retaining heat developed by burning material within the shell.

2. In a construction as defined in claim 1, said air inlet at the end of the channel being formed to generally follow the contour of the end of the channel.

3. In a construction as defined in claim 1, said last mentioned air inlet comprising a horizontally elongated opening formed in the side of said shell, and a horizontally extending louver of lesser width than the width of said opening projecting from the upper edges of the said opening inwardly into the shell and over and spaced above the portion of the grate adjacent said opening.

4. A portable refuse burner comprising a vertically extending tubular shell which in horizontal cross-section of generally elliptical shape from top to bottom, the sides of said shell extending convergently upwardly from the lower end thereof, a horizontally disposed grate of perforated sheet metal secured at its edges to the sides of the shell and positioned adjacent the lower end of said shell, said grate being formed to provide an inverted V-shaped channel extending longitudinally of the major horizontal axis of the elliptical contour of the shell, an air inlet in the sides of the shell at the ends of said channel and air inlets in the sides of the shell at opposite sides of said channel, said last mentioned air inlets being at the level of the upper surface of the grate portions at the opposite sides of the channel for permitting withdrawal of material on said portions through said air inlets.

5. In a construction as defined in claim 4, said air inlets at the ends of the channel being formed to generally follow the contour of the ends of said channel.

6. In a construction as defined in claim 4, said last mentioned air inlets comprising horizontally elongated openings formed in the opposite sides of said shell, and horizontally extending louvers of lesser width than the width of said openings projecting from the upper edges of the said openings inwardly into the shell and over and spaced above the portions of the grate adjacent said openings.

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