H. H. WEAVER.

INCINERATOR.

APPLICATION FILED JUNE 2, 1914.

1,131,188. Patented Mar. 9, 1915.

Fig. 1.

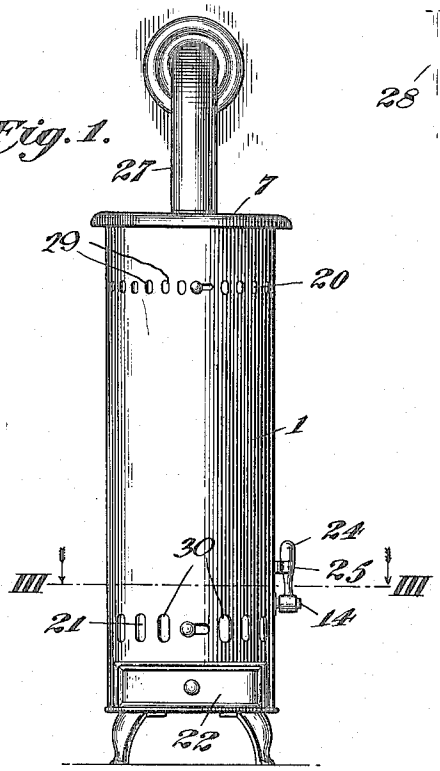


Fig. 2.

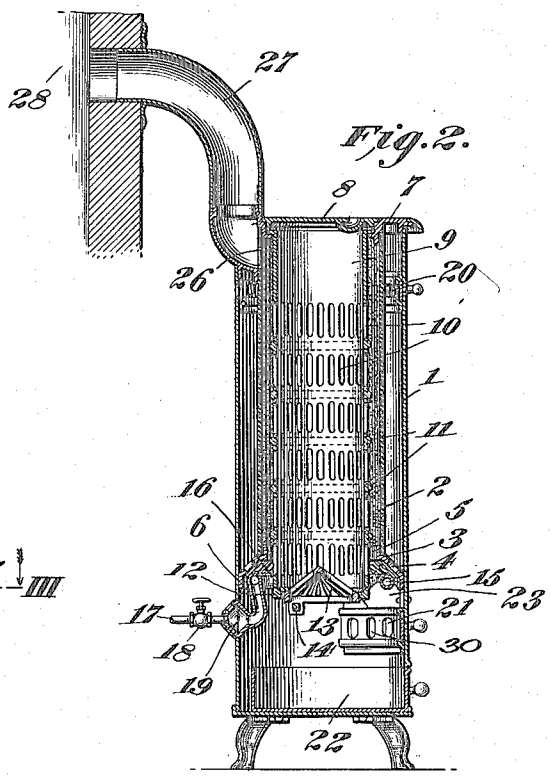


Fig. 3.

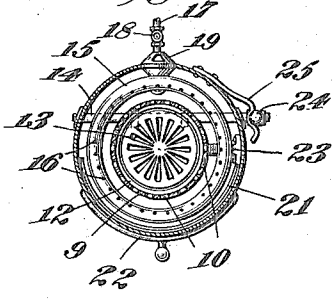
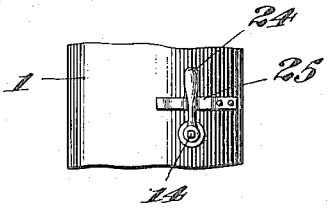


Fig. 4.



WITNESSES:

Elmer Seavey

T. C. Bothel

INVENTOR

H. H. Weaver

BY

Geo. E. Thackray

his ATTORNEY

UNITED STATES PATENT OFFICE.

HERBERT H. WEAVER, OF SOUTHMONT, LOWER YODER TOWNSHIP, CAMBRIA COUNTY, PENNSYLVANIA.

INCINERATOR.

1,131,188. Specification of Letters Patent. Patented Mar. 9, 1915.

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To all whom it may concern:

Be it known that I, HERBERT H. WEAVER, a citizen of the United States, residing in Southmont, Lower Yoder township, in the county of Cambria and State of Pennsylvania, have invented certain new and useful Improvements in Incinerators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to incinerators with special reference to those which are adapted to treat household, restaurant, hotel or similar refuse or garbage.

My incinerator is preferably heated by gas, either artificial or natural, which is supplied to a burner, which burner may be provided with an air mixer, in order to produce a hot and smokeless flame.

My incinerator consists essentially of an outer shell, which is provided with a non-conducting refractory lining, which, as illustrated, is removed inwardly a slight distance therefrom to provide an air space. The inner portion of my incinerator is provided with a perforated receptacle adapted to contain refuse, the lower end of said receptacle being closed during the operation, by a tilting grate, while the upper end is accessible for the reception of the material, and is provided with a removable cover. Below the tilting grate is an ash-pan adapted to receive ashes after the incineration is completed, and the waste gases, either from the heating gas or from the refuse, are preferably conducted to a flue which is adapted to produce a draft and discharge the gaseous products into the outer atmosphere.

My incinerator is provided with a series of air openings near the upper portion thereof connecting with the space between the refractory lining and the outer shell, which provide an additional air supply for the consumption of the gas, and these openings may be regulated in size by means of a sliding damper. I also provide a sliding damper or register near the lower portion of my incinerator for the further regulation of the air supply thereto.

Having thus given a general description of my invention, I will now, in order to make the same more clear, refer to the accompanying one sheet of drawings forming part hereof, and in which like characters of reference indicate like parts:—

Figure 1 is a front elevation of my improved incinerating furnace. Fig. 2 is a vertical transverse sectional elevation of my incinerating furnace. Fig. 3 is a horizontal transverse sectional elevation taken on the line III—III of Fig. 1, and Fig. 4 is a side elevation showing the means for holding and dumping the furnace grate.

Referring now to the characters of reference on the drawings:—1 indicates the outer shell or casing which may be made of sheet metal or a thin metal casting.

2 indicates the inner refractory shell which, as shown, is arranged a slight distance from the outer shell to provide an air space between the two, 3 is an annular support adapted to sustain the refractory lining, 4 are perforations in the annular support 3 to allow the air to pass therethrough, 5 is the upper ring portion of the annular support 3 adapted to strengthen the same and to directly carry the refractory lining, 6 is the lower flange of the support 3 adapted to be secured to the outer lining, 7 is the upper portion of my incinerator provided with a removable cover 8 which is similar to a stove lid, 9 is the inner perforated container provided with perforations 10 which are illustrated as slots. The perforated receptacle 9 is shown as of substantially cylindrical form and it may be removed upwardly after taking off the lid 8 as it merely rests or sets on the lower ring as illustrated, thus allowing it to be easily replaced when burned or worn. The perforated receptacle 9 is of sufficient diameter that its walls are a slight distance from those of the adjacent refractory lining 2.

11 are integral ribs forming part of the container 9 and adapted to strengthen the same, 12 is a ring-shaped support adapted to carry the container 9, said support being carried by the brackets 23 which are secured to the outer casing 1; these brackets also serving to support the ring burner 15; 13 is a perforated grate shown as of conical form mounted on the rod 14, which rod projects through the outer casing and is provided with the handle 24, whereby the grate is adapted to be turned downwardly for dumping, or turned upwardly in place, as indicated in Fig. 2 ready for operation. The handle 24 is held in position by means of

the spring 25 as shown on the drawings in Figs. 1, 3 and 4. The burner 15 is shown as a pipe of annular form provided with perforations 16 through which the mixture of gas and air is discharged, forming a circular flame adapted to heat all parts of the container 9 and the refuse therein. The burner is provided with a supply gas pipe 17 controlled by a valve 18 and has a mixer 19 which may be of any construction suitable for the purpose of mixing air and gas. The mixer may be provided with an air register to regulate the supply of air so that the mixture of air and gas is best adapted for the purpose intended. For the purpose of admitting air within the space intermediate the outer casing 1 and the refractory lining 2, openings 29 are provided in the upper part of the outer casing and in order to control the size of these openings a slide damper or register 20 is provided. Openings 30 in the lower part of the outer casing, also admit air to the interior of the incinerator beneath the perforated grate 13 and the size of these openings 30 are controlled by a slide damper or register 21, similar to the slide damper or register 20.

22 is an ash-box or drawer adapted to be withdrawn to allow the ashes to be thrown away, 26 is the opening in the refractory lining connecting with the flue connection pipe 27 and 28 is the chimney or flue adapted to lead to the outer air.

The operation of my apparatus is as follows:—The lid 8 is removed by a stove-lifter, or otherwise, after which, garbage or other refuse is dumped within the perforated receptacle 9, the lid 8 is replaced in position, the air damper or register 21 is opened, if necessary, the gas is turned on by means of the valve 18 and is lighted as the mixture of air and gas issues from the burner 15 through the perforations 16 thereof. This provides a flame surrounding the receptacle 9 and its contents and the flame penetrates the mass of refuse or garbage therein. If the draft through the flue 27 and chimney 28 is good at all times, the upper air openings 20 may be open, allowing cool air to draw in between the inner casing and the outer casing which keeps the exterior cool, heats the air for combustion and supplies it to the flame below through the openings 4, whence it and the other gases which may form part of the products of combustion pass upwardly through and around the mass of refuse and are discharged through the flue connection 27 and thence finally from the flue 28 into the open air. On account of the construction of my apparatus an intense heat is generated around the garbage and I have ascertained by actual trial that a charge of refuse can be incinerated at a cost of approximately one cent's worth of natural gas at the prices which obtain in my neighborhood. After the incineration is complete and only ashes remain, the handle 24 may be, if desired, turned to a horizontal position which dumps the grate 13 and the ashes are discharged into the ash-tray 22 and this, together with the contents may be removed and the ashes placed elsewhere, the only remains of the garbage being innocuous.

It should be noted that in the foregoing description I have referred to the lining or shell 2 as being refractory, but I wish it clearly understood that this shell may be made of sheet metal, cast metal; asbestos, either with or without admixtures of cementitious materials; firebrick, or in fact any material which will resist the heat to which the apparatus is subjected. For the higher heats I may prefer to use a high heat-resisting material, whereas for ordinary uses where less heat is required, a metal shell will amply suffice, and in fact will last for a reasonable time under the higher heats. In any case, the lining is refractory within the limits for its use and the heats to which it will be subjected.

Although I have shown and described my improvements in considerable detail, I do not wish to be limited to the exact and specific details shown and described, but may use such substitutions, modifications or equivalents thereof, as are embraced within the scope of my invention, or as pointed out in the claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In an incinerator, an outer shell or casing, a lining mounted therein and spaced apart from the inner surface of said casing, a garbage receptacle mounted within said lining and spaced apart therefrom, means for supplying burning gas and air to and around said receptacle, and openings in the upper portion of said outer casing, the annular channel formed between the inner side of the casing and the outer side of the lining, being adapted to conduct the air entering through the openings aforesaid to the combustion region of the incinerator.

2. An incinerator provided with an outer shell or casing, a lining mounted therein and spaced apart therefrom, exterior openings in the upper portion of said outer casing thereby uniting the exterior atmosphere with the space between said casing and said lining, means for controlling and regulating the size of said openings, a ring gas burner located below said lining provided with gas and air supply thereto, a perforated receptacle mounted within and spaced apart from said lining, and a flue connection therefrom adapted to receive the waste gases.

3. In an incinerator, an outer casing pro-

vided with adjustable air openings near its upper portion, an inner lining, the upper part of which is spaced apart from said outer casing, the lower portion of said lining sloping outwardly toward, and supported by, said outer casing, openings in said lower inclined portion adapted to supply air, and communicating with the openings in the upper part of said casing, a perforated receptacle mounted within and spaced apart from said lining, a discharge flue connected with the space between said receptacle and the lining, and means for supplying burning gases to and around said receptacle.

4. In an incinerator, an outer casing, an inner lining spaced apart therefrom, air openings in the upper part of the outer casing controlled by a damper, openings in the lower part of the lining adapted to communicate with the openings in the casing aforesaid, a perforated receptacle mounted within and spaced apart from the lining, a discharge flue connected with the space between the receptacle and the lining, and means for supplying burning gases to and around said receptacle.

5. In an incinerator, an outer casing, an inner lining spaced apart therefrom, air openings in the upper part of the outer casing controlled by a damper, openings in the lower part of the lining adapted to communicate with the openings in the casing aforesaid, a perforated receptacle mounted within and spaced apart from the lining, a discharge flue connected with the space between the receptacle and the lining, openings in the lower part of the outer casing provided with an adjustable damper for regulating the same, and means for supplying burning gases to and around said receptacle.

In testimony whereof I hereto affix my signature in the presence of two witnesses.

HERBERT H. WEAVER.

Witnesses:

ELMER SEAVEY,

HENRY S. SHARP.