July 9, 1957 H. FRIEDBERG 2,798,928

ELECTRIC INCINERATOR HEATING UNIT

Filed Jan. 4, 1955 2 Sheets-Sheet 1

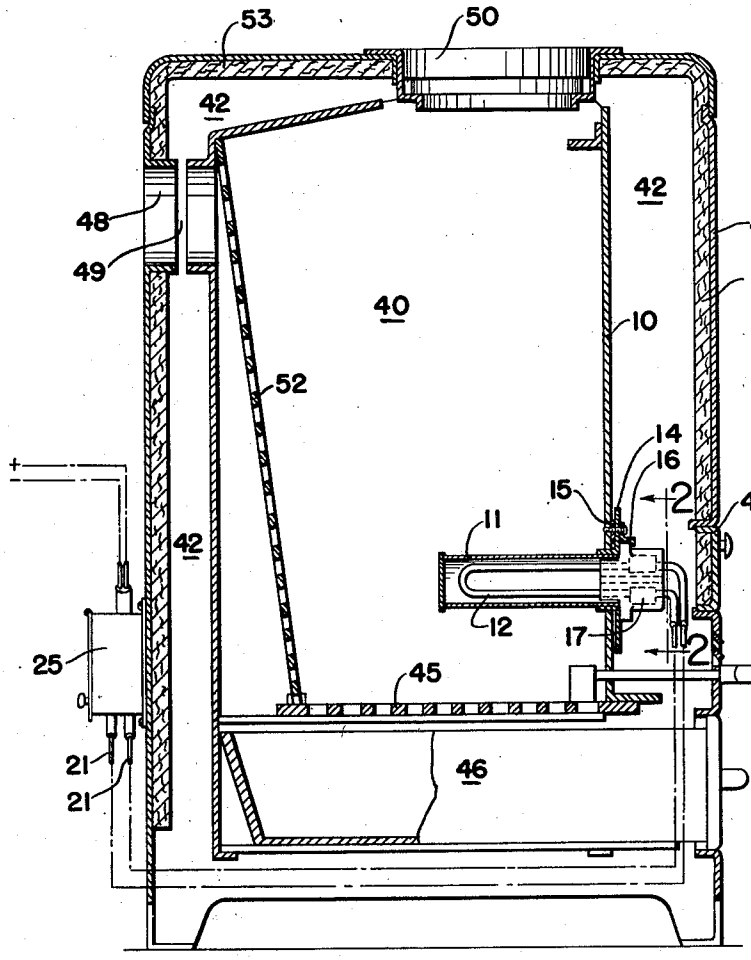


FIG. 1

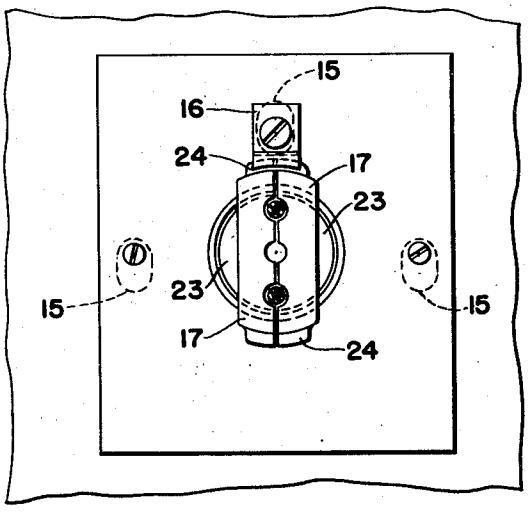


FIG. 2

INVENTOR.
HARRY FRIEDBERG

BY
Ely, Frye & Hamilton

ATTORNEYS

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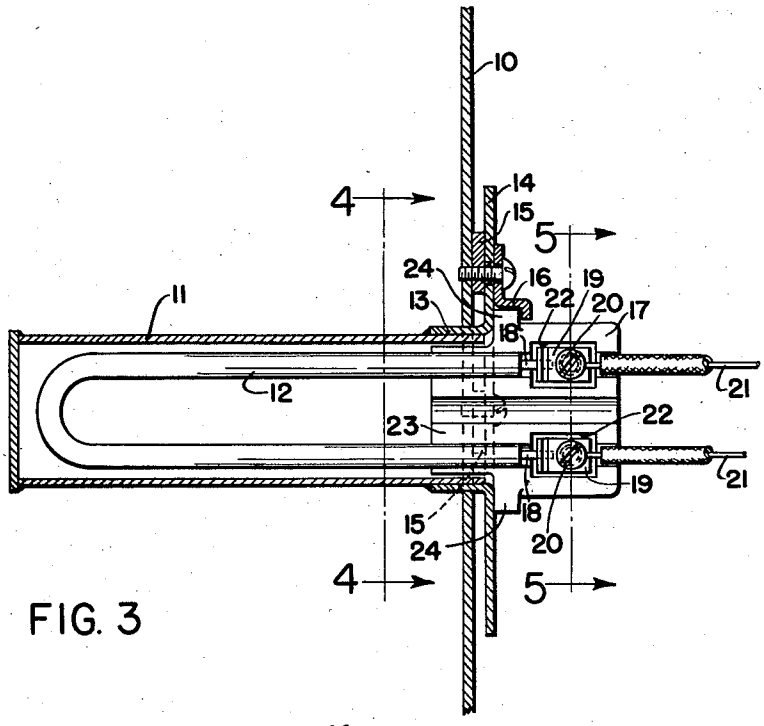


FIG. 3

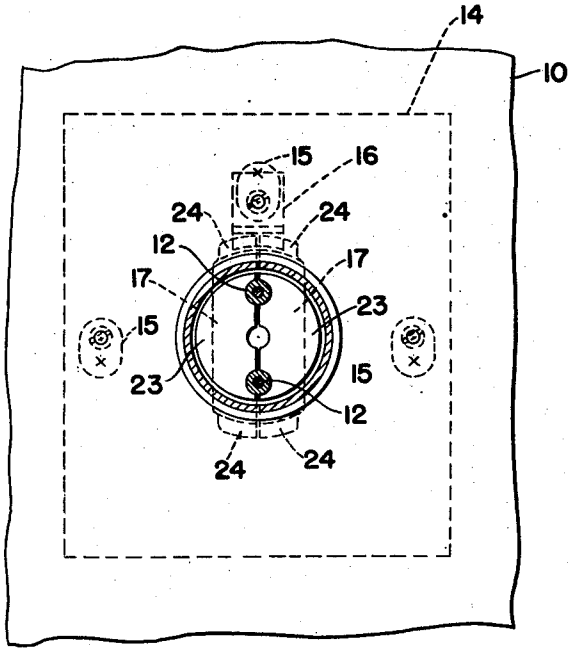


FIG. 4

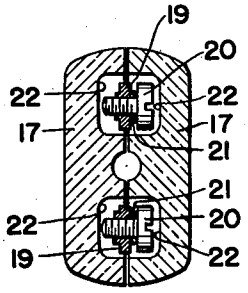


FIG. 5

INVENTOR.
HARRY FRIEDBERG
BY
Ely, Frye & Hamilton
ATTORNEYS

United States Patent Office

2,798,928

Patented July 9, 1957

2,798,928

ELECTRIC INCINERATOR HEATING UNIT

Harry Friedberg, Cleveland, Ohio, assignor to Waste King Corporation, Los Angeles, Calif., a corporation of California

Application January 4, 1955, Serial No. 479,778

4 Claims. (Cl. 219—19)

The present invention relates to electric incinerators and, more specifically, to an electric incinerator structure embodying a new and improved heating assembly.

The invention provides a heating assembly which is inexpensive and easy to service and replace. The assembly is projected into the interior of the refuse chamber of the incinerator to more effectively heat the contents thereof. The operation of the unit is such as to maintain steady heating and drying out of the contents of the refuse chamber at normal relatively low radiating temperatures while causing rapid drying out and burning away of any refuse which may tend to interfere with the heating and drying out of the majority of the refuse by becoming packed directly around the unit.

The invention comprises a heating assembly in which a cantilever housing encloses a similarly extending heating element which is spaced from the housing. The housing normally absorbs and re-radiates at a reduced temperature the heat produced by the heating element. When directly contacted by refuse, the housing quickly rises in temperature. Housing temperature temporarily approaches the temperature of the heating member to dispose of the contacting refuse. The housing thereupon returns to normal temperature and continues to radiate throughout the refuse chamber under conditions consistent with efficient performance and long service life.

The objects and advantages of the invention will be more fully understood from a reading of the following specification which, together with the accompanying drawings, describes one specific embodiment of the invention.

In the drawings:

Figure 1 is a view in cross-section of a refuse incinerator including a heater assembly embodying the invention.

Figure 2 is a view taken from line 2—2 in Figure 1.

Figure 3 is a detailed view of the heating assembly seen in Figure 1, with one of the insulating supports removed.

Figure 4 is a view taken from line 4—4 in Figure 3.

Figure 5 is a view taken from line 5—5 in Figure 3.

The heater assembly contemplated by the invention is shown in Figure 3 in position on the panel or wall **10** of a chamber, the contents of which the unit is intended to heat. The unit comprises a housing **11** in which is received a heating element **12**. The housing is brazed or welded to the flange **13** of a mounting plate **14**. The mounting plate **14** is bolted to the wall **10** by bolts which may pass through spacers **15** (Figure 4), the plate **14** being thus supported in spaced relation from the wall **10**. The bolt passing through the upper spacer **15** also anchors a detent member **16** which is positioned on the outer side of the plate **14**.

Received within the open end of the housing **11** are a pair of ceramic insulating support members **17** which are suitably grooved to receive and support the ends of the heating element **12**. The terminals **18** of the heating element **12** are fixed to tabs **19** which are tapped to receive binding post screws **20** to which are secured the power leads **21**. The tabs **19** and binding post screws **20** are accommodated in the enlarged pockets **22** formed in the members **17**.

The members **17** are each formed with a semi-circular boss **23** (Figures 2–4), the bosses **23** together making up a circular plug received within the open end of the housing **11**. The members **17** each have ears or flanges **24**. The flanges **24** are adapted to be moved into and out of interlocking relationship with the detent member **16** by rotation together of the two members **17**.

In Figure 1 is shown an incinerator in which is employed the heating unit described above. The incinerator has a refuse chamber **40**, a casing **41** surrounding the refuse chamber and spaced therefrom to define an air jacket space **42**, a grate **45** at the bottom of the refuse chamber **40**, and an ash drawer **46** below the grate **45**. The refuse chamber **40** is vented to a flue **48**, to which the air jacket space **42** may also be vented through an opening or gap **49**. An access door **44** is provided in the front of the casing **41**. The power leads **21** run under the incinerator as shown and are connected to a suitable junction box **25**.

The charge to be disposed of is deposited in the refuse chamber **40** by temporarily lifting a lid **50**, and the charge is held away from the flue outlet by means of a perforated screen or grate **52**. Fiberglass insulation **53** may be included around the inside of the casing **41** to maintain the outside of the casing cool. It will be seen that the housing **11**, projecting as it does as a stubby cantilever into the refuse chamber **40**, provides a central source of heat while, at the same time, allowing ready settling of the refuse with a minimum of packing or lodging against the heating unit.

With the heating unit **12** operating at a temperature of about 1000° F., the housing **11** attains a temperature of about 500–600° F. and radiates heat throughout the refuse at this normal temperature to dry out the refuse mass prior to final burn-off. Any refuse which may become packed or lodged against the housing tends to block off radiation throughout the refuse chamber from the housing. Because of this cutting-off of radiation, the temperature of the housing **11** quickly approaches that of the heating element **12** and the packed or lodged refuse is quickly dried out and either falls away from the housing **11**, being no longer damp and sticky, or ignites and burns off. After the removal of packed or lodged refuse, the entire housing resumes normal radiation and normal temperature.

It is to be noted that the heating element **12** and supporting base members **17** may be easily removed from the incinerator through the access door **44**. The screw holding the detent member **16** is slightly loosened, the members **17** are rotated until the flanges **24** clear the detent member **16**, and the sub-assembly is withdrawn to the extent allowed by the leads **21**.

While a specific embodiment of the invention has been disclosed above, many details of the embodiment are not necessary to the invention. The scope of the invention is defined in the following claims.

What is claimed is:

1. An incinerator comprising a refuse chamber to receive and contain refuse to be incinerated, said refuse chamber having a bottom wall and side walls and cover means, a hollow metallic body extending from one of said side walls into said refuse chamber, said body having an open end communicating with the outside of said one of said side walls, a pair of ceramic members fitting against each other with a portion of each fitting into said open end, a heating element clamped between said ceramic members and extending within said hollow body

in spaced relation therewith, and releasable detent members to normally maintain said pair of ceramic members fitted into said open end with said heating element clamped therebetween, said detent members quickly releasing said ceramic members upon rotation of one of said members.

2. An electric heating unit for use in an incinerator comprising a flange plate, a hollow metal body extending from one side of said flange plate, said body having an open end which opens through said flange plate and communicates with the side of said flange plate opposite to said one side, a pair of ceramic members fitting against each other with a portion of each fitting into said open end, a heating element clamped between said ceramic members and extending within said hollow body in spaced relation therewith, and releasable detent members on said flange plate to normally maintain said pair of ceramic members fitted into said open end with said heating element clamped therebetween, said detent members quickly releasing said ceramic members upon rotation of one of said members.

3. An electric heating unit for use in an incinerator comprising a flange plate, a hollow metal body extending from one side of said flange plate, said body having an open end which opens through said flange plate and communicates with the side of said flange plate opposite to said one side, a pair of ceramic members fitting against each other to define a split body having a boss portion fitted into said open end of said hollow body, said split body having a projecting portion outside said hollow body with shoulders engaging said flange plate and outer flanges adjacent said shoulders and extending partially around the periphery of said split body, a heating element clamped between said ceramic members and extending within said

hollow body in spaced relation therewith, and releasable detent means on said flange plate and engaging said outer flanges to normally maintain said pair of ceramic members fitted into said open end with said heating element clamped therebetween.

4. An electric heating unit for use in an incinerator having side walls and comprising a hollow metal body secured to one of said walls and extending into said incinerator, said body having an end opening toward the outside, a pair of ceramic members fitting against each other to define a split body having a boss portion fitted into said open end of said hollow body, said split body having a projecting portion outside said hollow body provided with outer flange means extending partially around the periphery of said split body, said outer flange means limiting movement of said ceramic members into said hollow body, a heating element clamped between said ceramic members and extending within said hollow body in spaced relation therewith, and releasable detent means carried on said one side wall and engaging said outer flange means to normally maintain said pair of ceramic members fitted into said open end with said heating element clamped therebetween.

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