July 21, 1959 O. MICHAELIS 2,895,433

FURNACE FOR BURNING OF WASTE MATERIAL

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FIG. 1

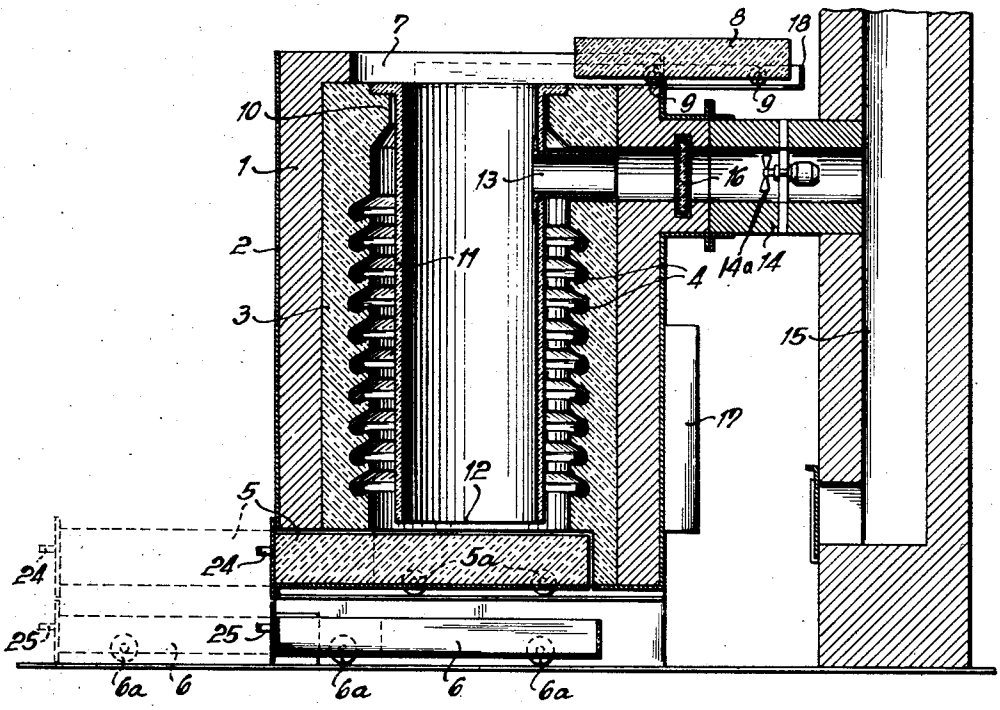
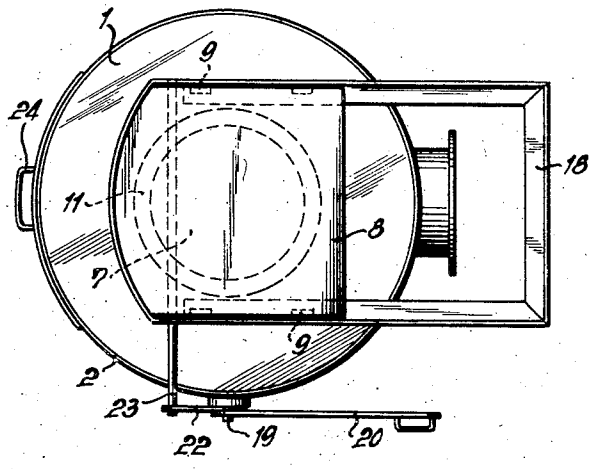


FIG. 2



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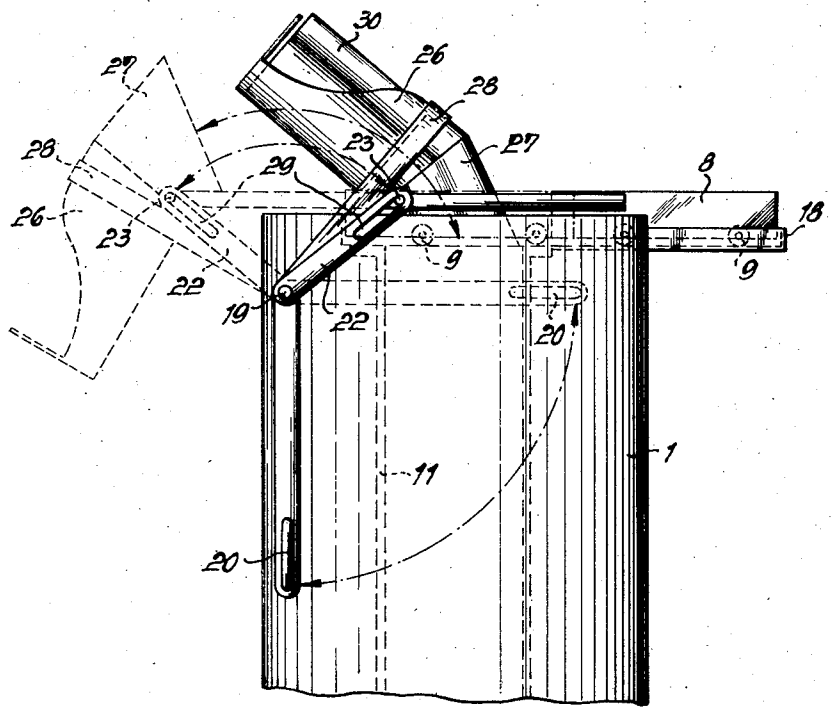
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FIG. 3



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2,895,433

Patented July 21, 1959

2,895,433

FURNACE FOR BURNING OF WASTE MATERIAL

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Application July 10, 1957, Serial No. 671,075

8 Claims. (Cl. 110—8)

The present invention relates to an electrically, gas or oil operated furnace for burning of waste material, particularly for waste material originating from surgery and hospital operations, refuse and the like.

It is one of the main objects of the present invention to provide such structure for a furnace which permits of destruction of such waste material fast and in simple manner in a completely hygienic way and without endangering the health of the operator of the furnace.

It is another object of the present invention to provide a furnace for burning of waste material, which furnace comprises a thin walled cylinder which is heated from the outside and removable and made of highly refractory material and which cylinder is disposed with its lower open end rigidly over a retractable bottom of a cylindrical duct furnace, the lower open end being adapted to receive combustion air. The heating of the furnace is brought about by electrical heating elements disposed annularly around the inner burning duct or by gas or oil burners which project tangentially into the furnace duct.

It is still another object of the present invention to provide a furnace wherein a horizontally disposed flue gas connecting branch is provided at the upper portion of the inner burning duct, which flue gas connecting branch communicates with a chimney or with an artificially induced draft. The burning duct is closed up by means of a laterally slidable cover member which may be operated either manually or mechanically, for instance, by an electrically or hydraulically operated device.

It is yet another object of the present invention to provide a furnace for burning of waste material which includes a container having an emptying connecting branch and disposed tiltably at the upper edge of the furnace, which container is adapted for reception and automatic emptying of a waste basket. This tilting device is operatively connected with the slidable cover member by means of a suitable device in such manner that upon sliding out of the cover member the container assumes a tilting position above the furnace duct, so that the contents of the waste basket are emptied into the furnace duct. During return of the furnace cover member in its closed position, the container returns simultaneously into its original position.

For easier removal of the residues of combustion a slidable ash catcher is provided which is disposed below the furnace bottom which also slides out of the furnace. Upon removal of the furnace bottom, the residues of combustion are stripped off by the lower edge of the furnace duct, which residues fall into the ash catcher.

By arranging a device as set forth above, a fast and hygienically perfect emptying of the waste baskets into the furnace duct is made possible and the burning of the waste material is performed directly without odor and without smoke, in view of the fact that due to the arrangement of a communication of the furnace duct with the chimney an induced draft for complete removal of the gaseous burning products is brought about.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawing, in which:

Figure 1 is an axial section through a furnace designed in accordance with the present invention;

Fig. 2 is a top plan view of the furnace; and

Fig. 3 is a fragmentary elevation of the furnace shown in Fig. 1 with the additional tilting device for the automatic emptying of the waste baskets.

Referring now the drawing, the furnace as disclosed in Fig. 1 comprises a duct-like ceramic housing **1** having an outer metal coat **2** and annularly disposed, refractory and ceramic heat conductor carriers **3** with electrical heating coils **4**. The furnace duct is closed up at its bottom by a bottom member **5** which is heat insulated and movable on rollers **5***a* and which is equipped with a handle **24**, as well as by an ash catcher **6** slidable on rollers **6***a* and which is also equipped with a handle **25**. A narrow space is provided between the duct-like ceramic housing **1** and the bottom member **5**, which narrow space is adapted to permit entrance of combustion air. An opening **7** is provided at the upper end of the furnace, which opening **7** may be closed up by means of a slidable heat insulating cover member **8** running on rollers **9**. In the neck **10** of the furnace is disposed a hollow cylindrical insert **11** of heat resistant material forming a combustion chamber and which with only slight play reaches down with its open lower end **12** close to the bottom member **5**. Below the neck **10** of the furnace is arranged a releasably inserted flue gas connecting branch **13** which communicates with the chimney **15** by means of the channel **14** and which is equipped with a slide stop valve **16**. If forced draft is required, a fan **14***a* may be provided in the channel **14**. The feeding of electric current to the electric heater is achieved by terminals schematically indicated at **17** in Fig. 1, whereby for automatic start and stop of the heating device a time clock (not shown) may be provided. In order to permit of an easy opening and closing movement of the cover member **8**, a metal frame **18** (Fig. 2) is provided which carries the tracks for the rollers **9**. A hand lever **20** is pivotally mounted on the axle **19**, which hand lever **20** is adapted for opening and closing of the cover member **9** and which hand lever **20** operates by means of the lever arm **22** and the guide bolt **23**.

The device described above is preferably equipped with a tilting device operated either manually or automatically and designed for feeding waste material to the furnace in order to achieve this end. The container **26** together with the emptying connecting branch **27** is connected by means of two arms **28** with the rotatably mounted axle **19** to which the lever arms **22** having guide slots **29** for guiding of said cover bolts **23** are secured.

The turning of the axle **19** is brought about by the hand lever **20** or an electrically or hydraulically operated drive. The waste basket **30** is inserted into the container **26** at its starting position and is emptied automatically upon reaching the tilted position of the container **26** above the open furnace duct.

While I have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense, the scope of the present invention being determined by the objects and the claims.

I claim:

1. A furnace for burning of waste material originating from surgery and hospital operations, refuse and the like comprising a substantially vertical duct member of highly heat resistant material, said duct member having an upper neck portion and an open top end and an open bottom end, a duct-like ceramic housing surrounding said duct member and said open bottom end receiving

combustion air, heating means recessed in the inner wall of said duct member, a hollow insert having a flanged upper end and defining a combustion chamber therewithin and a space between said duct member and said insert, said upper neck portion engaging said flanged upper end of said hollow insert to close the upper portion of said space between said duct member and said insert, a flue gas connecting branch removably inserted into said duct member and communicating with said combustion chamber slightly below said flanged upper end of said hollow insert, a chimney, and means forming a channel communicating said connecting branch with said chimney.

2. The furnace, as set forth in claim 1, which includes a heat insulated cover member for closing the upper end of said insert, said cover member having rollers for moving into and from, respectively, its insert covering position, and means for moving said cover member into its respective operative and inoperative positions.

3. The furnace, as set forth in claim 2, wherein said operating means for said cover member comprises a hand lever operatively connected with said cover member, and means co-operating with said cover member and causing tilting of the latter.

4. The furnace, as set forth in claim 1, which in which includes a heat insulated bottom member laterally removable from said furnace.

5. The furnace, as set forth in claim 4, which includes an ash catcher disposed below said bottom member and laterally removable from said furnace.

6. The furnace, as set forth in claim 1, which includes a slide stop valve inserted in said means forming a channel.

7. The furnace, as set forth in claim 1, which includes a control clock for automatic operation of said heating means.

8. The furnace, as set forth in claim 1, which includes a heat insulated cover member for closing the top of said insert, said cover member having rollers for moving into and from, respectively, its insert covering position, and means for moving said cover member into its respective operative and inoperative positions, which includes a tiltable device pivotally connected to the top of said furnace, a waste basket received by said tiltable device, and the latter being adapted for emptying the contents of the waste basket into said insert upon shifting said tiltable lever into its tilted position, and means for operatively connecting said tiltable device with said cover member for communicating with said insert.

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