

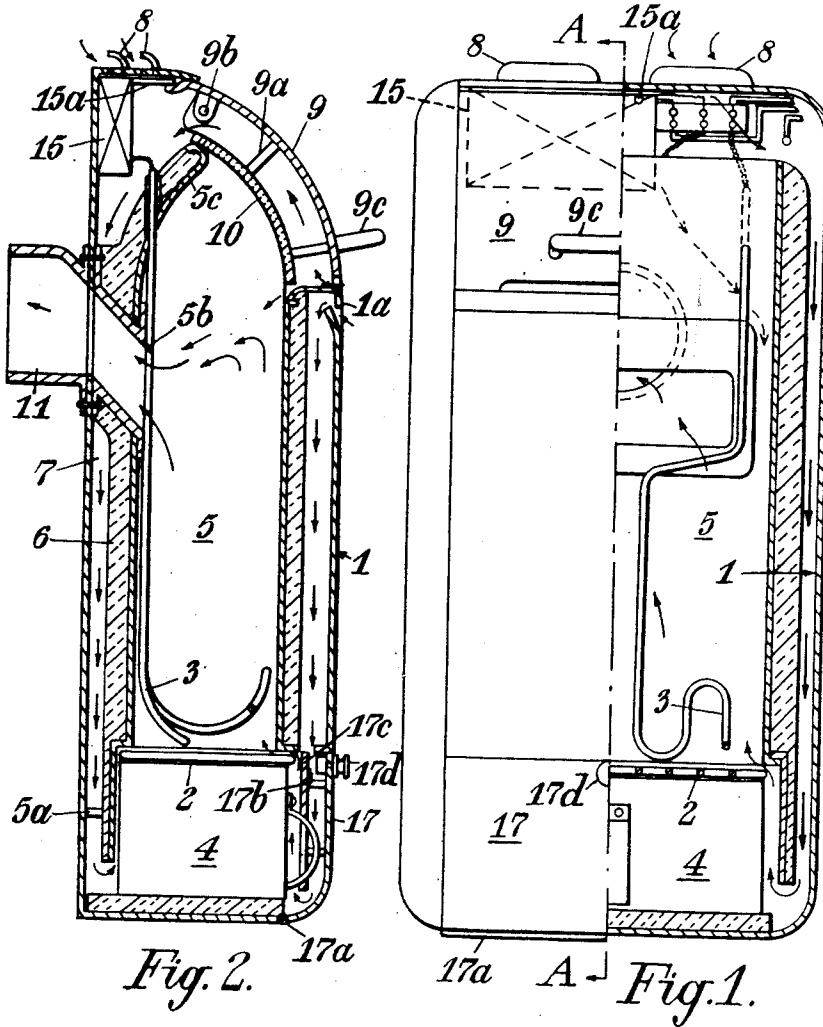
Nov. 9, 1954

R. W. KNOWLES
INCINERATOR FOR THE DESTRUCTION OF SURGICAL
DRESSINGS, CATAMENIAL APPLIANCES
AND THE LIKE

2,693,774

Filed July 17, 1951

3 Sheets-Sheet 1



Inventor
Robert William Knowles
by Eugene X. Purdy
Attorney

Nov. 9, 1954

R. W. KNOWLES
INCINERATOR FOR THE DESTRUCTION OF SURGICAL
DRESSINGS, CATAMENIAL APPLIANCES
AND THE LIKE

2,693,774

Filed July 17, 1951

3 Sheets-Sheet 2

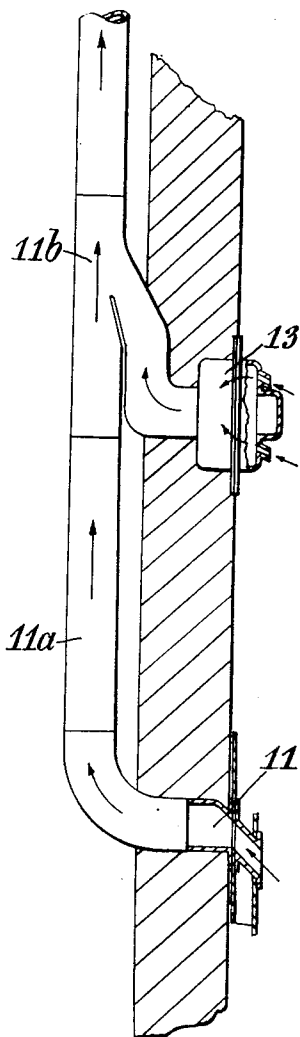


Fig. 7.

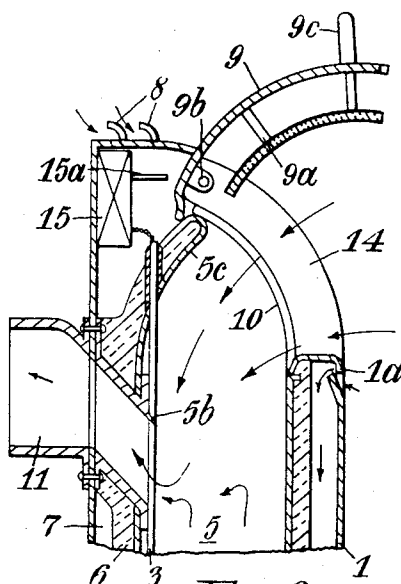


Fig. 3.

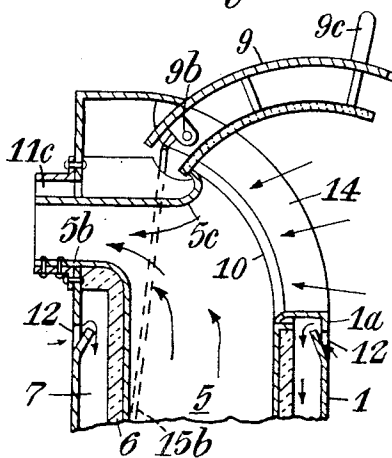


Fig. 6.

Inventor
Robert William Knowles
by Eugene O. Perry
Attorney

Nov. 9, 1954

R. W. KNOWLES
INCINERATOR FOR THE DESTRUCTION OF SURGICAL
DRESSINGS, CATAMENIAL APPLIANCES
AND THE LIKE

2,693,774

Filed July 17, 1951

3 Sheets-Sheet 3

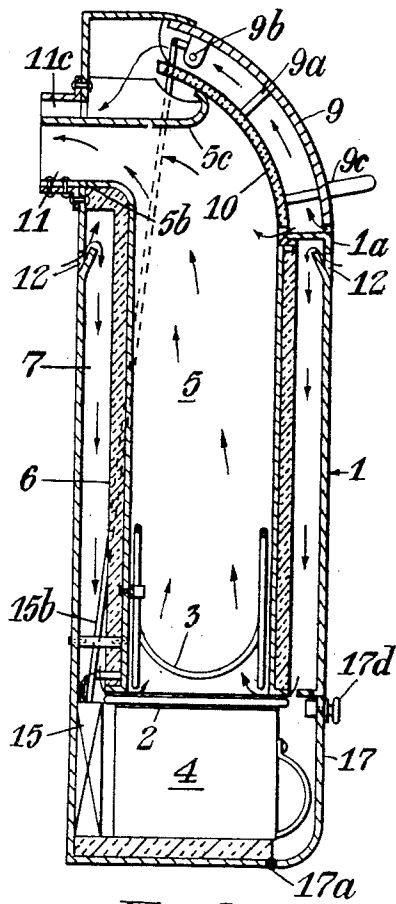


Fig. 5.

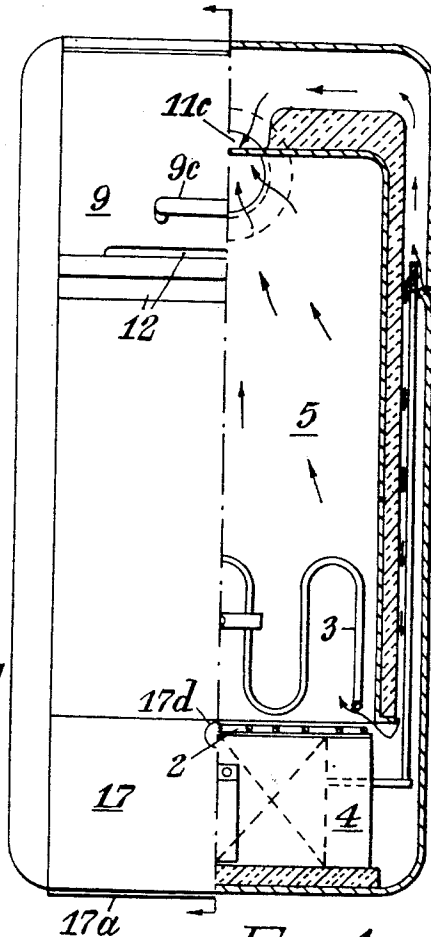


Fig. 4.

Inventor
Robert William Knowles
by *Eugene D. Perry*
Attorney

1

2,693,774

INCINERATOR FOR THE DESTRUCTION OF SURGICAL DRESSINGS, CATAMENIAL APPLIANCES AND THE LIKE

Robert William Knowles, London, England, assignor to Dorothy J. Knowles, London, England

Application July 17, 1951, Serial No. 237,161

3 Claims. (Cl. 110—18)

This invention relates to improvements in incinerators for the destruction of catamenial appliances, swabs used during surgical operations, and like refuse, of the kind comprising a cabinet, a combustion chamber over a grid in the cabinet, means in the combustion chamber for igniting refuse resting on the grid, and a removable ash box to receive the ash when the refuse is burnt and more particularly to electrically operated incinerators of this kind.

The object of the invention is to provide such incinerators with improved cooling means of the outer casing and feed door of the cabinet and supply the combustion chamber with pre-heated air. Another object is to divert flames and gases away from the opening through which the articles are fed when the feed door is opened.

Two forms of construction according to the invention are illustrated diagrammatically and by way of example in the accompanying drawings.

Figure 1 shows one form of construction partly in front and partly in sectional elevation,

Figure 2 is a section taken along the line A—A in Figure 1, and

Figure 3 is a section of the top part of the incinerator showing the door open, the section being taken along the same line A—A.

Figures 4, 5, 6 are corresponding views of a second form of construction, and

Figure 7 shows the arrangement of the flue, including a fan to promote the draught.

Referring to Figures 1, 2 and 3, illustrating the first form of construction, 1 is the cabinet or outer casing and 5 is a combustion chamber provided with a grid 2 and equipped with electrical heating elements 3 disposed around the walls of the incinerator and/or formed as a basket. 4 is an ash-box standing on an insulated platform underneath the grid and removable through a door 17 hinged at 17a and supporting by spacing sleeves 17b, a deflector plate 17c fitted with a catch 17d. The combustion chamber 5 is supported within the casing, at the lower end by brackets 5a and at its upper end by its outlet 5b. 6 is a heat insulating wall provided around the combustion chamber 5, leaving an outer chamber 7 between it and the outer casing 1.

According to the invention the free air is admitted into the combustion chamber only after it has passed wholly or substantially wholly through the outer chamber surrounding it. In the construction just referred to, the air is drawn, for instance, through louvres 8 at the top of the outer casing 1 directly, as well as through a double wall, preferably arcuate door 9, abutting internally against side flanges 10 and arcuate upper end 5c of the back of the combustion chamber to seal the admission of air into the combustion chamber. 9a are sleeves spacing the walls of the door, which is pivoted at 9b and is provided with an insulated handle 9c. After passing downwards through the outer chamber 7 and over the outer walls 6 of the combustion chamber 5, and also between the two walls of the arcuate door 9 following into the outer chamber 7, the air enters into the combustion chamber 5 at its lower end and escapes in the form of flame and combustion gases through a duct constituting an outlet 11 at the back of the incinerator and thence into the flue pipe.

A small narrow slot is preferably provided between the lower edge of the inner wall of the door 9 and the inner edge of the ledge 1a in order that a stream of air be drawn directly across the top of the combustion chamber 5 into

2

the outlet 11 to deflect the flame, heat and smoke away from the top of the combustion chamber 5 and door 9, thereby avoiding excessive heat or leakage of smoke in this area.

When the feed door 9 is opened free air (see Figure 3) flows through the feed opening 14 across the top of the combustion chamber, thence into the flue outlet 11, thereby deflecting flames, smoke and ash away from the door opening. At the same time the amount of air admitted into the lower end of the combustion chamber is reduced, thus damping down the amount of flame so long as the door is open.

The electrical heating elements 3 placed in the combustion chamber to dry and ignite the refuse placed therein are switched on by means of a switch 15 operated by a switch arm 15a under the control of the door, when the latter is closed. A time control device may be associated with the switch to switch off the electrical elements after a predetermined time.

Referring to the construction illustrated in Figures 4 to 6, the main modification introduced therein consists in the admission of the air into the incinerator being split, partly passing into the outer chamber 7 before entering the combustion chamber at its lower end and then passing into the flue through the main outlet 11 and partly passing into the flue through the two-walled door 9 and an air outlet 11c which is screened off from the main outlet 11 by an extension 5c at the top of the combustion chamber 5. The admission of free air into the outer chamber 7 and/or the door 9 is effected preferably through longitudinal slits 12 provided at the top of the outer casing 1 of the outer chamber.

A further modification shown in this construction consists in the location of the switch 15 at the bottom of the incinerator, at the back of the ash box, and its actuation by a link 15b articulated at 15a to the door 9.

The flow of air into the flue 11 and through the incinerator may be forced by being promoted by means of a fan or the like connected to the flue pipe. Figure 7 shows an arrangement in which a stream of air from a fan 13 is introduced into the main flue 11a by means of a junction piece 11b which deflects the resultant air current upward through the flue 11a, drawing the products of combustion from the incinerator and expelling them into the atmosphere. The switch 15 controlling the switching on and off of the electrical heating elements may be used to control also the switching on and off of the fan or the latter may be controlled independently by a separate switch.

The advantages secured by the present invention are as follows:

(a) All parts of the incinerator cabinet or outer casing remain cool at all times irrespective of the rate of combustion inside the combustion chamber.

(b) The air flow past the feed door and screen ensures that flame, heat and smoke are deflected away from the inner wall of the arcuate door and this, together with the constant flow of cooling air across the top and the underside of the feed ledge reduces the risk of injury by burning when the feed door is opened.

(c) Drying, ignition and combustion of refuse is accelerated by the admission of preheated air into the combustion chamber.

(d) Flames, smoke and gases are deflected away from the feed door opening when refuse is being deposited into the machine.

(e) The surrounding of the combustion chamber with a constant flow of free air ensures that there can be no leakage of smoke or fumes through the outer casing into the atmosphere.

(f) The use of a fan as described ensures that there is a free flow of air through the incinerator and that the flue gases are extracted from the combustion chamber even under the most difficult down-draught conditions.

The details for carrying the invention into effect may be modified without departing from the scope of the invention as claimed in the appended claims.

I claim:

1. An incinerator for the destruction of catamenial appliances and like refuse comprising a vertically-disposed outer casing, a removable ash-box provided in the bottom of said outer casing, a grid overlying said ash-box,

3

means for igniting refuse overlying the grid, an inner casing defining a combustion chamber supported within the outer casing having its lower end terminating adjacent the grid, the walls of the outer and inner casings being arranged in laterally-spaced relation to provide an air passage therebetween communicating with the lower end of the combustion chamber, the walls of the outer and inner casings having coextensive access openings adjacent the top of said casings for the introduction of refuse into the combustion chamber, a door hinged at the top and extending downwardly on the front of the outer casing movable from open to closed positions with respect to the access opening in the outer casing, said door having inner and outer walls arranged in laterally-spaced relation and adapted when the door is in closed position to register with and form upward extensions of the respective walls of the inner and outer casings, a transverse ledge extending between the opposed walls of the inner and outer casings below the access opening, the front wall of the outer casing being provided with an air inlet below said ledge and the outer wall of the door being provided with an air inlet above said ledge, and the inner wall of the access door being provided with an air inlet communicating with the upper portion of the combustion chamber, whereby outside air is admitted partly into the passage between the inner and outer walls of the door and partly into the upper portion of the combustion chamber, and an outlet duct for combustion gases at the back of said outer casing extending through the walls of the outer and inner casings and communicating with the combustion chamber.

4

2. An incinerator as set forth in claim 1 wherein the back wall of the inner casing projects upwardly to define a screen which is adapted to abut the inner wall of the access door when said door is in closed position.

3. An incinerator as set forth in claim 1 wherein the back wall of the inner casing projects upwardly to define a screen which is adapted to abut the inner wall of the access door when said door is in closed position, said screen having a portion thereof extending into the outlet duct for combustion gases and defining with the wall of said outlet duct a secondary outlet communicating with the air passage between the inner and outer walls of the access door and between the inner and outer casings.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,106,317	Ricketts	Aug. 4, 1914
1,124,529	Budd	Jan. 12, 1915
1,314,563	Axen	Sept. 2, 1919
1,527,849	Elliott	Feb. 24, 1925
2,146,531	Craigie	Feb. 7, 1939
2,376,938	Potter	May 29, 1945
2,504,991	Letvin	Apr. 25, 1950
2,515,869	Gregg	July 18, 1950

FOREIGN PATENTS

Number	Country	Date
332,720	Great Britain	July 31, 1930