

E. G. TEED.
REFUSE BURNER.

No. 357,108.

Patented Feb. 1, 1887.

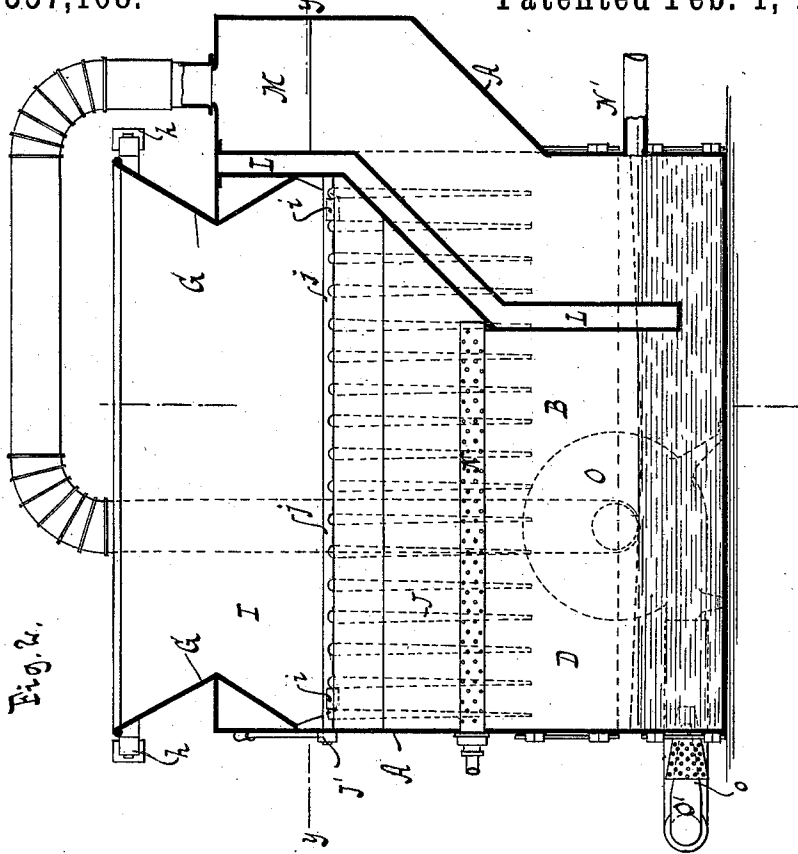


Fig. 2.

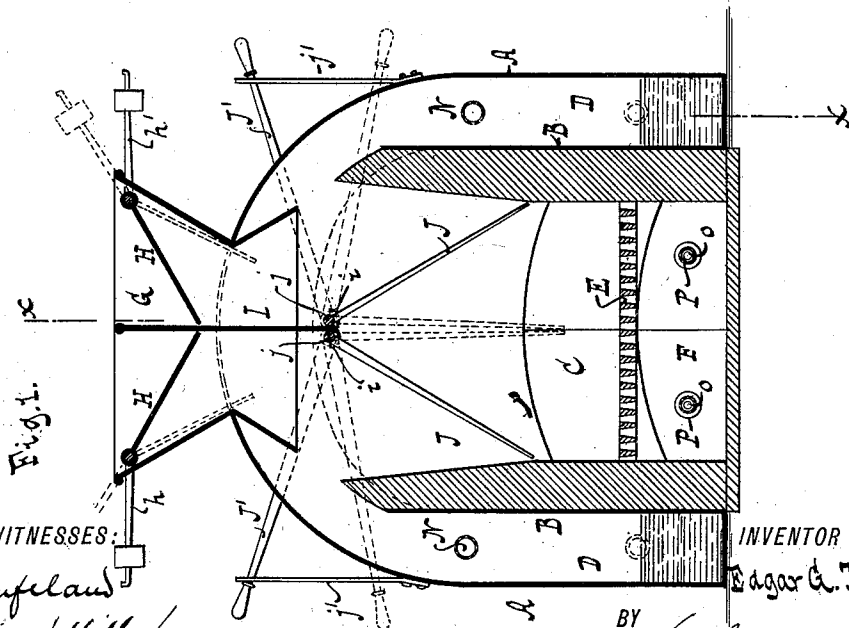


Fig. 1.

WITNESSES:

Alto Aufeland
William Miller

INVENTOR

E. G. Teed

BY

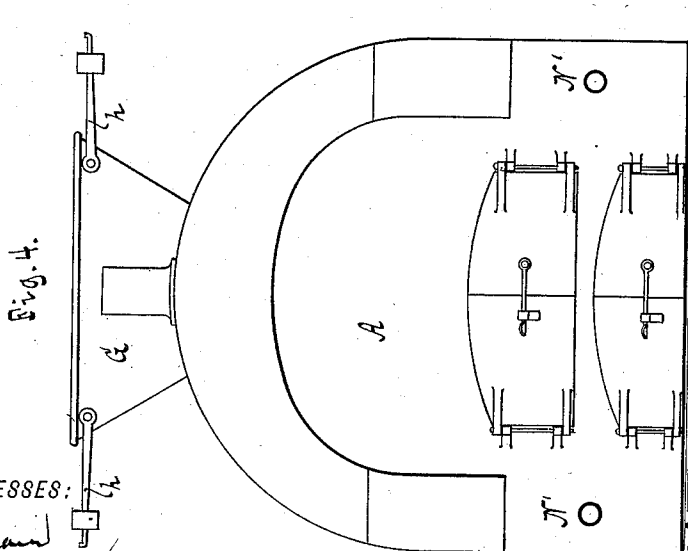
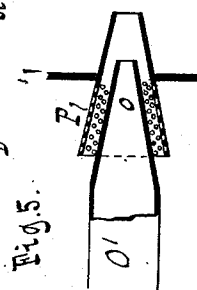
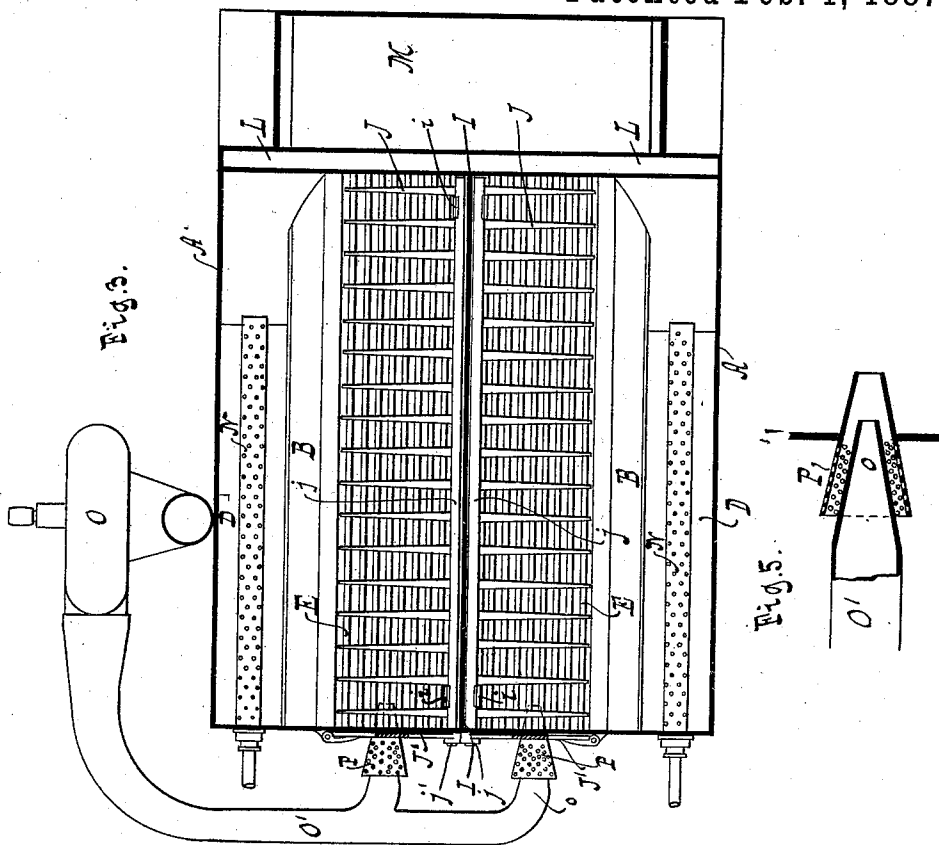
Van Santvoord & Hauck

ATTORNEYS

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WITNESSES:
Chas. H. ...
William Miller

INVENTOR
 Edgar A. Teed.

BY *Van Santwood & Hawk*

ATTORNEYS

UNITED STATES PATENT OFFICE.

EDGAR G. TEED, OF BROOKLYN, NEW YORK.

REFUSE-BURNER.

SPECIFICATION forming part of Letters Patent No. 357,108, dated February 1, 1887:

Application filed October 14, 1886. Serial No. 216,258. (No model.)

To all whom it may concern:

Be it known that I, EDGAR G. TEED, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Garbage-Cremating Furnaces, of which the following is a specification.

My invention relates to improvements in furnaces for cremating the refuse matter of cities, and has for its object the rapid and complete destruction of such matter in bulk, together with the absorption and consumption of the distilled gases. This object I accomplish by providing the furnace with improved means for feeding the matter thereto, a reservoir containing a liquid—such as water—which condenses and absorbs a portion of said gases, and a draft-connection whereby the gases not so absorbed are returned to the furnace below the grate, together with a supply of air necessary for combustion, all of which is more fully pointed out in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 represents a transverse section of a furnace embodying my invention. Fig. 2 is a longitudinal section thereof in the plane $x x$, Fig. 1. Fig. 3 is a horizontal section in the plane $y y$, Fig. 2. Fig. 4 is an end elevation. Fig. 5 is a longitudinal section, on a larger scale than the preceding figures, of the blast-nozzle.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates a shell which is made of boiler-iron or other suitable material and incloses the furnace. Within the shell are located two bridge-walls, B B, which extend longitudinally through the same, and vertically to near the top thereof, and form with said shell lateral spaces that are in communication at the top with the fire-box C. These spaces are filled with some liquid—such as water—to a determined level, and I shall hereinafter term the same the “condensers D D.” The bridge-walls are lined on the condenser side with sheet metal.

The grate E extends through the length of the furnace, and may be of any suitable construction to discharge into the ash-pit F, Fig. 1. Furnace-doors at each end of the grate facilitate the firing.

The refuse matter, animal and vegetable,

intended for cremation in this furnace is not previously assorted, as has heretofore been the usual practice, and for this reason care must be taken in feeding such matter, so as not to overcharge the furnace. To afford means for putting the charging of the furnace under the control of the attendant, I provide the furnace with a hopper, G, which is secured to the crown of the shell A and has its upper or receiving portion constructed with inclined walls, while its lower or discharging portion has outwardly-flaring walls to effect a proper distribution of the garbage. Within the receiving portion of the hopper G are located pivoted and balanced feeding-plates H H, Fig. 1, which diverge as the garbage is thrown thereon and allow the same to pass through but close against a partition, I, immediately after the discharge of such garbage has taken place. The feeding-plates can be balanced by means of springs; but I prefer to balance them by means of weighted arms $h h$, that are secured to the shafts of said plates, the said shafts projecting through the shell A. The weights being adjustable on the arms, the feeding-plates H H can be set for different weights of garbage. As the hopper G is divided by the partition I, one or both compartments of the same may be used at a time.

The partition I is continued below the hopper G, and is provided at its lower end with hangers $i i$, which support the shafts $j j$ of two dumping-grates, J J. These dumping-grates close against the bridge-walls B B at about the bottom of their incline, and open toward the center of the furnace, and are operated by levers $J' J'$ outside of the shell. These levers engage ratchet-plates $j' j'$, Fig. 1, of well-known construction, and the grates can be held in any desired position, and either one can be operated independently of the other.

It will be observed that the garbage is confined between the heated bridge-walls and the prongs of the dumping-grates, and is consequently well dried, being also exposed to the fire before it is dumped on the fire-grate.

In the cremation of animal and vegetable garbage gases arise, part of which are soluble in water, and these I propose to condense and collect in the condensers D D before mentioned. To compel the products of combustion to pass through these condensers, a deflecting-plate, L,

is located at the rear of the condensers, the end of which dips into the water and forms a seal. This deflecting-plate closes the combustion-chamber at the rear of the furnaces and the insoluble gases are conducted to a smoke-box, M. Water is supplied in a continuous spray by perforated pipes or water-distributors N, which are located in the condensers, at or near the top of the same, so that the gases must come into contact with the spray, and are condensed thereby. Cold water is supplied to the distributors by a pump or other forcing device. Overflow-pipes N', Fig. 2, determine the level of the water in the condensers and conduct the saturated water to any suitable point.

The combustible or insoluble gases which have not been consumed are drawn from the smoke-box by a blower, O, and are forced into the furnace below the fire-grate, together with a supply of fresh air. The pipe O' from the blower is branched for two or more points of supply, and each branch has a contracted end or nozzle, o, which is surrounded by a perforated cone, P, which projects into the fire-box, so that a constant supply of air is drawn through said cone P with the gases from the smoke-box, and a rapid and complete combustion of the gases is insured, while at the same time the temperature of the furnace becomes so intense as to consume all the matter on the grate.

By the use of my improved furnace all the gases arising from the cremation of the garbage are either taken up in solution or consumed, and consequently none of the obnoxious and injurious gases can impregnate and pollute the surrounding atmosphere.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, in a furnace, of the shell A, the upright bridge-walls B B, separated from each other to form the fire-chamber and from the outside of the shell to form the condensing-chambers D, which communicate with the fire-chamber above the bridge-wall, a fire-grate between the bridge-walls, and a feeder for feeding the material between the bridge-walls, substantially as described.

2. The combination, in a furnace, of the shell-A, the upright bridge-walls B, forming the fire-chamber, the condensing-chambers D at the sides of the bridge-walls, and the perforated water-distributing tubes N in the condensing-chambers, substantially as described.

3. The combination, in a furnace, of the shell A, the bridge-walls B, forming the fire-chamber, the condensing-chambers D at the sides of the bridge-wall, and the deflecting-plate L, for directing the products of combustion to the condensing-chambers, substantially as described.

4. The combination, in a furnace, of a shell A, the bridge-walls B, inclosed by the shell and forming a fire-chamber, a fire-grate, E, between the bridge-walls, the condensing-chambers D at the sides of the bridge-walls and in communication with the fire-chamber, a blower, O, having a suction-pipe connecting with the condensers, and a discharge-pipe communicating with the furnace beneath the fire-grate, substantially as described.

5. The combination, in a furnace, of a shell A, the bridge-walls B therein, forming a fire-chamber, the condensers D at the sides of the bridge-walls, a grate, E, in the fire-chamber, a smoke-box, M, at the rear of the furnace, a blower, O, having its suction-pipe connected with the smoke-box and provided with a discharge-pipe having a nozzle, and an air-cone entering the shell beneath the fire-grate and receiving the said nozzle of the blower discharge-pipe, substantially as described.

6. The combination, with a furnace having a combustion-chamber, of a feed-hopper, G, located above the combustion-chamber, a partition, I, extending vertically through the hopper, and the weighted feeding-plates H, pivoted respectively at the sides of the hopper and closing at their lower edges against the partition, substantially as described.

7. The combination, with a furnace having a combustion-chamber, a fire-grate, E, in the lower portion thereof, and the bridge-walls B B, of a feed-hopper, G, located above the combustion-chamber, the two depending grates J, both pivoted at their upper ends adjacent to each other beneath the hopper and closing at their lower edges against the bridge-walls and opening toward the center of the combustion-chamber, and means for opening and closing said grates, substantially as described.

8. The combination of the furnace-shell A, the bridge-walls B, forming a combustion-chamber, a feed-hopper, G, located above the combustion-chamber, a partition, I, extending through the hopper and having hangers *i* at its lower end, the shafts *j*, hung in said hangers and carrying the depending dumping-grates J, which close at their lower edges directly against the bridge-walls and open toward the center of the combustion-chamber, means for opening and closing the grates, and feeding-plates in the hopper closing at their edges against the partition therein, substantially as described.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

EDGAR G. TEED. [L. S.]

Witnesses:

W. HAUFF,

A. FABER DU FAUR, Jr.