

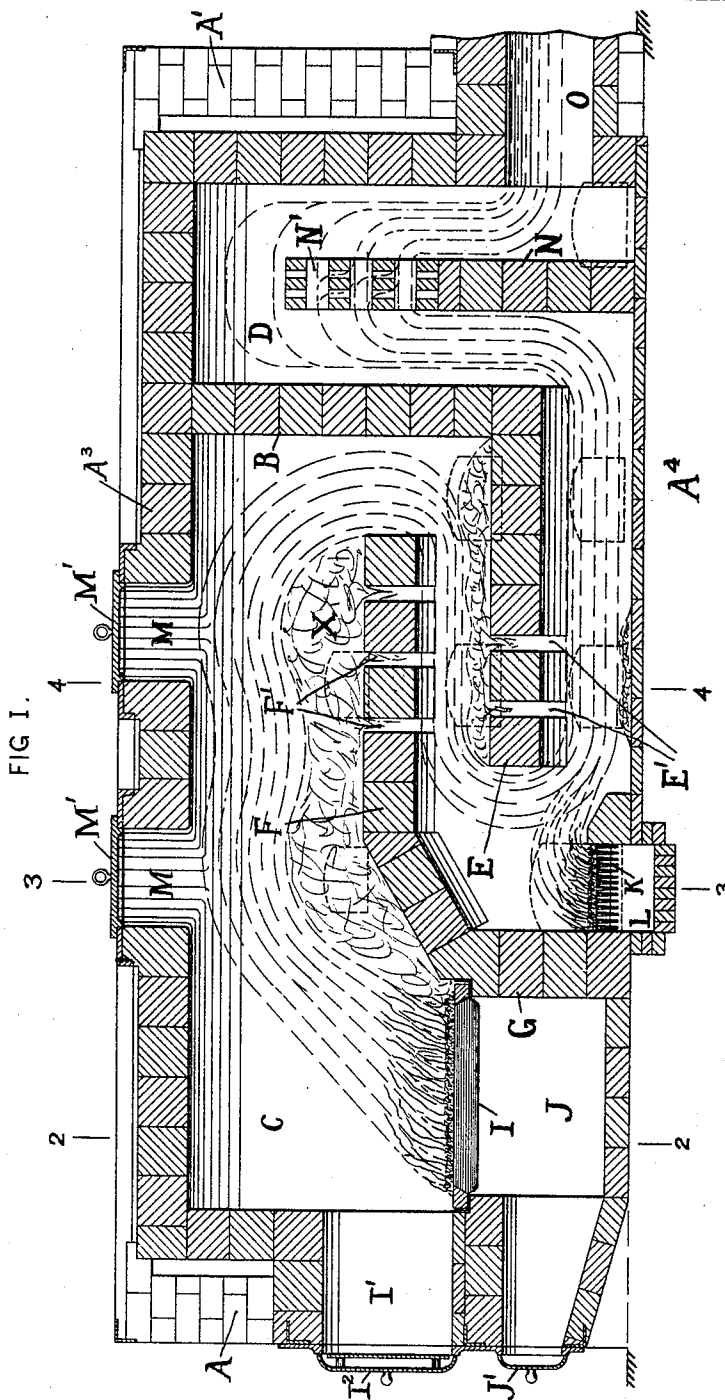
No. 773,920.

PATENTED NOV. 1, 1904.

B. BOULGER.  
GARBAGE CREMATORY.  
APPLICATION FILED JULY 29, 1903.

NO MODEL.

2 SHEETS—SHEET 1.



Witnesses  
Herman Meyer  
Bartlett J. Smith

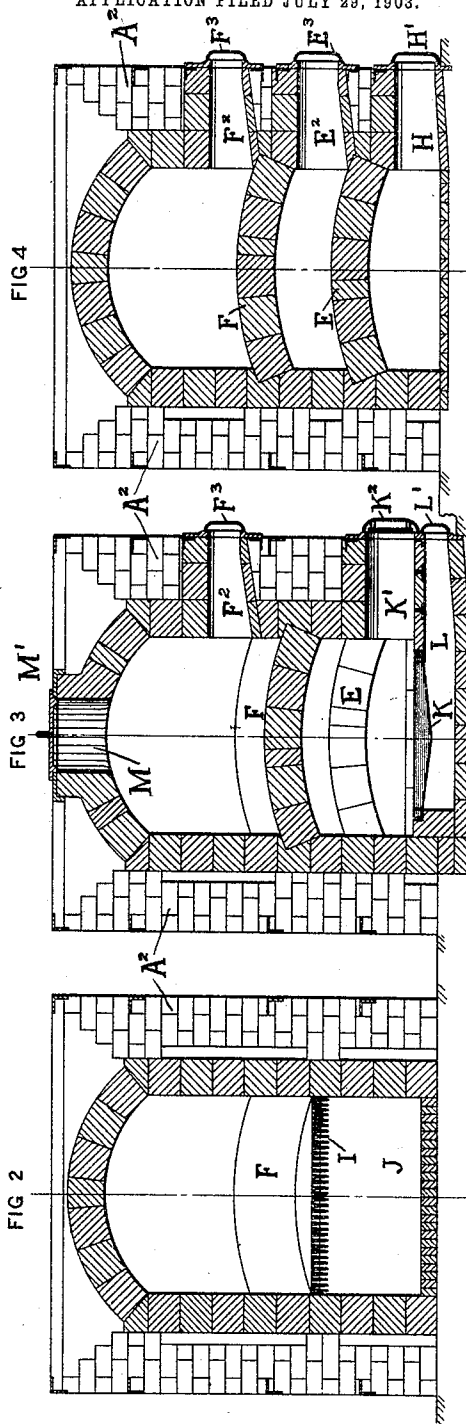
Benjamin Boulger Inventor  
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# UNITED STATES PATENT OFFICE.

BENJAMIN BOULGER, OF NEW YORK, N. Y., ASSIGNOR TO MORSE-BOULGER DESTRUCTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

## GARBAGE-CREMATORY.

SPECIFICATION forming part of Letters Patent No. 773,920, dated November 1, 1904.

Application filed July 29, 1903. Serial No. 167,398. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN BOULGER, a citizen of the United States, and a resident of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Garbage-Crematories, of which the following is a specification.

My invention relates to garbage destructors or crematories; and its objects are, among others, to provide a strong, simple, and durable structure; to effect a saving in the amount of fuel used in providing a base of combustion; to secure a thorough exposure of the matter to be cremated and to use its combustible portions as an auxiliary fuel, and to insure the entire cremation of the garbage and its reduction to mineral ash.

It has also for a further object the consumption of smoke and odor within the crematory and the consequent rendering of the device free from objections to which the escape of the same would render it.

My improvements consist in the structural arrangement and location of parts hereinafter described and claimed, and illustrated in the accompanying drawings, forming a part hereof.

In the said drawings, Figure 1 is a longitudinal vertical section of a crematory embodying my improvements. Fig. 2 is a cross-section on the line 2 2 of Fig. 1 looking rearward. Fig. 3 is a similar section on the line 3 3 of Fig. 1. Fig. 4 is a like section on the line 4 4 of Fig. 1.

The device is provided with suitable walls A A' A<sup>2</sup> and a roof A<sup>3</sup>, of brick or other suitable material, and preferably lined with fire-brick or the like. A bridge-wall B extends across the combustion-chamber near the rear end thereof and divides it into the main combustion-chamber C and the auxiliary or smoke-consuming chamber D, which communicate with each other through the passage-way between the horizontal partition or table E and the floor A<sup>4</sup>. This horizontal partition E extends from the lower edge of the wall B forward and is provided with a suitable number of vertical channels E', passing therethrough

and establishing limited communication between the combustion-chamber above partition E and the passage-way below the same.

The table-partition F spans the combustion-chamber in a substantially horizontal plane and extends from the inner and lower vertical wall G upward and rearward over the partition E. Like partition E it has a number of vertical channels F', which permit a limited portion of the matter undergoing the process of cremation to pass therethrough. It will be observed that the channels F' and E' are not coincident and that the imperforate portions of the table E are beneath the channels F', so that any matter falling through the said channels will be retarded by the table E and supported thereon until the agitation incident to combustion or caused by other means has shifted it over the channel E', whence it will pass to the bottom of the combustion-chamber, or it may pass over the forward end of the table E to the bottom of said chamber.

For the purpose of permitting agitation of the garbage in process of cremation stoke-holes F<sup>2</sup> E<sup>2</sup>, provided with suitable doors F<sup>3</sup> E<sup>3</sup>, are located adjacent to the table-partitions F and E, respectively.

An ash-removing port H communicates with the floor of the combustion-chamber and is provided with a suitable door H'.

A primary fire-grate I is supported between the wall G and the front wall of the crematory and has the usual fuel-feeding channel I' and door I<sup>2</sup>. Beneath the grate I is an ash-pit J, having a door J', through which ashes may be removed. A secondary fire-grate K is located near the floor of the combustion-chamber opposite the forward end of the table E, or approximately so. This grate is supplied with fuel through the inlet K', having a door K<sup>2</sup>, and has an ordinary ash-pit L, from which ashes may be removed through the door L', the said ash-pit being located somewhat below the floor of the combustion-chamber.

Garbage-charging holes M, closed by covers M', are located in the upper part of the crematory, through which the garbage is fed to the combustion or cremating chamber.

The forward charging-hole is located above the inclined portion of the table F, so that the garbage falling therethrough will have a tendency to pass forward in the direction of the primary fire, while the garbage which passes through the rearward charging-hole will fall upon the horizontal portion of the table F and from thence to the lower table E.

The smoke and odor consuming chamber D is provided with a vertical wall N, extending across the same and from the floor thereof to near the roof. Above mid-height this wall is constructed of open-work N', having longitudinal and lateral passage-ways through which the smoke and gases may pass to become thoroughly agitated and mixed to insure thorough combustion.

In operating the device the fires on the grates I and K are first started. Then garbage is fed through the holes M, that part containing the least moisture being fed through the forward hole and that containing the most liquid through the rearward hole. The drier lot falls upon the inclined portion of partition F and slides forward toward the grate I, dries out quickly, and becomes part of the fuel. The more moist portion falls to the table F, where it dries more slowly and is subjected to action of the flames and products of combustion arising from the primary fire, being also afterward raked forward with the first lot and added to the fuel pile and a large portion thereof consumed. At the same time the finer portions of the garbage will pass through the channels F' and over the rear end of the table F to the lower table E, being agitated to a considerable extent during such falling, and on reaching the table E it is still further subjected to the products of combustion and finally falls through the channels E' to the floor of the combustion-chamber in the form of ashes. In falling from the table E the garbage is subjected to the combustion arising from the fire-grate K, and any combustible matter remaining is thus consumed. The smoke and gas resulting from the fire in the forward combustion-chamber will now pass through the channel below the table and upward through and over the wall N and finally to the outlet O. During the cremating process the garbage may be agitated through the stoking-holes F<sup>2</sup> and E<sup>2</sup>, and thus thoroughly exposed to the heat. The portion of the chamber above the table F acts largely as a heating and drying compartment, and the garbage after being thoroughly heated and dried is consumed to a great extent on the lower table E. This applies particularly to the heavier and less combustible portions. The secondary fire of the grate K is indispensable to the perfect cremation of heavy garbage and at the same time contributes to the consumption of smoke and gas passing from the upper portion of the combustion-chamber.

In Fig. 1 the garbage is indicated by light irregular lines, and the path of the combustion is indicated by parallel dotted lines. The longitudinal positions of the various doors are also indicated by dotted lines.

What I claim is—

1. A cremating-furnace or the like comprising a combustion-chamber provided with a fuel-opening, and with a feed-opening in the roof for admitting the material to be cremated, a primary fire-grate, a horizontal partition having vertical openings therethrough located under the feed-opening, a second horizontal partition under the first and also having vertical openings therethrough, and an outlet-channel below the second partition, the gases of combustion passing from this fire-grate over the first partition, down beyond the end thereof, between the two partitions, down at the end of the second partition and through the outlet-channel, and acting during such passage upon the material on the first partition, that dropping from and through the first partition upon the second and that dropping from and through the second into the outlet-channel, and a secondary fire-grate located at the beginning of the outlet-channel the gases of combustion from which commingle in the outlet-channel with those from the primary grate and act upon the material dropping from and through the second horizontal partition.

2. A cremating-furnace or the like comprising a combustion-chamber provided with a fuel-opening, and with a feed-opening in the roof for admitting the material to be cremated, a primary fire-grate, a horizontal partition having vertical openings therethrough located under the feed-opening, a second horizontal partition under the first and also having vertical openings therethrough, and an outlet-channel below the second partition, the vertical openings in the two horizontal partitions being non-coincident, causing the material which drops through the first partition to be caught upon the second and held thereon subject to the further action of the gases of combustion before passing through the openings in the second partition, the gases of combustion passing from this fire-grate over the first partition, down beyond the end thereof, between the two partitions, down at the end of the second partition and through the outlet-channel, and acting during such passage upon the material on the first partition, that dropping from and through the first partition upon the second and that dropping from and through the second into the outlet-channel, and a secondary fire-grate located at the beginning of the outlet-channel the gases of combustion from which commingle in the outlet-channel with those from the primary grate and act upon the material dropping from and through the second horizontal partition.

3. A cremating-furnace or the like comprising a combustion-chamber having two feed-

openings in its roof to admit material to be cremated, a primary fire-grate near one wall of the chamber, a partition inclined upwardly and inwardly from the inner edge of the grate and continued from the top of the incline horizontally leaving an opening at its end, the inclined portion of the partition being below and in line with one of the feed-openings and the horizontal portion below and in line with the other feed-opening, and a suitable outlet for the products of combustion.

4. A cremating-furnace or the like comprising a combustion-chamber having two feed-openings in its roof to admit material to be cremated, a primary fire-grate near one wall of the chamber, a partition inclined upwardly and inwardly from the inner edge of the grate and continued from the top of the incline horizontally leaving an opening at its end, the inclined portion of the partition being below and in line with one of the feed-openings and the horizontal portion below and in line with the other feed-opening, a second horizontal partition under the first horizontal partition closed at its end under the opening at the end of the first and having an opening at its opposite end, a secondary fire-grate adjacent to said last-named opening, and an outlet-channel under the second partition for receiving the commingled gases of combustion from the two grates.

5. A cremating-furnace or the like provided with a chamber having two feed-openings in its top, one in front of the other, for the admission of material to be cremated, a fire-grate near the front wall of the chamber, a partition in the chamber at the rear of the fire-grate consisting of a vertical portion extending from the bottom of the chamber to the level of the fire-grate, an upwardly and rearwardly inclined portion below the front feed-opening beginning at the level of the grate and a horizontal portion below the rear opening a continuation of the inclined portion, terminating a short distance from the rear wall of the chamber and leaving an opening beyond its rear end, a second partition below the horizontal portion of the first partition extending horizontally forward from

the rear wall of the chamber to about the mid-length of the chamber and terminating a short distance in the rear of the vertical portion of the first partition leaving an opening beyond its front end, a second fire-grate located at the rear of the vertical portion of the first partition, and an outlet for the escape of the gases of combustion extending below the second partition and through the rear wall of the chamber.

6. A cremation-furnace or the like provided with a main combustion-chamber, a secondary or smoke-consuming chamber in the rear thereof, a separating-wall between them having an opening near its bottom, a fire-grate in the front portion of the main chamber, a horizontal partition leading backward therefrom and terminating near the separating-wall leaving a channel for the passage of the gases of combustion rearward above said partition and downward in the rear thereof, a second horizontal partition below the first extending forward from the separating-wall to about mid-length of the chamber leaving an unobstructed channel between the two partitions for the forward passage of the gases and a front opening for their downward passage, both of said horizontal partitions having vertical openings therethrough, a second fire-grate below and in the rear of the first, a channel below the second partition for the passage rearward of the commingled gases from both grates to and through the opening in the separating-wall into the secondary chamber, an outlet in the lower part of the rear wall of the secondary chamber, and a partition in the secondary chamber extending from the bottom to near the top provided with horizontal and vertical passages therethrough causing the commingled gases to pass upward through said passages, and over said partition and downward to the outlet.

Witness my hand, this 22d day of July, 1903, at the city of New York, in the county and State of New York.

BENJAMIN BOULGER.

Witnesses:

HERMAN MEYER,  
STEPHEN J. COX.