

(No Model.)

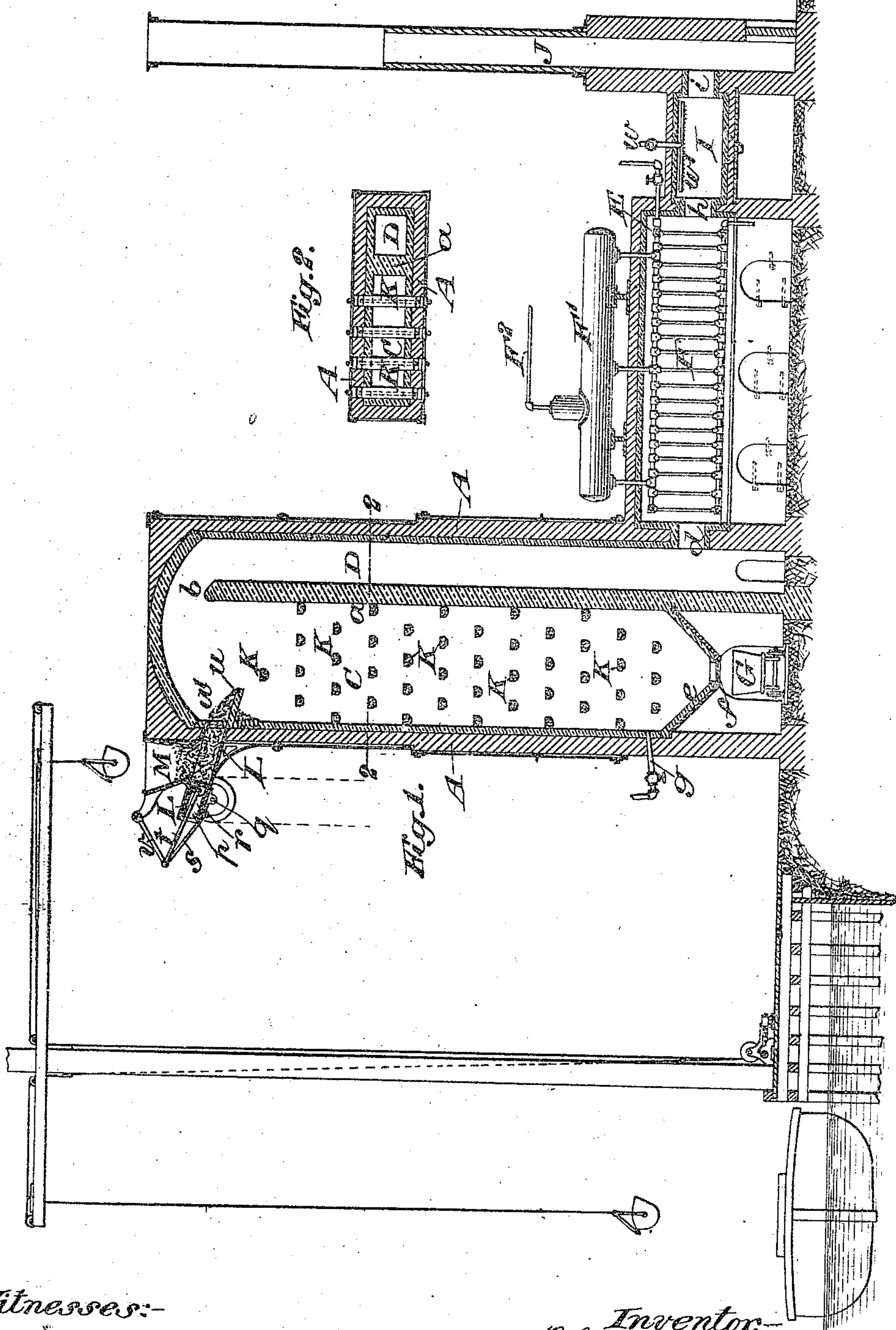
2 Sheets—Sheet 1.

R. A. CHESEBROUGH.

MEANS FOR CREMATING GARBAGE, &c.

No. 551,850.

Patented Dec. 24, 1895.



Witnesses:-
George Barry,
Olsundgren

Inventor:
Robert A. Chasbrough
by attorneys
Brown & Oswald

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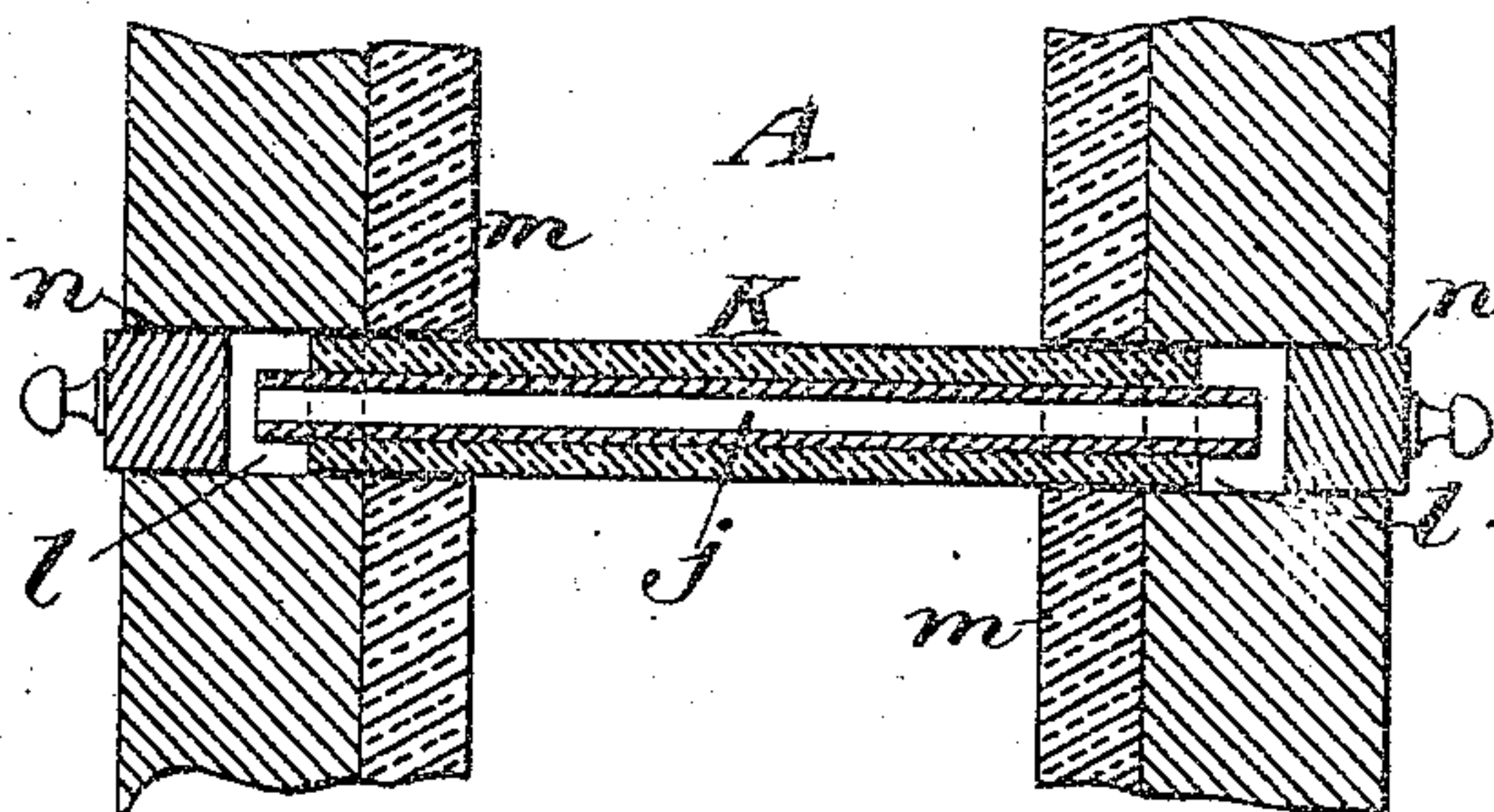
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ROBERT A. CHESEBROUGH, OF NEW YORK, N. Y.

MEANS FOR CREMATING GARBAGE, &c.

SPECIFICATION forming part of Letters Patent No. 551,850, dated December 24, 1895.

Application filed March 28, 1895. Serial No. 543,447. (No model.)

To all whom it may concern:

Be it known that I, ROBERT A. CHESEBROUGH, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Apparatus for Cremating Garbage and other Refuse, of which the following is a specification.

This invention relates to apparatus for carrying out the process of cremating garbage and other refuse which is the subject of my application for Letters Patent No. 518,689, filed July 27, 1894, and which consists in passing the garbage or refuse continuously through a hollow shaft under the influence of gravity and subjecting it while so passing to the action of a coking-flame.

The object of my invention is, while providing for a sufficiently-free continuous descent of the garbage or refuse through the shaft, to retard its downward progress and retain it therein long enough to effect its coking and to keep it in such disintegrated condition as to prevent it from choking the shaft and to permit the free passage through it of the heat by which the coking is effected.

In the accompanying drawings, Figure 1 represents a vertical section of an apparatus constructed according to my invention. Fig. 2 represents a horizontal section in the line 2-2 of Fig. 1. Fig. 3 represents a vertical section at right angles to the section Fig. 1 of some of the details of the invention.

Similar letters of reference designate corresponding parts in all the figures.

A is an upright hollow shaft which may be from forty to sixty feet high, more or less, and of suitable horizontal dimensions, divided by an upright partition *a* which extends from the bottom nearly to the top thereof dividing the hollow shaft into a cremating-chamber C and a flue D. The said shaft is represented as constructed of masonry lined with fire-brick, and the said partition is represented as of fire-brick. The said shaft is inclosed at the top by an arch directly under which on one side is a feeding-inlet *a'* for the garbage or matter to be cremated and on the opposite side is an outlet *b* above the partition *a* for the gaseous products of combustion and cremation, the said outlet *b* communicating with the upright flue D. At or near the bottom of this flue D is an outlet *d*

to the chamber E, in which is located a multitubular steam-generator F.

The cremating-chamber C has a hopper-like bottom *e* fitted with a sliding shutter *f*, which generally remains open for the discharge of the cremated matters into wagons G, which are run in and out to and from the lower part of the shaft under the said bottom, but which may be closed from time to time while one wagon is run out and another run in. Into the lower part of the cremating-chamber there is represented as introduced a burner *g*, which may be connected with any suitable means of supplying oil and steam for the purpose of producing the heat necessary to effect the coking or cremation.

At the end of the steam-generator chamber E farthest from the flue D there is an outlet *h* leading to a gas-scrubber I, which is interposed between the said chamber E and the smoke-stack or chimney J. The gas-scrubber may be of any suitable kind. Its purpose is to deprive the gaseous products of combustion and cremation on their way to the chimney of any ammonia they may contain, the said ammonia being collected within the scrubber and the gaseous products thus deprived passing through the outlet *i* to the chimney.

Across the cremating-chamber C there are arranged throughout the whole or the greater portion of its height numerous bars K so separated at horizontal and vertical intervals that while the said bars sufficiently retard the downward progress of the garbage or material to be cremated and retain it in the said chamber long enough to effect its coking or cremation, they permit a sufficiently-free continuous descent and at the same time they cause the garbage in its descent to be kept so disintegrated that it will not choke the chamber and that the free upward passage through it of the heat by which its coking or cremation is effected will be permitted. These bars may be arranged in any way at such various distances from the opposite walls of the chamber and at different heights that the bars at one level are opposite the intervals between the adjacent bars above and below them. They are represented as arranged in numerous horizontal tiers one above another with the bars of each tier opposite the intervals

between those of the tiers immediately above and below, so that while they sufficiently retard the downward progress of the material they will permit its sufficiently-free descent.

5 The retarding-bars K may be of any suitable transverse section and of any suitable material and may be supported in any suitable manner in the walls of the chamber, but I have represented them (see Fig. 1) as of
10 polygonal transverse section and as each composed of an external body of fire-clay and a tube or hollow core *j* of metal running lengthwise through said body, as shown in Fig. 3, for the purpose of giving them the necessary
15 strength. I have also represented (see Figs. 2 and 3) the said bars as being removable through openings *ll* in the side walls *m* of the cremating-chamber, the said bars being somewhat longer than the internal width of the
20 chamber, and entering and being supported within the said openings. The said openings are represented (see Fig. 3) as provided at the exterior of the walls of the chamber with stops *n n*, by which to close them effectually when
25 the apparatus is in operation, but are made removable for the purpose of removing and replacing the bars.

Outside of the opening *a'* of the cremating-chamber there is a cylinder L, which inclines
30 downward toward and enters or is fitted to said opening and which has in its upper part an opening fitted with a hopper M, into which the garbage or matter to be cremated is fed in any suitable manner to keep up a supply
35 to the cylinder. From the opening *a'* there projects into the cremating-chamber C an inclined shelf or chute *u*, which forms a continuation of the bottom of the said cylinder. The said cylinder L is fitted with a piston *p*,
40 to which a reciprocating motion is imparted by any suitable means, as by a rotary shaft

q, furnished with a crank *r* and connected with said piston by rods *s t* and a radius-bar *v*. The said piston in its upward reciprocating movement moves outward beyond the
45 throat of the hopper and permits a portion of the contents of the hopper to fall into the cylinder, and on its return movement it pushes the matter forward and into and through the opening *a'* and onto the chute *u*, whence it
50 descends into the cremating-chamber. The forward or inward movement of the piston takes place only so far that a sufficient portion of the material is retained in the opening *a'* and on the chute *u* to constitute a seal
55 by which the said opening is always left and kept closed against the escape of the gaseous products of combustion and cremation.

The steam-generator F is represented as furnished with a steam-drum F', from which a
60 pipe F² takes the steam where it is desired to use it. The scrubber I is represented as fitted with a pipe *w* with perforated branches *w'* for the purpose of supplying acidulated water in showers for scrubbing the gas.
65

What I claim as my invention is—

A refuse burner having a substantially vertical coking passage open throughout its length to permit the continuous downward
70 movement of the material under the influence of gravity alone, cross bars located at intervals across the said coking passage for distributing the material and retarding its continuous downward movement and means
75 for confining the coking flame and directing it upwardly throughout the downwardly moving material; substantially as set forth.

ROBERT A. CHESEBROUGH.

Witnesses:

HENRY T. BROWN,
FREDK. HAYNES.