No. 887,219. PATENTED MAY 12, 1908.

G. W. PARKER.

GARBAGE DESTRUCTOR.

APPLICATION FILED DEC. 31, 1906.

3 SHEETS—SHEET 1.

Fig. 7.

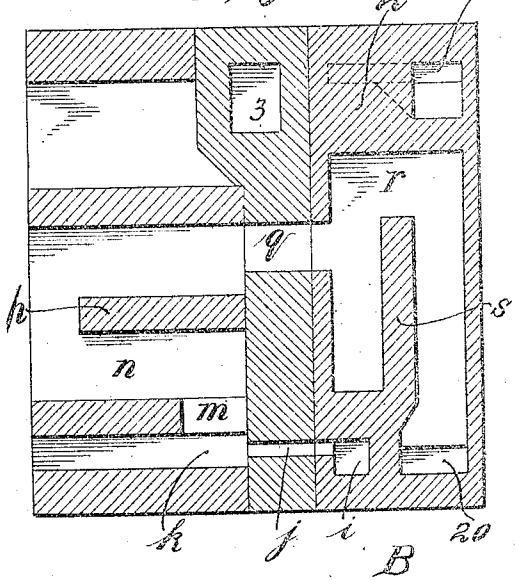


Fig. 8.

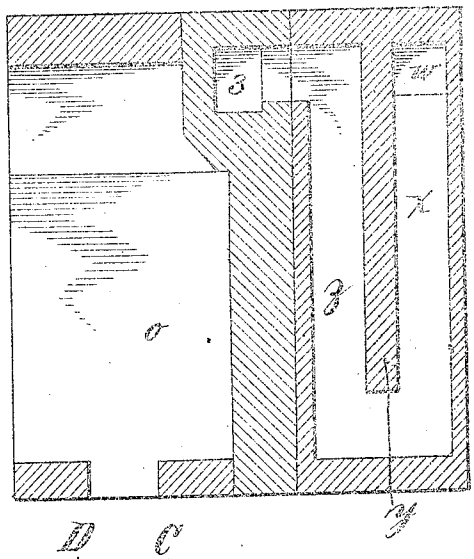
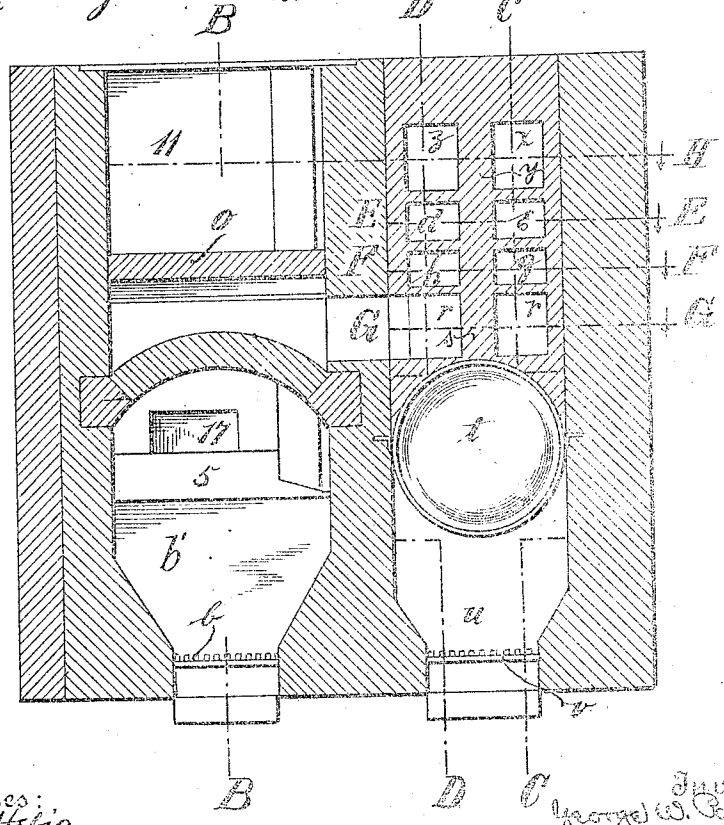


Fig. 1.



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James Bennett

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3 SHEETS—SHEET 2.

Fig. 2.

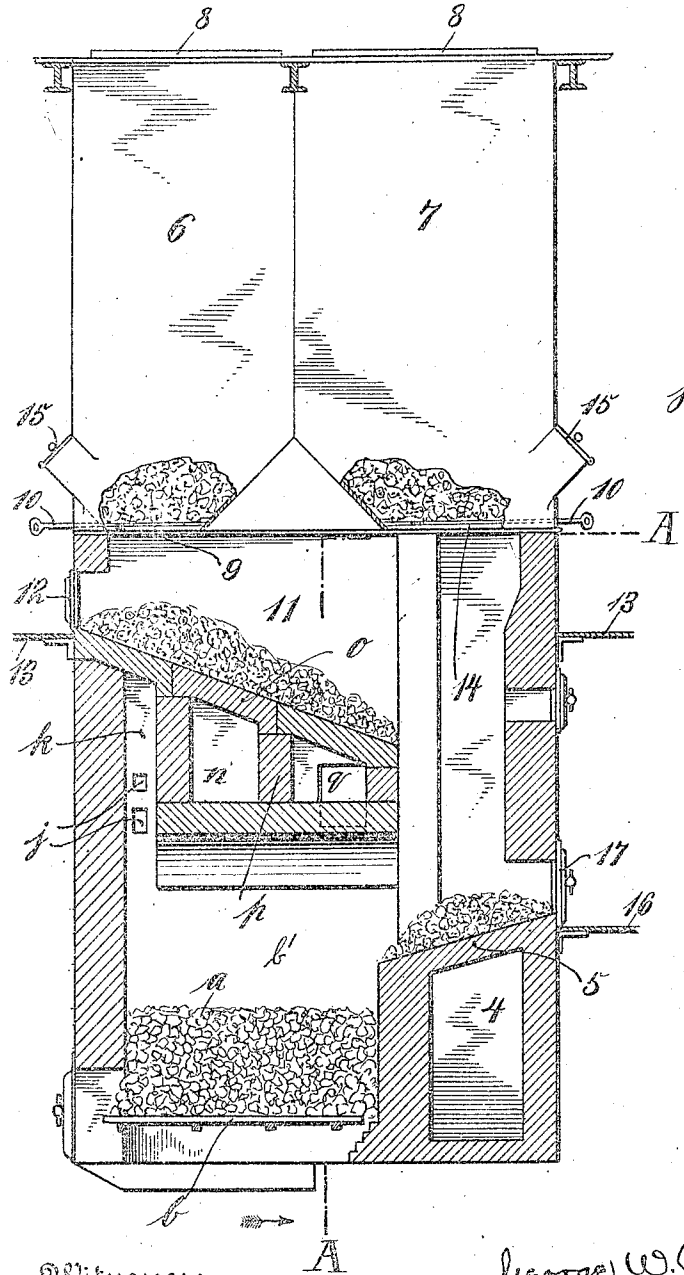


Fig. 6.

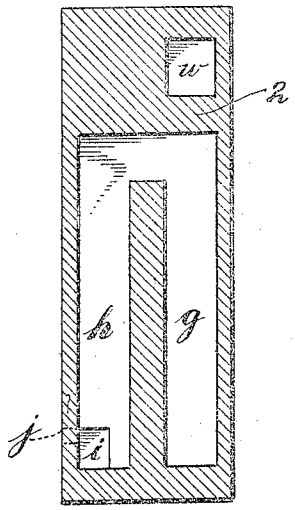
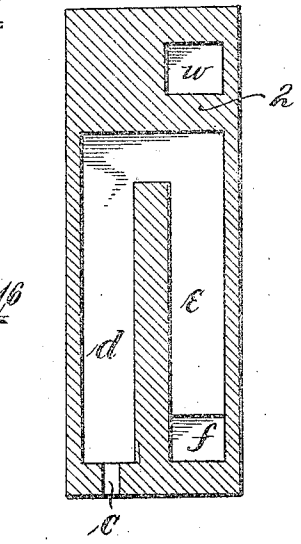


Fig. 5.



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3 SHEETS—SHEET 3.

Fig. 3.

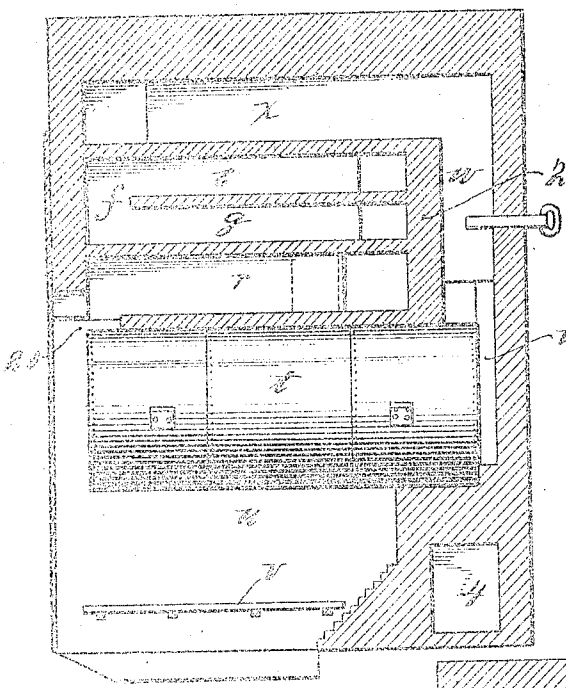
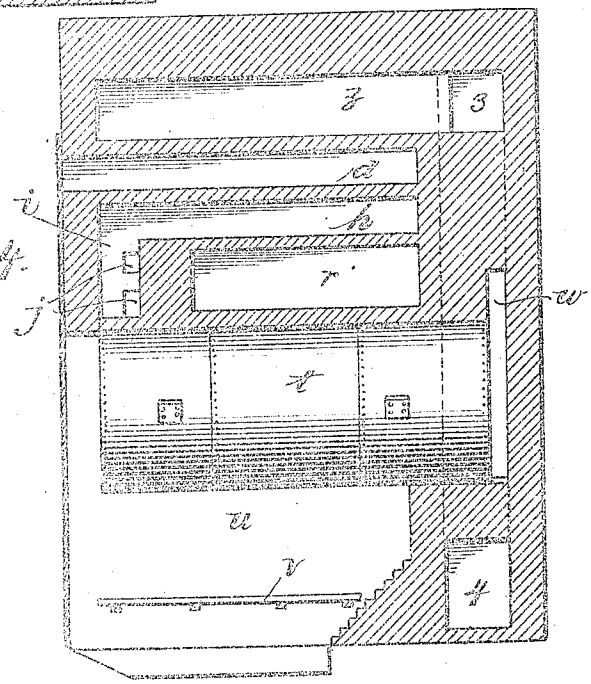


Fig. 4.



WITNESSES:
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George W. Parker
by James Shanahan
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE W. PARKER, OF NEW YORK, N. Y.

GARBAGE-DESTRUCTOR.

No. 887,219. Specification of Letters Patent. Patented May 12, 1908.

Application filed December 31, 1906. Serial No. 350,214.

To all whom it may concern:

Be it known that I, GEORGE W. PARKER, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Garbage-Destructors, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to improvements in garbage destructors, and an object of my invention is to provide a destructor simple in construction and highly efficient in operation.

In carrying out my invention, I provide two drying hearths, a primary drying hearth and a secondary drying hearth. When preheated air meets inflammable gases arising from the bed of burning garbage, an energetic combustion takes place and the burning gases pass into a secondary combustion chamber under the primary drying hearth. The products of combustion are then led around the outside of the passages through which the air passes and they yield up a large part of their heat to the walls of the air-passages, which heat is afterwards absorbed by the air, thereby preheating the latter, and making possible the high temperature necessary to deodorize the gases arising from the drying garbage. The garbage is preferably divided into two piles or heaps, the wet garbage passing first to the primary drying hearth and thence to the secondary drying hearth, where it is charred or partially carbonized by the heat from the bed of burning fuel in the fire-pit. The dry garbage or refuse falls upon the secondary drying hearth directly from its receiving tank.

In the drawings illustrating the principle of my invention and the best mode now known to me of applying that principle, Figure 1 is a sectional view on the line A—A of Fig. 2, looking in the direction of the arrow; Fig. 2 is a sectional view on the line B—B of Fig. 1 but showing the receiving tanks in position; Fig. 3 is a sectional view on the line C—C of Fig. 1; Fig. 4 is a sectional view on the line D—D of Fig. 1; and Figs. 5, 6, 7 and 8 are horizontal sectional views on the lines E—E, F—F, G—G and H—H, respectively, of Fig. 1 looking down.

A very thick bed of fuel *a* is heaped upon the grate *b* in the fire-pit *b'* so that a large proportion of the gas which passes from the top of the bed of fuel *a* will be carbon monoxid. This gas meets the air which has been preheated and complete combustion ensues. The air enters at *c* (Fig. 5), flows through the passages *d* and *e*, thence down through the flue *f* into the passage *g* (Fig. 6). From the passage *g* the air flows around into the passage *h* and then through the down flue *i*, and the passages *j* out into the flue *k* where it meets the gas arising from the bed of fuel *a* (see Figs. 6, 7 and 2).

As soon as the air meets the gas, combustion ensues and the burning gases flow through the opening *m* into the secondary combustion chamber *n* under the primary drying hearth *o*, meeting in their passage the baffle wall *p* (Figs. 2 and 7). From the secondary combustion chamber *n* the products of combustion pass through the opening *q* into the two-part chamber *r* provided with the partition or baffle wall *s*. From the two-part chamber *r* the products of combustion pass down through the opening 20 into the boiler or under the boiler *t*, depending upon the style or type of boiler used. Any suitable type of boiler may be used and since the boiler in and of itself forms no part of this invention, it is shown conventionally at *t* and will not be further described herein. To provide for the emergency when the destructor may not be available for use, a suitable fire-box *u* and grate *v* are provided, whereby steam may be raised in the boiler independently of the destructor itself. (See Figs. 1, 3 and 4).

From the boiler the products of combustion pass through the flue or up-take *w* into the passage *x* and thence around the free end of the wall *y* into the passage *z* (see Figs. 3, 4 and 8). By reference to Figs. 3 5 and 6, it will be seen that the up-take *w* is separated from the passages *d*, *e*, *g* and *h* by the wall 2 and the products of combustion, or as they may now be termed, the waste gases, yield up some of their remaining heat in heating the walls of the passages *d*, *e*, *g* and *h*. This heat is afterwards absorbed by the air which enters through the opening *c* and flows through the passages *d*, *e*, *g* and *h*, as above described. From the passage *z* (see Figs. 4 and 8) the waste gases pass through the down-take 3 into the horizontal passage 4 under the secondary drying hearth 5 out

into the open air (under forced draft should the temperature of the waste gases be so low as to require more than natural draft).

It will be noted that the two-part chamber *r* is directly beneath the air-passages *g* and *h* (Figs. 1, 3 and 4); and the products of combustion, which are still highly heated after passing through the secondary combustion chamber *n* beneath the primary drying hearth *o*, yield up some of their remaining heat to the walls of these air-passages. The system above described is, therefore, a recuperative one, and a high temperature is made possible,—so high, in fact, as to deodorize the gases which arise from the garbage contained in the bed of fuel *a*, and on the drying hearths *o* and 5.

The tanks 6, 7 are made of structural steel work and above them are the unloading platforms 8. Preferably the garbage will be sorted into wet garbage and dry garbage (or refuse), the wet garbage going into the tank 6 and through the opening 9 controlled by a valve or slidable door 10 into the chamber 11, where it is dried upon the primary drying hearth *o*. After the garbage has been sufficiently dried upon the primary drying hearth *o*, the stoking door 12 is opened, and a workman standing upon the stage 13 will push or stoke the garbage from the primary drying hearth *o* down upon the secondary drying hearth 5. Here the garbage will be further heated and even carbonized by the heat reflected from the bed of fuel *a*. The dry refuse passes from the tank 7 through the opening 14 controlled by a valve 10 and falls upon the secondary drying hearth 5. Access to the openings 9 and 14 is obtained by opening the doors 15. A workman standing upon the stage 16 and working through the opening normally closed by the door 17 throws the charred garbage from the secondary drying hearth 5 upon the bed of fuel *a*.

The operation of the destructor will be readily understood from the foregoing. The inflammable gases rising from the fuel bed *a* in the fire-pit *b'* pass through the flue *k* into the secondary combustion chamber *n*. The external air flows through the opening *c* and thence through the recuperative air passages *d, e, f, g, h* from the walls of which it takes up the heat imparted to them by the passage of the hot gases through the adjacent chambers and flues. The highly-heated air and the inflammable gases meet at the opening *m* and an energetic combustion ensues with the evolution of much heat some of which is imparted to the primary drying hearth *o*, resulting in the drying of the wet garbage lying thereon. The products of combustion flow through the two-part chamber *r* and give up some of their heat to the bottom wall of the passages *g, h*, which forms the top of the chamber *r*. The products of combustion then flow through the opening 20 and heat the water in the boiler *t*, the steam from which may be used for driving a dynamo or any other useful purpose. The gases pass from the boiler into the up-take *w* and the latter being separated by the wall 2 from the passages, *d, e, g, h*, heat given up in warming the wall 2 will later be taken up by the incoming air. The gases then flow through the passages *x* and *z*, and the bottom wall of the latter forms the top wall of the passages *d, e*, whereby a further recuperative effect is obtained. The waste gases leave the destructor through the down-take 3 and passage 4.

By charring the refuse on the secondary drying hearth 5, it is put in much better form to serve as a fuel; and the high temperature obtained makes it possible to consume all the obnoxious gases arising from the drying and burning garbage.

I claim:

1. The combination of a fire-pit in which the dried garbage is burned; a secondary drying hearth arranged above and at one side of said fire-pit; a receiving tank for the dry garbage mounted above said secondary drying hearth; a secondary combustion chamber into which flow the combustible gases formed in said fire-pit; air-passages which lead the air from outside to said secondary combustion chamber, the air mixing with and supporting the combustion of said gases in said secondary combustion chamber; a primary drying hearth for the wet garbage arranged above said secondary combustion chamber; said primary drying hearth being located to one side of and above said secondary drying hearth, whereby the material dried on said primary drying hearth may be fed down upon said secondary drying hearth; a receiving tank for the wet garbage mounted above said primary drying hearth; and flues leading from said secondary combustion chamber above and below said air-passages for preheating the air which enters said combustion chamber.

2. The combination of a fire-pit in which the dried garbage is burned; a secondary drying hearth arranged above and at one side of said fire-pit, the material upon said drying hearth being exposed to the heat from said fire-pit; a secondary combustion chamber into which flow the combustible gases formed in said fire-pit; a primary drying hearth arranged above said secondary combustion chamber; air-passages which lead the air from outside to said secondary combustion chamber, the air mixing with and supporting the combustion of said gases in said secondary combustion chamber, whereby the material is dried on said primary drying hearth, the latter being arranged above said secondary drying hearth to permit the

garbage to be fed readily thereto from said primary drying hearth; and flues leading from said secondary combustion chamber above and below said air-passages for preheating the air which enters said combustion chamber.

In testimony whereof I have hereunto set my hand this 27th day of December, A. D. 1906, in the presence of two witnesses.

G. W. PARKER.

Witnesses:
SARAH E. HOLLENBECK,
CHARLES W. STEVENS