O. UHDE.

APPARATUS FOR DESTROYING REFUSE.

APPLICATION FILED JUNE 15, 1912.

1,049,947. Patented Jan. 7, 1913.

Fig. 1.

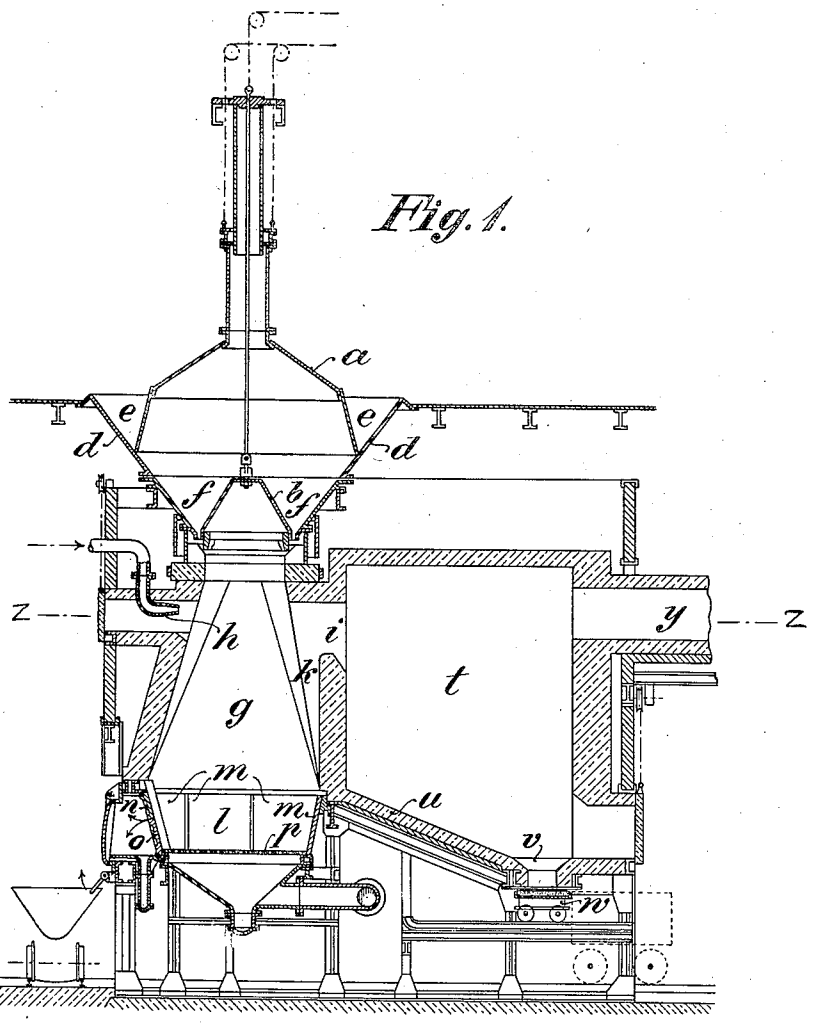
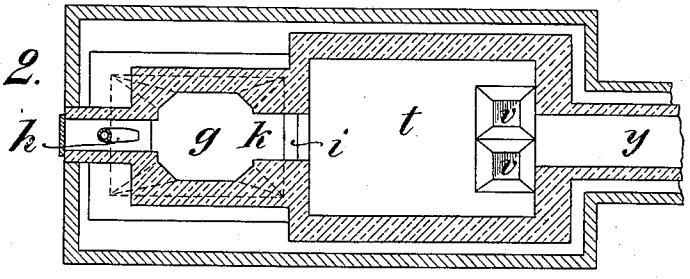


Fig. 2.



Witnesses:

G. M. Copenhaver,

C. D. Swett.

Inventor

Otto Uhde

per F. Dittmar

Attorney.

UNITED STATES PATENT OFFICE.

OTTO UHDE, OF HAMBURG, GERMANY.

APPARATUS FOR DESTROYING REFUSE.

1,049,947. Specification of Letters Patent. Patented Jan. 7, 1913.

Original application filed July 27, 1911, Serial No. 640,871. Divided and this application filed June 15, 1912. Serial No. 703,870.

To all whom it may concern:

Be it known that I, OTTO UHDE, subject of the Emperor of Germany, residing at Hamburg, Germany, have invented certain new and useful Improvements in Apparatus for Destroying Refuse, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to an apparatus for destroying refuse and the application is a division of an application for a process for destroying refuse, filed by this applicant on July 27th, 1911, Serial Number 640871.

The objects sought to be attained by this device are, first, a complete destruction of the waste and refuse. Second, to destroy the refuse with a small amount of fuel, the burning refuse itself contributing largely in maintaining the necessary degree of heat. Third, to provide feeding means that effect a separation or division of the refuse into masses, graded as to size, whereby its rapid and complete combustion is assured.

The accompanying drawing illustrates the device, in which—

Figure 1 is an elevation, in section, of the device or apparatus and Fig. 2, is a transverse section on the line *z*—*z* of Fig. 1.

The various features of the drawing are referred to by letters, similar letters indicating corresponding parts.

Referring then to the drawing, *g* designates an upwardly tapering, primary furnace provided with a grate *l* and a perforated hearth plate *p*. A secondary, or combustion chamber *t*, has a sloping imperforate hearth or floor *u*, at the lower end of which is provided an opening *v*, having a damper *w*, for the escape of the residues of the combustion. The grate *l* is surrounded at the sides by the plates *m*, which may be water cooled, and by the doors or plates *n* and *o*. In the upper part of the shaft or primary chamber *g*, is provided the air blast *h* and the opening *i*, through which the shaft *g* is in communication with the chamber *t*. The opening *i* is prolonged in the shaft *g*, nearly to the grate *l*, in the channel shaped cavity *k*. Upon the shaft *g*, is placed the double bell delivery mechanism. This consists of the hopper *d*, and the bells *a* and *b*, which form, together with the hopper *d*, the tapering delivery channels *e* and *f*. The bells *a* and *b*, can be raised and lowered, independently of one another, as shown in Fig. 1, so that an aeration of the refuse lying in the channels *e* and *f*, can be effected consecutively.

The working of the device is as follows,—the channel *e* is filled with refuse. Thereupon, by raising the bell *a*, the refuse, in its course down the incline, is partially divided into coarse and fine particles, and delivered into the channel *f*. After lowering the bell *a*, the channel *e*, is again filled with refuse. The bell *b*, is then drawn up, which causes a further division into coarse and fine refuse and the separate delivery of the coarse and fine refuse, respectively, onto the grate *l*. The grading or separating of the refuse into coarse and fine portions, is effected in the mechanism shown, while the refuse is passing down the inclined sides of the hopper and bells, the coarser particles rising to the surface, and moving more rapidly than the finer particles which are retarded by friction along the inclines, and so having a greater impetus, fall upon the grate in a different place from the slower moving finer particles. The bell *b*, is then lowered, the channel *f* again filled with refuse through raising the bell *a*, and thereby the shaft *g* is closed at the top. Through the perforated plate *p*, there passes at the same time, from the blast pipe *r*, a powerful air current into the charge of refuse covering the grate *l*. By this means the fine refuse, or the largest part thereof, is separated from the charge, and carried up into the shaft *g*, under guidance of the channel shaped cavity *k*, toward the opening *i*. At the height of the opening *i*, the fine particles of refuse are caught by the blast of air from the nozzle *h*, and carried into the chamber *t*, where they fall down in a wide and thin layer, upon the floor *u*. The portion of the charge left behind on the grate *l* is consumed by the burning particles of coke or clinker, which have been left behind for this purpose on the clearance of the residues of the previous charge, and is there consumed. The fine particles falling upon the unperforated floor *u*, are burnt to ashes in the chamber *t*, which is heated from the previous charge. The gases pass away through the flue *y*, and as already stated, the ashes are removed through the opening *v*.

Having now described the invention and

the manner of its operation, what I claim and desire to secure, is—

In an apparatus of the character described the combination of a furnace, means to grade the refuse as to the size of its particles and to feed said refuse into said furnace, a grate in said furnace to receive said refuse at the lower part of said furnace, an air blast directed upwardly through said grate, a cross air blast at the upper part of said furnace, a consuming chamber connected with the furnace by an inlet opposite to said cross air blast, an inclined, imperforate floor in said consuming chamber and a smoke flue in the upper part of said consuming chamber.

In testimony whereof I affix my signature in the presence of two witnesses.

OTTO UHDE.

Witnesses:

ERNEST H. L. MUMMENHOFF,

IDA CHRIST. HAFERMANN.