T. KERNER.

GARBAGE AND REFUSE INCINERATOR.

APPLICATION FILED APR. 15, 1912.

1,108,184.

Patented Aug. 25, 1914.

2 SHEETS—SHEET 1.

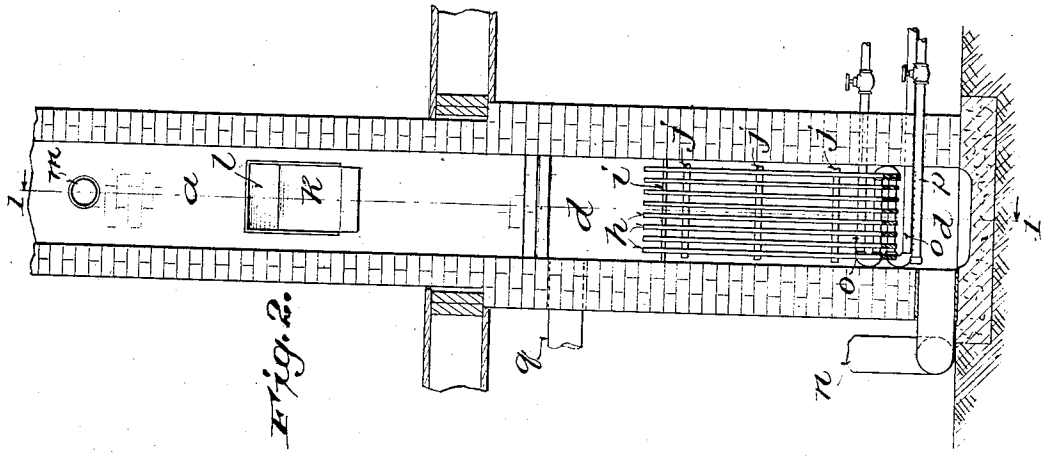


Fig. 2.

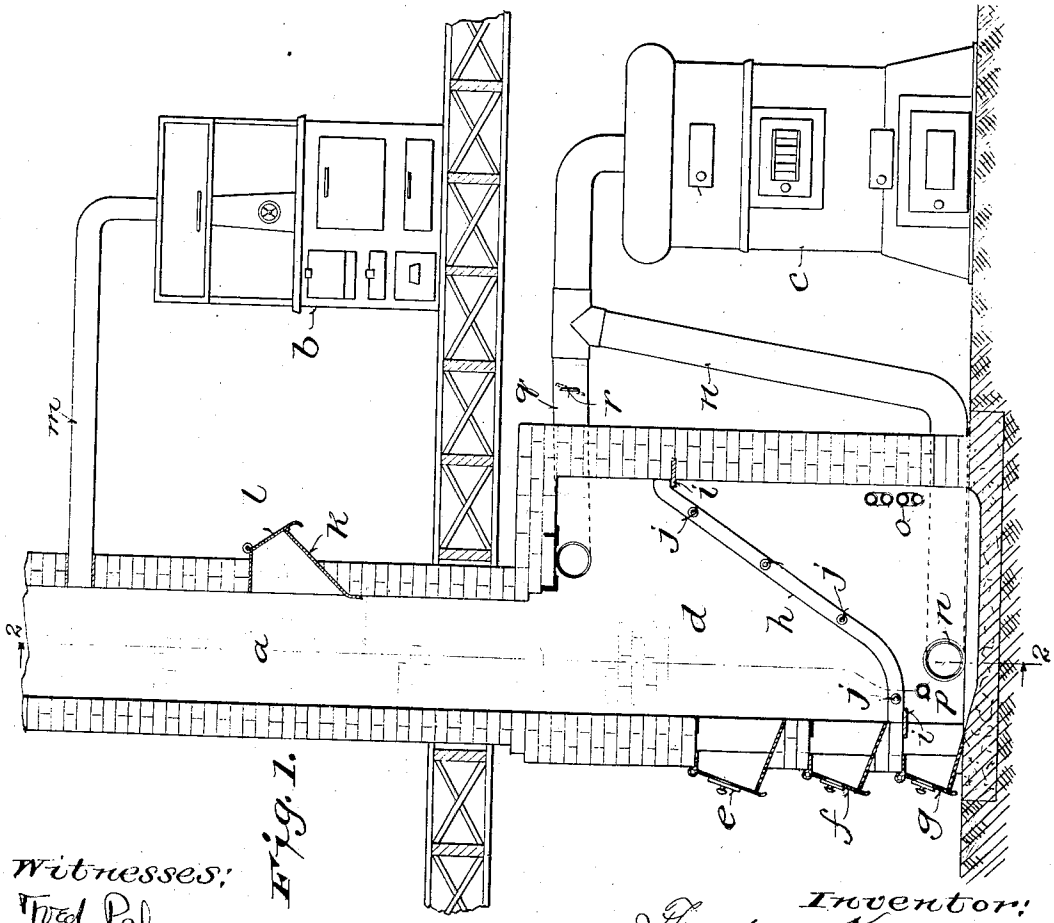


Fig. 1.

Witnesses:
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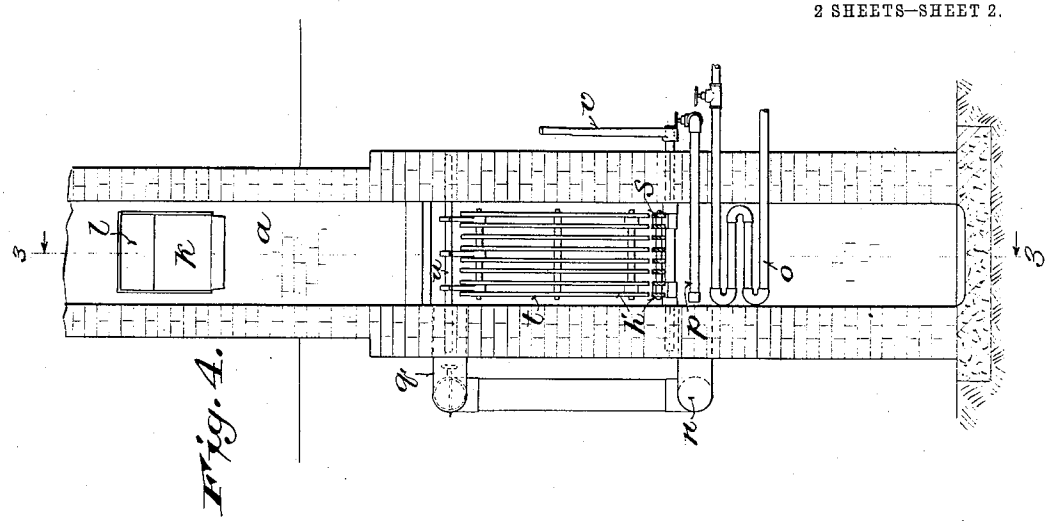


Fig. 4.

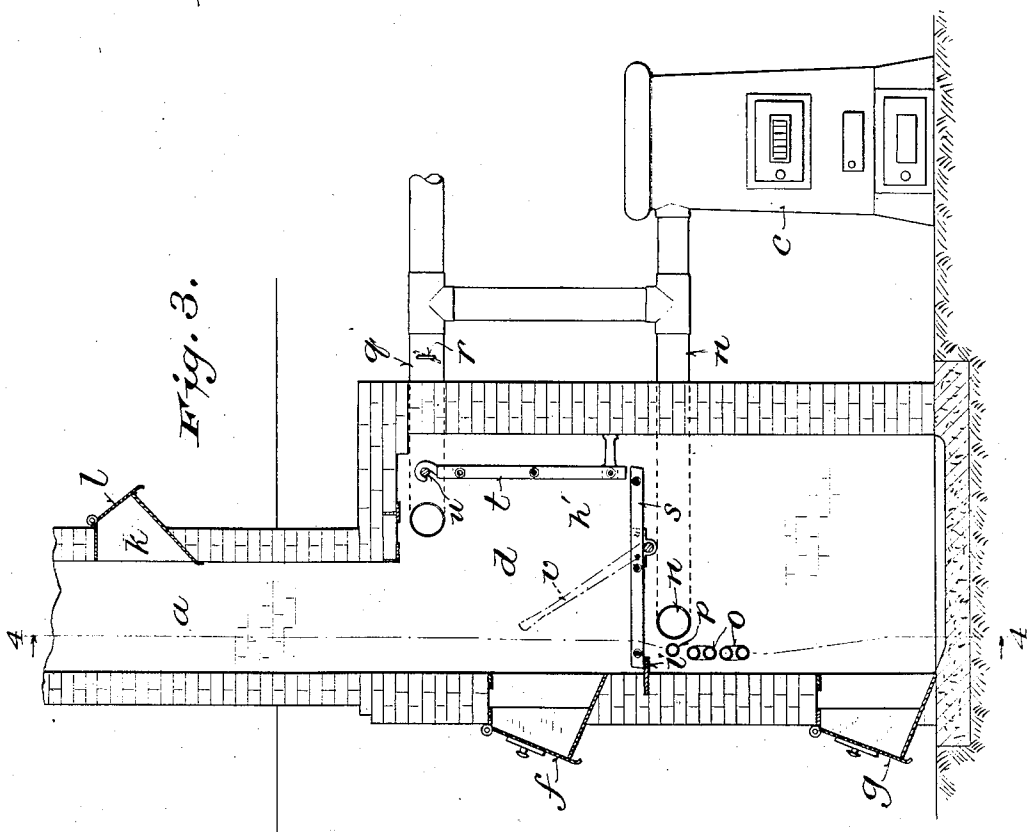


Fig. 3.

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UNITED STATES PATENT OFFICE.

THEODORE KERNER, OF MILWAUKEE, WISCONSIN.

GARBAGE AND REFUSE INCINERATOR.

1,108,184. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed April 15, 1912. Serial No. 690,977.

To all whom it may concern:

Be it known that I, THEODORE KERNER, a citizen of the United States, residing at Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Garbage and Refuse Incinerators, of which the following is a specification, reference being had to the accompanying drawing, forming a part thereof.

The main objects of this invention are to dispose of garbage and refuse such as paper, bottles, tin cans, etc., in apartment buildings, flats, hospitals, residences, and the like, in a convenient and sanitary manner; to utilize for this purpose chimneys or chimney flues with which such buildings are ordinarily provided; and generally to improve the construction and operation of devices of this class.

It consists in the peculiar construction, arrangement and combination of parts as hereinafter particularly described and defined in the claims.

In the accompanying drawing like characters designate the same parts in the several figures.

Figure 1 is a vertical section on the line 1—1, Fig. 2, of one form of garbage and refuse incinerator embodying the invention as designed more particularly for apartment buildings and the like; Fig. 2 is a vertical section of the same on the line 2—2, Fig. 1, in a plane at right angles to the plane of Fig. 1; Fig. 3 is a section on the line 3—3, Fig. 4, of a modified form of the incinerator as designed more particularly for single dwellings or comparatively small buildings; and Fig. 4 is a section on the line 4—4, Fig. 3.

Referring to Figs. 1 and 2, the incinerator comprises a chimney or chimney flue *a*, such as apartment buildings, flats and the like are ordinarily provided with. It is open at the upper end to the atmosphere, and serves in the usual way as a smoke or ventilating flue for gas or other heating apparatus, a cooking range *b* and a furnace or heater *c* being shown in Fig. 1. At its lower end of the chimney or flue *a* is enlarged and arranged to form and serve as a garbage and refuse cremating or burning chamber *d*, which has an overhanging wall at its top to one side of the flue *a* leading therefrom, and which like the chimney flue *a*, may be constructed of brick as shown, or of other suitable material. The lower part of the incinerator or the cremating chamber *d* is preferably located, as shown, in the cellar or basement of the building, and is provided with self-closing fire, draft and ash doors *e*, *f* and *g*, at the front or one side. It is also provided with a grate *h*, which extends rearwardly and upwardly from a line between the doors *f* and *g* to a higher level at or adjacent to the rear or opposite wall of the chamber.

The grate may be conveniently constructed as shown, of flat metal bars arranged edgewise and parallel with one another and supported at the ends on cross bars or plates *i*, or upon ledges extending inwardly from opposite walls of the chamber *d*. The grate bars are connected and held in place relative to one another by rods *j* passing transversely through them, and by interposed spacing washers on the rods. The grate bars may be bent and set at an inclination as shown in Fig. 1, or they may be formed and set with their lower portions substantially horizontal and their rear and upper portions substantially vertical or parallel with and at a distance from the rear wall of the chamber *d*, as shown in Fig. 3. So constructed and arranged, the grate constitutes a receptacle adapted to receive and hold an accumulation of garbage or refuse dropping through the chimney flue *a*, and at the same time afford an upward draft or a passage for air from the ash pit or lower part of the chamber *d* into the upper part thereof, and thence into the chimney flue *a* by way of the by-pass beneath the overhanging wall formed by spacing the refuse containing receptacle from the wall of the cremating chamber at points under the overhanging wall at the top of the chamber, which will cause the air currents to be directed across the refuse material in the receptacle and whereby garbage or wet refuse is dried preparatory to burning it.

The chimney or flue *a* is provided with an inwardly enlarging and downwardly inclined chute *k*, the upper and outer end of which is inclined and provided with a self-closing door *l*, as shown in Fig. 1. The stoves, ranges or heaters connected with the chimney flue *a*, and especially the heater *c* in the basement of the building, tend to heat or warm the air in the incinerator and to produce and maintain an upward draft through the grate *h* and the garbage and other refuse thereon, the stoves or ranges above the basement being connected by ven-

tilating or smoke pipes *m* directly with said flue, and the heater *c* being connected with the chamber *d* below the grate by a pipe *n*. Other means may however, be provided for producing and maintaining a draft of air through the incinerator for drying the garbage deposited therein, for example, a steam coil *o*, or a gas burner *p*, as shown. A branch pipe *q* provided with a damper *r* connects the heater *c* or pipe *n* with the upper part of the chamber *d*, to afford, when desired, a direct draft connection between said heater and the flue *a*.

In the operation of the incinerator, garbage and refuse such as paper, bottles, tin cans, etc., are thrown into the flue *a* through the doors *l*, and fall upon the grate *h*, where they accumulate and are subjected to the drying effect of the upward current of air through the grate resulting from the use of the stoves, ranges and heating apparatus connected with the chimney flue *a* or chamber *d*, or produced by means specially provided therefor, such as the steam coil *o* or gas burner *p*.

Bottles, cans and other incombustible articles thrown into the furnace with garbage and other refuse, tend to keep the material deposited upon the grate in a loose and ventilated condition, so that the air draft will more readily pass through or penetrate and dry the same. From time to time, according to the quantity of garbage and refuse accumulated on the grate, it is lighted through the door *e* or *f* and burned, any or all of the doors *e*, *f* and *g*, or the dampers therein, being opened to supply air for combustion.

The soot produced and deposited on the walls of the flue *a* by the burning of the garbage and refuse in the chamber *d* and also by the stoves and heaters connected with said flue, prevents garbage from adhering thereto, while the garbage and other refuse thrown into and falling through the flue, removes surplus soot therefrom. The soot falling on the garbage as it accumulates on the grate in chamber *d*, retards decomposition, and tends to prevent offensive odors generating in the incinerator.

The burning of the combustible portions of the garbage and refuse thoroughly sterilizes and disinfects the walls of the flue *a* and chamber *d* and the grate *h*, as well as incombustible refuse, such as bottles, cans, etc. The incombustible residue, such as bottles, cans and ashes, which remains after the garbage and refuse is burned, is removed from the grate and the ash pit below, through the doors *f* and *g*.

The flue *a* is made enough larger than the opening into the chutes *k* and the draft opening into the chamber *d*, to prevent the escape of smoke and gases or odors from the incinerator into the building when the doors *l* are opened.

Referring to Figs. 3 and 4, showing a modified construction of the incinerator, the grate *h'* is located higher in the chamber *d* than shown in Figs. 1 and 2, to afford a larger ash pit for the accumulation of ashes and the incombustible residue of garbage and refuse and thereby obviate the necessity of removing them so often. The grate is made in sections, the lower part being substantially horizontal and composed of one or more rocking sections *s*, and the upper part being substantially vertical or parallel with the rear wall of chamber *d* and composed of one or more sections *t*, suspended on a cross rod *u*, so as to maintain a passage for air from the lower into the upper part of said chamber when there is an accummulation of garbage on the grate.

For dumping the grate, the rocking section or sections *s*, is provided or connected with a lever arm or handle *v* located outside of the chamber *d* where it is conveniently accessible. This form of the incinerator is shown as having but one fire and draft door *f* above the grate, but if desired, it may be provided with more, as shown in Fig. 1.

The operation of the apparatus shown in Figs. 3 and 4 is the same as that shown in Figs. 1 and 2, except that incombustible refuse too coarse or large to pass between the grate bars is dumped after burning into the ash pit and removed through the door *g*, instead of through the door *f* above the grate, as in the form of apparatus shown in Figs. 1 and 2.

Various modifications other than those specifically mentioned may be made in the construction and arrangement of parts of the incinerator to adapt it to buildings of various kinds and to various conditions, without materially affecting its principle and mode of operation and without departure from the scope of the invention.

I claim:

1. A garbage and refuse incinerator comprising a chimney flue having a side door for the reception of the garbage or refuse and constituting a conduit for the garbage or refuse into a cremating chamber formed by a lateral enlargement of said flue at its lower end, said chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber and lying below the overhanging wall and the flue leading from the chamber, and a by-pass leading from below the receptacle to above the same and at its upper end opening into the space above the refuse receptacle and beneath the overhanging wall.

2. A garbage and refuse incinerator comprising a chimney flue having a side door for the reception of the garbage or refuse and constituting a conduit for the garbage or refuse into a cremating chamber formed by

a lateral enlargement of said flue at its lower end, said chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber and lying below the overhanging wall and the flue leading from the chamber, a by-pass leading from below the receptacle to above the same and at its upper end opening into the space above the refuse receptacle and beneath the overhanging wall, and means for warming the air in the incinerator and producing and maintaining an upward draft through the refuse receptacle and by-pass.

3. A garbage and refuse incinerator comprising a chimney flue having a side door for the reception of the garbage or refuse and constituting a conduit for the garbage or refuse into a cremating chamber formed by a lateral enlargement of said flue at its lower end, said chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber and lying below the overhanging wall and the flue leading from the chamber, a by-pass leading from below the receptacle to above the same and at its upper end opening into the refuse receptacle and beneath the overhanging wall, fire, draft and ash doors above and below the refuse receptacle, and means for producing a current of warm air through said receptacle and by-pass.

4. A garbage and refuse incinerator comprising a chimney flue forming a garbage and refuse conduit and having an inwardly enlarging and downwardly inclined garbage and refuse chute opening into it and provided at its upper and smaller end with a self-closing door, said flue being enlarged laterally at its lower end to form a cremating chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber spaced from the wall of the chamber to form a by-pass below the overhanging wall from the space below the receptacle into said flue, and means for warming the air and producing an upward draft in the incinerator through the refuse receptacle and by-pass.

5. A garbage and refuse incinerator comprising a chimney flue having a side door for the reception of garbage or refuse and constituting a conduit for the garbage or refuse into a cremating chamber formed by a lateral enlargement of said flue at its lower end, said chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber spaced from the wall of the chamber to form a by-pass below the overhanging wall from the space below said receptacle into said flue, and a heater in communication with said chamber below the refuse containing receptacle.

6. A garbage and refuse incinerator comprising a chimney flue having a side door for the reception of garbage or refuse and constituting a conduit for the garbage or refuse into a cremating chamber formed by a lateral enlargement of said flue at its lower end, said chamber having an overhanging wall at its top to one side of the flue leading therefrom, a refuse containing receptacle in the cremating chamber having a lower dumping section and an upwardly extending section spaced from the wall of the chamber to form a by-pass below the overhanging wall and extending from the lower part of said chamber into the upper part thereof, and means for maintaining an upward draft of air through said chamber, refuse containing receptacle and flue.

In witness whereof I hereto affix my signature in presence of two witnesses.

THEODORE KERNER.

Witnesses:
CHAS. L. GOSS,
FRED PALM.