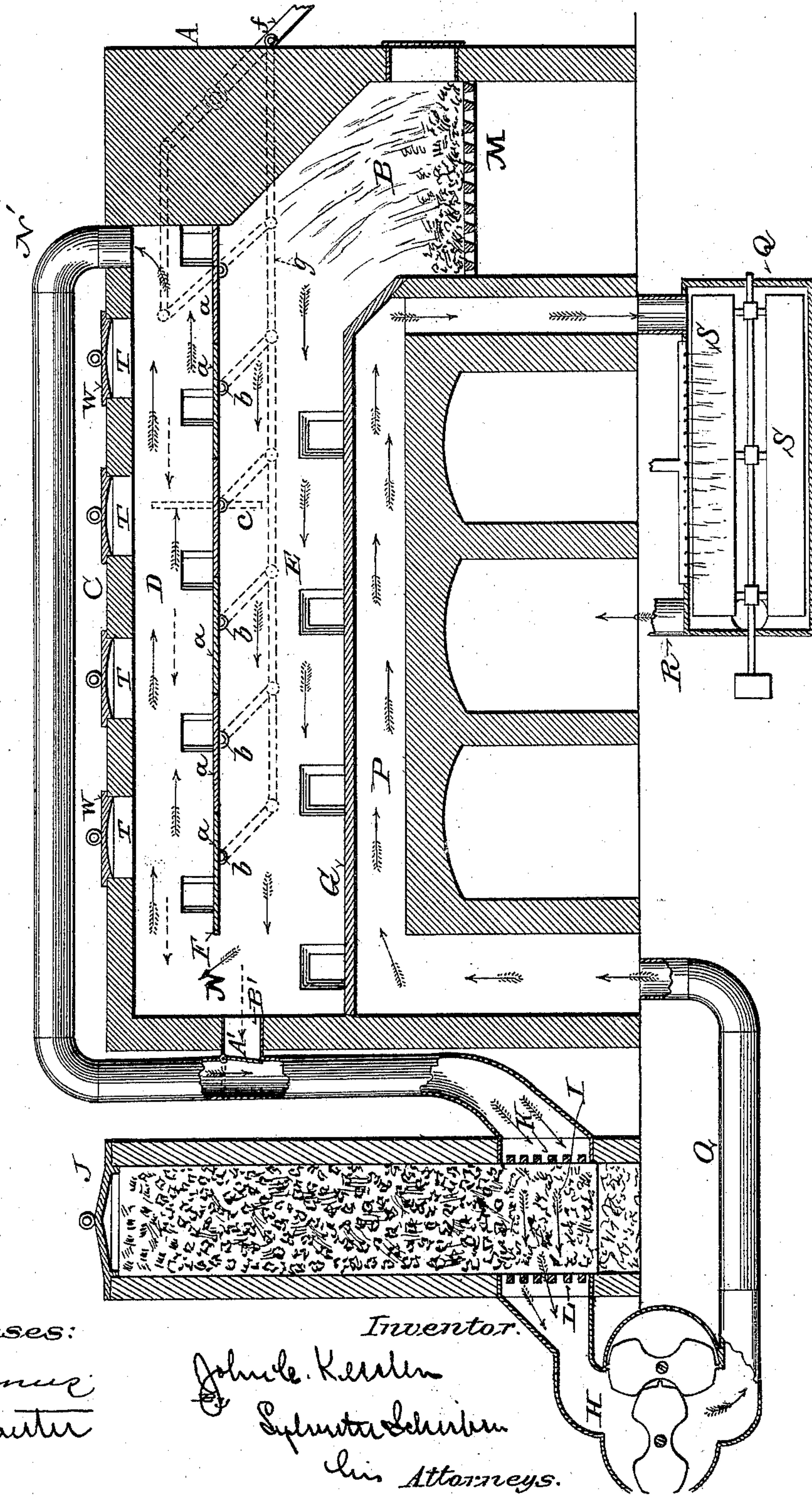


(No Model.)

J. C. KESSLER.  
FURNACE FOR BURNING GARBAGE.

No. 488,168.

Patented Dec. 13, 1892.



Witnesses:  
E. C. Ammer  
Geo. S. Senter

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his Attorneys.



# UNITED STATES PATENT OFFICE.

JOHN C. KESSLER, OF MILWAUKEE, WISCONSIN.

## FURNACE FOR BURNING GARBAGE.

SPECIFICATION forming part of Letters Patent No. 488,168, dated December 13, 1892.

Application filed February 5, 1892. Serial No. 420,437. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN C. KESSLER, of the city of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Furnaces for Burning Garbage; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in crematories or furnaces for burning garbage.

The object of my invention is not only to provide a furnace having superior draft appliances adapted to produce a high degree of temperature, and thereby to rapidly and effectually consume the garbage, but one which will also, in addition thereto, perfectly control the escaping vapors, gases, and noxious odors arising from the garbage as it is being dried or burned and force them through a secondary furnace or combustion-chamber of high temperature, through and by which such noxious vapors or gases are entirely consumed or neutralized.

The construction of my invention is further explained by reference to the accompanying drawing, which represents a vertical section thereof.

The inclosing walls A of the furnace proper are formed of brick or other equivalent material adapted to sustain without injury a high degree of temperature.

B represents the primary combustion-chamber.

C is the drying-oven, which is subdivided into two compartments D and E by the intermediate floor F. Two or more floors of similar construction may, if desired, be used, whereby the garbage supported thereon is exposed to a greater area of heating and drying surface and whereby the garbage as it becomes partially dry upon the upper floor F may be dumped upon the next floor G below before introducing fresh garbage, and thus the wet and partially-dry substances may be kept separate and the process of drying carried on in the several compartments continuously. As the garbage upon the lower floor G is thoroughly dried it may be drawn down into the combustion-chamber B and used as fuel, or, if

desired, it may be removed from the furnace and used as a fertilizer. The hot air, smoke, and other products of combustion are caused to pass three or more times through the drying-oven in their course to the exterior air by the action of the exhaust-fan H.

The fan H performs three important functions: first, it promotes combustion in the primary combustion-chamber B by causing a strong air-draft through the same; second, by exhausting the air, gases, and vapors from the drying-oven a partial vacuum is formed, which promotes evaporation of the moisture contained in the garbage and causes the same to be more rapidly dried; third, it prevents the noxious gases and odors from escaping into the open air and forces them through the secondary combustion-chamber, where they are more effectually consumed.

I is the secondary combustion-chamber, which is preferably formed in connection with an elevated fuel-reservoir J. The combustion-chamber I is provided with opposing vertical grates K and L, through which the air and gases from the drying-oven pass as they enter and escape said combustion-chamber.

The course of the air-draft through the furnace is as follows: It first enters the furnace through the grate M, thence through the combustion-chamber B, thence rearward through the lower apartment E of the drying-oven to the passage N, thence upward and forward in the upper compartment D to the mouth of the duct N', thence through said duct N' to the secondary combustion-chamber I, thence through the fan H to duct O, thence through the duct or passage P to the front end of the furnace, and thence through the liquid-receptacle Q to the escape-pipe R, and from thence to the open air.

The liquid-receptacle is provided with an agitator S and a disinfectant solution which is agitated as the gases and vapors pass through it, whereby said gases and vapors are again subjected to the purifying influences of such disinfectant before escaping. If desired, however, said liquid-receptacle and agitator may be dispensed with, as the action of the heat to which said gases and vapors are subjected will in ordinary cases prove sufficient to accomplish the purpose intended.

The drying-oven is supplied with garbage



through the openings T, which are provided with closely-fitting covers W. To facilitate in moving the garbage from one compartment to another, the floor F is preferably formed of a series of sections *a a*, which are centrally pivoted upon supporting-rods *b*, and which rods *b* are provided with levers *c*, formed at right angles thereto. The several levers *c* are connected with an operating-lever *f* by the connecting-rod *g*, whereby all of said floor-sections may be simultaneously turned from a horizontal to a vertical position by moving said lever *f*, when the garbage supported on said floor is thereby caused to drop to the floor below. By reversing the movement of the lever *f* said sections are thrown into the horizontal position shown.

If desired to diminish the circulation of the hot air through the oven and make a more direct draft therefor between the combustion-chambers, the damper A' is opened, when the hot air and gaseous vapors of the oven will enter the duct N by the most direct course through the pipe B'. The fan H may, if desired, be located upon the inlet side of the secondary combustion-chamber with substantially the same results as when located at the point shown.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a furnace for burning garbage, the combination of a primary combustion-chamber, an oven for the reception of garbage, subdivided into two or more compartments communicating direct with the exhaust-flue of said primary combustion-chamber and forming a continuous passage through said oven between said combustion-chamber and the exhaust-

duct of said oven, a secondary combustion-chamber, an exhaust-duct communicating between said oven and said secondary combustion-chamber, an exhaust-duct communicating from said secondary combustion-chamber to the exterior air, and a fan connected with the said exhaust-ducts and adapted as it is operated to promote the draft through said furnace and control the course of the vapors and products of combustion, substantially as and for the purpose specified.

2. In a furnace for burning garbage, the combination of a primary combustion-chamber, an oven for the reception of garbage, subdivided into two or more compartments communicating with the exhaust-flue of said primary combustion-chamber and forming a continuous passage through said oven between said combustion-chamber and the exhaust-duct of said oven, a secondary combustion-chamber, an exhaust-duct communicating between said oven and said secondary combustion-chamber, a fan communicating with the exhaust side of said secondary combustion-chamber, a duct or return-flue communicating from said fan through and beneath the lower floor of said oven, a fluid-receptacle provided with agitating-fan, a duct communicating from said oven to said fluid-receptacle, and an exhaust-duct communicating from said fluid-receptacle to the exterior air, all substantially as and for the purpose specified.

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

JOHN C. KESSLER.

Witnesses:

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