No. 757,149.

PATENTED APR. 12, 1904.

H. B. SMITH.

GARBAGE CREMATORY.

APPLICATION FILED APR. 11, 1902.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

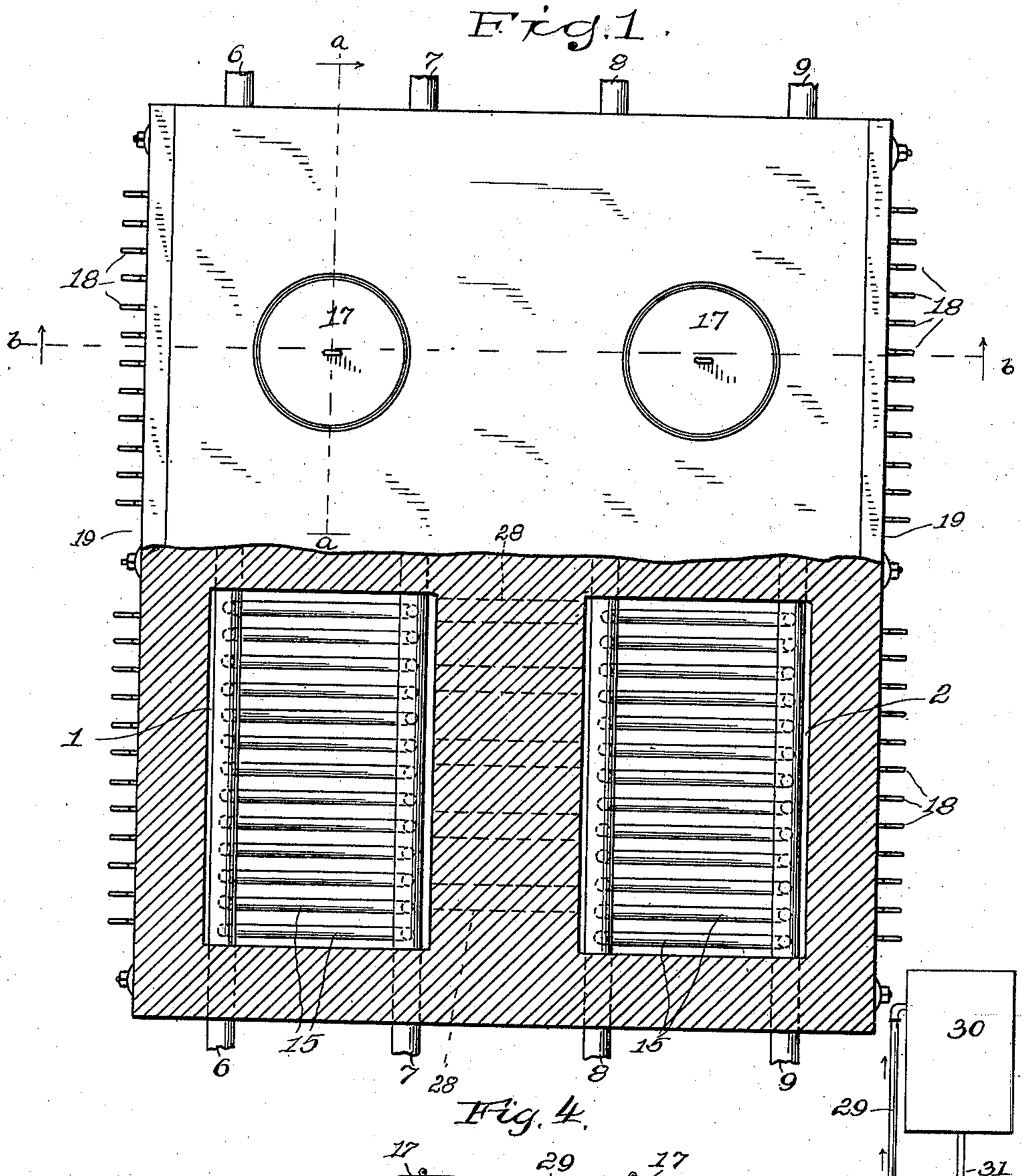

Fig. 4.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 2.

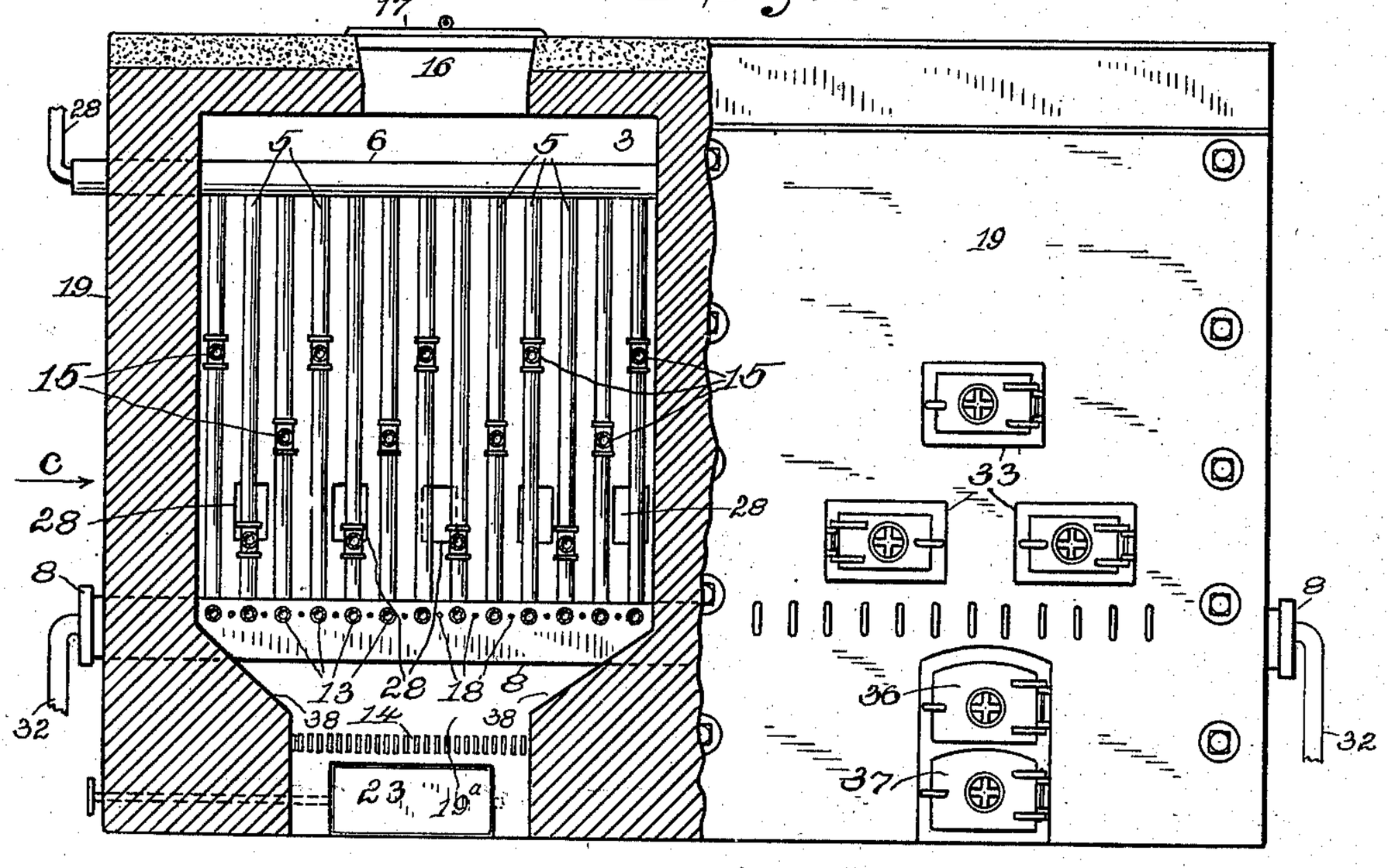
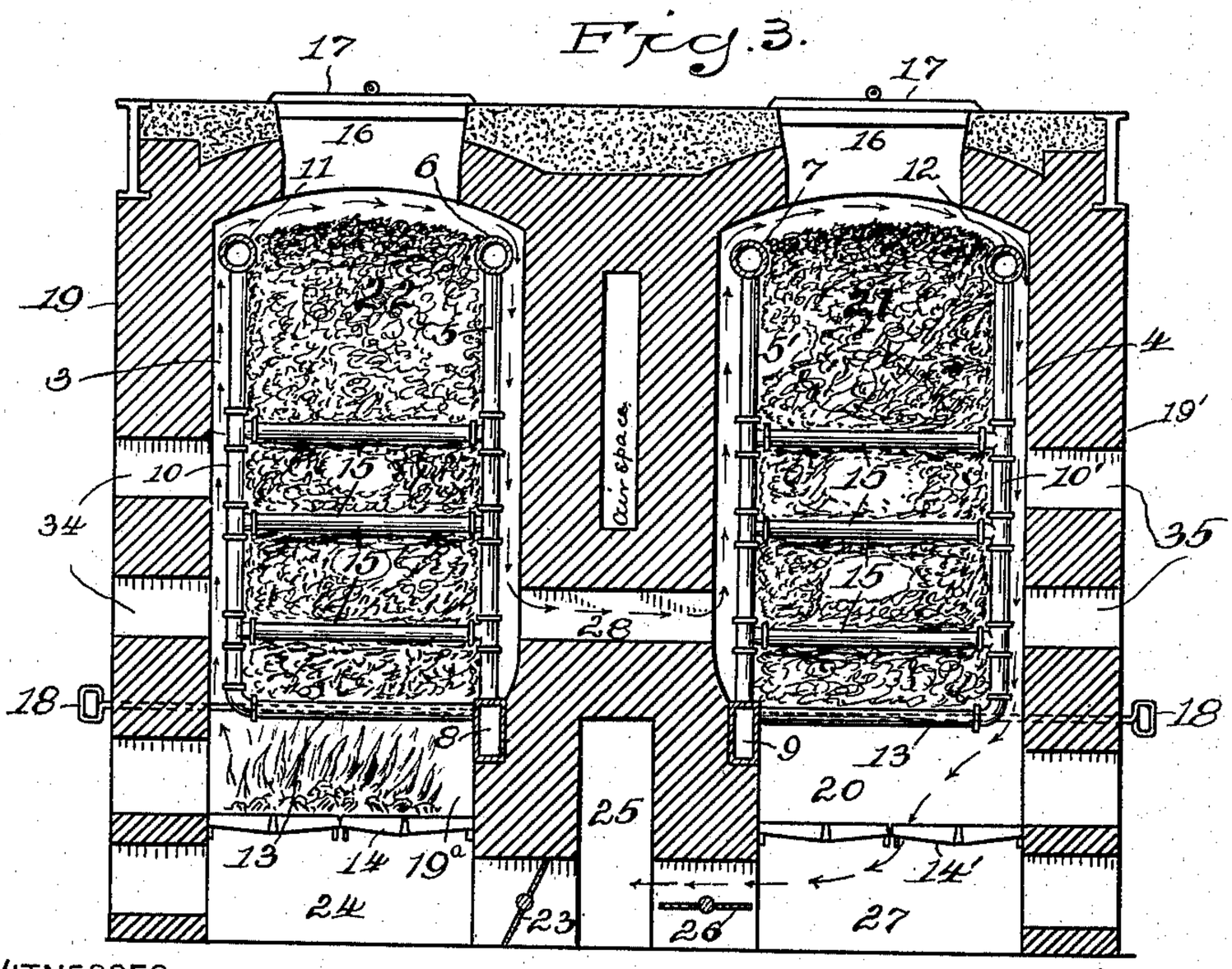


Fig. 3.



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UNITED STATES PATENT OFFICE.

HARRIS B. SMITH, OF BRIDGEPORT, CONNECTICUT, ASSIGNOR TO JEREMIAH D. TOOMEY, OF BRIDGEPORT, CONNECTICUT.

GARBAGE-CREMATORY.

SPECIFICATION forming part of Letters Patent No. 757,149, dated April 12, 1904.

Application filed April 11, 1902. Serial No. 102,380. (No model.)

To all whom it may concern:

Be it known that I, HARRIS B. SMITH, a citizen of the United States, and a resident of Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Garbage-Crematories, of which the following is a specification.

My invention relates to an improved garbage-crematory. It consists in providing separate garbage-holding chambers arranged in pairs, so that while the garbage in one chamber is being consumed the heat generated therein will circulate through and dry the garbage in the second chamber, and by the time the material of the first chamber has been consumed the second will be dry enough to burn. In each chamber the garbage is suspended in a cage made of pipe for the circulation of hot water. These pipes pass around and through the garbage and being heated by the burning garbage allows the heat to permeate through the mass. To facilitate a free circulation of heat on all sides of the garbage from the point of combustion and also to prevent the mass of wet garbage coming in contact with the brick walls of the chambers, and thereby causing their disintegration, the cages are isolated or set away from the said walls.

The above-named advantages, together with others relating to the details of construction, will be more particularly set forth in the following specification.

To enable others to understand my invention, reference is had to the accompanying drawings, in which—

Figure 1 is an upper plan view, partly in section, of my improved crematory and broken view of the large upper steam-pipes of the garbage-holding cages. Fig. 2 is a front elevation, partly in section, through *a a* of Fig. 1, also broken view of the water and steam pipes. Fig. 3 is a sectional view of the crematory through *b b* of Fig. 1. Fig. 4 is an elevation of the crematory looking in the direction of arrow *c* of Fig. 2. In this view the combined steam and water tank is shown and also the outside system of piping leading to and from said tank.

Its construction and operation are as follows:

1 and 2, 3 and 4 represent the chambers in which the garbage is suspended. The cages for holding the garbage being alike in every respect, the same figures of reference will in some instances represent similar details of construction.

5 and 5′ are two rows of vertical pipes connecting with the large upper steam-pipes 6 and 7, while the lower ends of these vertical pipes are connected with the cold-water header-pipes 8 and 9. 10 and 10′ are similar rows of vertical pipes connected at their upper ends with the upper steam-pipes 11 and 12. The lower horizontal pipes 13 and 13′, which pipes are a continuation of these vertical pipes 10 and 10′, are directly over the grate-bars 14 and 14′ and are also screwed into the header-pipes 8 and 9. 15 represents other horizontal or transverse pipes connecting said vertical pipes. It will be seen that the garbage-cages are supported entirely on these two header-pipes 8 and 9, and therefore do not touch the side walls of the chambers, but leave a free open space between the walls and said cages.

16 represents manholes, through which the garbage is dumped into the several cages, and 17 represents manhole-covers.

18 represents a series of rods that extend through holes in the side wall of the crematory 19 and 19′, and they pass between the lower row of transverse pipes 13 and 13′, as shown at Fig. 1. These rods operate to prevent the garbage dropping through into the fire-boxes 19ª and 20 until after the garbage nearest the fire has been sufficiently dried to burn readily, when these rods are withdrawn.

In operating the crematory the cages, Fig. 3, are both filled with the garbage 21 and 22, the damper 23, which shuts off the ash-pit 24 from the chimney-flue 25, being closed, while the damper 26 is opened to allow a free passage from the ash-pit 27 to said flue. Fire is then started in the fire-box 19ª, the heat generated therein passing up the open space between the wall of the chamber 3 and the vertical pipes 10, over the top of the garbage,

(see arrows,) down the opposite side of said cage, through the flues 28 (see also Fig. 2) and around the garbage-cage in the chamber 4, thence around the cage therein, and down through the empty grate-bars 14 to the chimney-flue 25. As soon as the garbage immediately over the fire has dried sufficient to burn the rods 18 are withdrawn to allow the dried garbage to fall into the fire-box, which it will do as fast as it is dried. The heat from the burning garbage, as before mentioned, will not only circulate around and dry the garbage in the cage under which the fire is already burning, but in the other cage as well, so that by the time the garbage in the first cage is consumed the garbage in the other cage is dry enough to burn. Then the first cage is refilled with fresh garbage and a fire started under the second one. When this is done, the damper 26 is closed and the damper 23 opened, which will reverse the operation of the heat circulation and dry the garbage in the first cage. It will be understood that but little fuel is required to begin operations, for as soon as the garbage begins to burn it will furnish its own fuel. The pipes of which the cages are constructed being filled with water not only prevents their burning, but they also assist very materially in drying the garbage, especially the transverse pipes, which penetrate through the mass at several points. As the pipes become heated steam will be generated, which will ascend into the upper pipes 6, 7, 8, and 9, as the case may be, and from thence (see also Fig. 4) will pass through the short pipes 28^a to the pipe 29 and from thence will be conveyed to the tank 30. This will cause the water in said tank to flow through the pipe 31 and from thence through the pipes 32 to the header-pipes 8 and 9. In this manner a free circulation of water is maintained throughout all the pipe system, including the cages as well.

The garbage-chambers are operated in pairs, so that when the fire in one chamber is burning garbage in the second chamber is being dried from the heat generated in the first chamber. Therefore as many pairs of chambers may readily be added to my improved plant as are required to take care of all the garbage as fast as it is collected.

33, Fig. 2, represents doors covering holes, four of which—viz., 34 and 35—are shown at Fig. 3, which holes may be utilized to stoke the garbage, if necessary.

36 represents the fire-box doors, and 37 the ash-pit doors.

As the several garbage-chambers are wider than the grate-bar surfaces, the side shelves 38, Fig. 2, are inclined, so that the garbage not directly over the grate-bars will gravitate thereto.

While the destruction of garbage, as a sanitary measure, should be complete, it is also important that it should be accomplished as economically as possible. My improved crematory fulfils both of these requirements, as it takes but little fire to begin operations even on a mass of wet garbage, as the layer exposed to the direct heat of the fire is soon dried sufficiently to burn, and the dried material, falling into the fire-box, will not only furnish heat to consume the rest, but, as before mentioned, the same heat will also dry the garbage in the next chamber, so that in many instances only a match or lighted paper is required to start combustion in the second chamber. In many cases the heat has been so intense and the operation of drying in this second chamber has been so thorough that spontaneous combustion frequently takes place in this second chamber. The advantages thus obtained are of course entirely due to my peculiar construction—viz., placing the garbage in a cage made of pipe through which hot water can circulate both in and around the mass and suspending this cage within a chamber, so that the heat can circulate all around the cage. Separating the mass of wet garbage from the walls not only permits the free circulation of heat around the cage, but it also prevents, as before mentioned, the disintegration of the walls of the chambers by isolating the wet garbage therefrom. While I show a fire-box and grate-bars, it will be understood that fuel-gas may be used to start the combustion, if desired.

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

1. The combination, in a garbage-crematory of the character described having a garbage-chamber, of an open-work garbage-holding cage the sides and bottom of which are made of pipe through which water is adapted to circulate, means for burning the garbage located below said cage, transverse pipes running through said cage, removable rods located between the pipes forming the bottom of said cage to prevent the garbage dropping therefrom until sufficiently dry to burn, for the purpose set forth.

2. The herein-described garbage-crematory having chambers adapted to be operated in pairs, a partition-wall between said chambers, a garbage-holding cage located in each of said chambers the sides and bottoms of which are made of pipe through which hot water is adapted to circulate, means for burning the garbage, removable rods located between the pipes forming the bottoms of the cages to prevent the garbage dropping from said cages until it has been sufficiently dried to burn, cold-water header-pipes on which said cages are supported in such manner that said cages are isolated from the walls of said chambers, flues in said partition so that, when the fire is burning under one cage, the heat will circulate around said cage, through said flues and entirely around the cage in the adjoining

chamber and dry the garbage therein preparatory to starting a fire in said second chamber, for the purpose set forth.

3. The herein-described garbage-crematory having chambers, a garbage-holding cage made of pipe in each chamber and isolated from the walls thereof, removable rods located between the pipes forming the bottom of said cage to prevent the garbage dropping from said cage until it has been sufficiently dried to burn, communication between said chambers, a chimney-flue for the escape of the products of combustion, dampers for opening or closing communication with said flue, said chambers operated in pairs so that, when fire is started in one chamber, the damper on that side is closed, while the one leading from the other chamber is opened, the heat passing around the cage in said first chamber and into the second chamber and around the cage therein and out through the grate-bars for said second chamber and into said chimney-flue, for the purpose set forth.

4. The combination, in a garbage-crematory of the character described, of a garbage-holding cage made of pipe through which water is adapted to circulate, removable rods located between the lower tier of pipe to prevent the garbage dropping from said cage until sufficiently dried to burn, for the purpose set forth.

5. The combination, in a garbage-crematory having a garbage-chamber, of a garbage-holding cage open at the top and constructed of pipe, removable rods located between the pipes forming the bottom of said cage to prevent the garbage dropping from said cage until it has been sufficiently dried to burn, a header-pipe adapted to hold water and support said cage out of contact with the walls of said chamber and for the circulation of heat around said cage, for the purpose set forth.

Signed at Bridgeport, in the county of Fairfield and State of Connecticut, this 9th day of April, A. D. 1902.

HARRIS. B. SMITH.

Witnesses:
J. D. TOOMEY, Jr.,
CHARLES L. HILL.