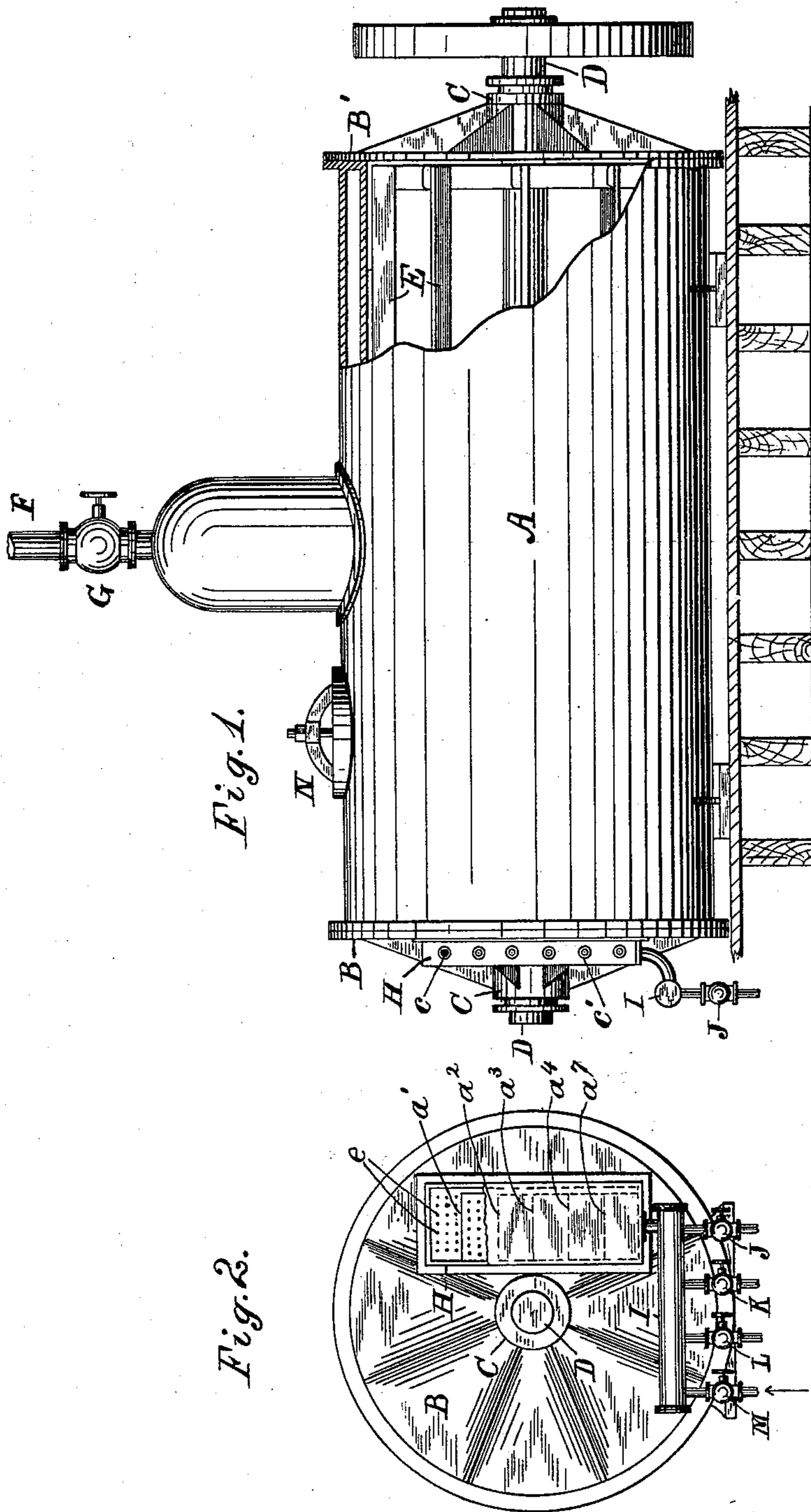


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APPARATUS FOR TREATING GARBAGE.

No. 533,897.

Patented Feb. 12, 1895.



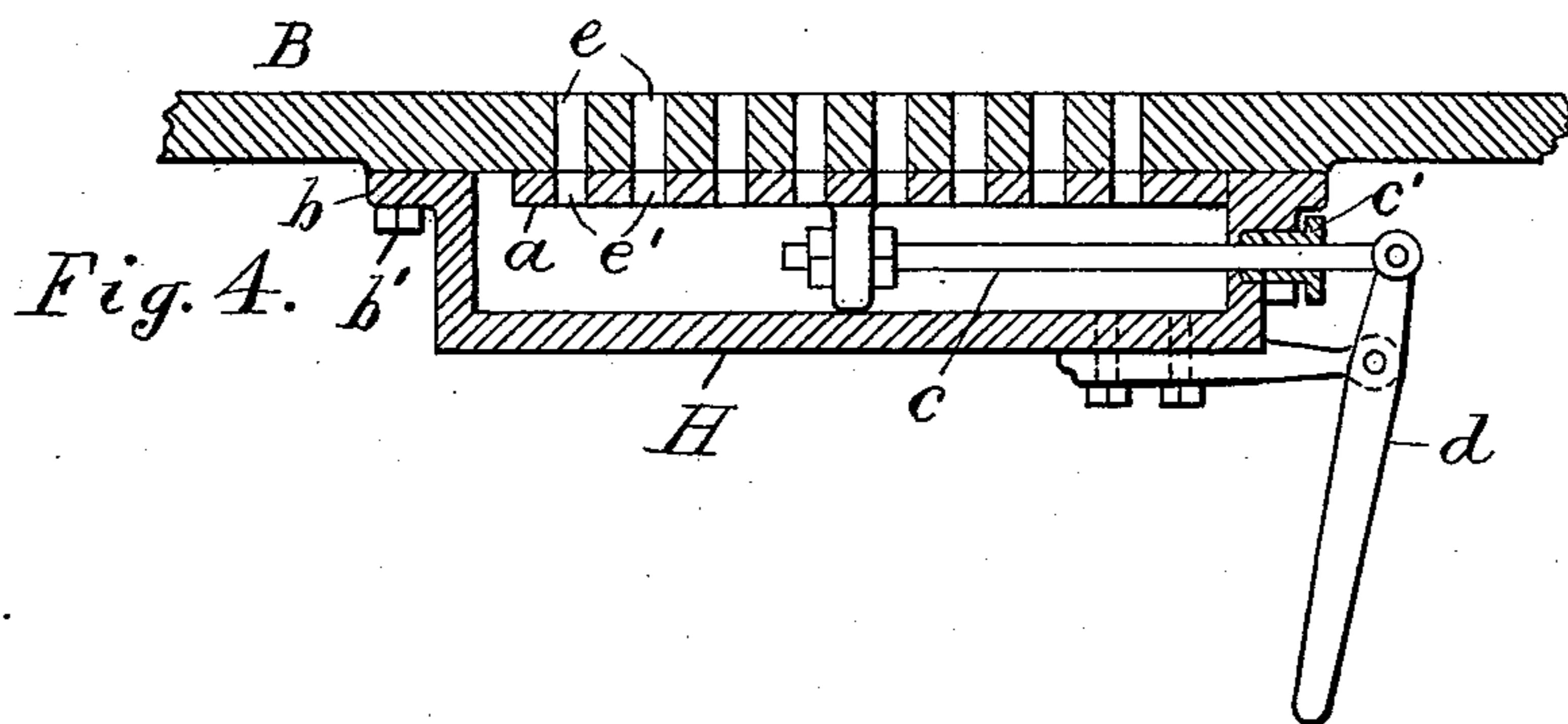
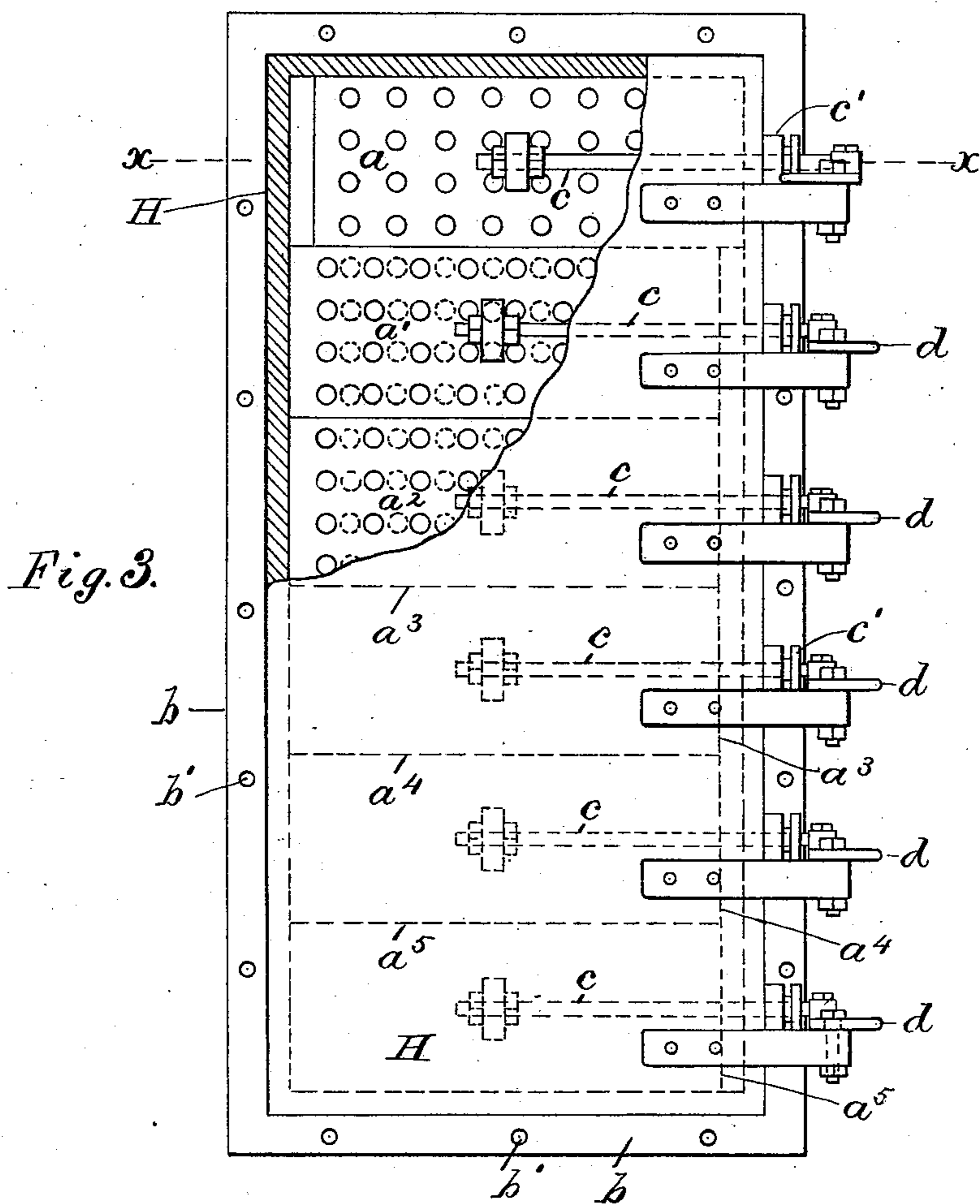
Attest:  
J. Marx  
Edw. F. Kinsey

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Emil Holthaus, per  
Thomas S. Crane, atty.

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# UNITED STATES PATENT OFFICE.

EMIL HOLTHAUS, OF CANARSIE, NEW YORK, ASSIGNOR TO CYRUS C. CURRIER,  
OF NEWARK, NEW JERSEY.

## APPARATUS FOR TREATING GARBAGE.

SPECIFICATION forming part of Letters Patent No. 533,897, dated February 12, 1895.

Application filed August 21, 1894. Serial No. 520,885. (No model.)

*To all whom it may concern:*

Be it known that I, EMIL HOLTHAUS, a citizen of the United States, residing at Canarsie, Kings county, New York, have invented certain new and useful Improvements in Valve-Gearing for Garbage-Treating Machines, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

10 This improvement relates to that class of garbage treating apparatus in which the garbage is heated in a rendering vessel while it is agitated by a revolving scraper, and mixed with a certain proportion of water to cook or  
15 distil the grease from the garbage. At a suitable stage in the process the grease which floats upon the surface of the water is removed by opening successively a series of outlets, and the present invention consists in a chamber  
20 common to a vertical series of slide valves and communicating with a vertical series of ports, the slide valves being provided with lever handles to open them instantaneously. Each slide valve is made of suitable size to  
25 cover a considerable number of ports, and the movement of the single valve is thus adapted to produce a very free and quick discharge from the garbage receptacle. The chamber is provided with suitable pipe connections to  
30 draw off the grease and water separately, and for supplying the chamber with steam, water or acid, as may be required in the treatment of the garbage. The chamber and its series of valves thus furnish a communication be-  
35 tween any of such pipes and different parts of the cylinder at different heights.

It is now common to connect the garbage cylinder or receptacle with a condenser to produce a vacuum therein, and the steam connection to the valve chamber furnishes a  
40 means of holding the valves tightly upon their seats when a vacuum is thus used, and furnishes also a means of blowing into the cylinder any obstructions which may accumulate  
45 in the valve ports.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a side elevation of the apparatus in section at the center line where hatched.  
50 Fig. 2 is an end elevation of the same with the shell of the valve chamber partly broken away and one of the valves removed to show

the ports. Fig. 3 is a front elevation of the valve chamber and valves detached from the cylinder head, with a part of the chamber broken away to expose the valves; and Fig. 4 is  
55 a transverse section of the same on line  $x, x$ , in Fig. 3.

A designates the cylinder; B, B', the removable heads provided with stuffing boxes C  
60 through which the shaft D of the scraper E is extended.

I prefer to arrange the cylinder, which serves as a garbage receptacle, in a horizontal position, and to draw the fluids from the head  
65 at one end of the same, as the variations in level which are required between the different outlets or discharge passages, are thus very much less than is required in a vertical cylinder.

The cylinder is connected by a pipe F and cock G with a condenser to maintain a vacuum therein. The head B is provided with numerous ports or holes  $e$  arranged in a vertical series and covered by a valve chamber  
75 H, which is secured removably upon the head by flange  $b$  and bolts  $b'$ . The series of ports extends, as shown in dotted lines in Fig. 1, equally above and below the center of the cylinder to draw off the grease at any desired  
80 level.

Six sliding plates  $a, a', a^2, a^3, a^4, a^5$ , are arranged in a vertical series within the valve chamber, and are provided with independent valve rods  $c$  extended through stuffing  
85 boxes  $c'$  in the side of the chamber and attached at their outer ends to hand levers  $d$ . The plates constitute slide valves which are formed with holes  $e'$  adapted to open or close the contiguous ports or holes  $e$  in the head B,  
90 by a slight movement of the valve plates.

Thirty-two ports are shown in the cylinder head beneath each of the valve plates; and each plate is correspondingly formed with  
95 thirty-two holes adapted to register with the ports. A movement of the plate sufficient to open one of the ports thus opens thirty-two of the same, and produces a very free and rapid discharge from the garbage receptacle.

The chamber H is of rectangular form and  
100 of suitable width to permit a movement of the slide valves sufficient to close the ports  $e$ , or to open the same at pleasure, as shown in Fig. 4. In Fig. 2, the upper slide valve is re-

moved from the chamber to clearly exhibit  
 the ports *e*, and the valve below such ports is  
 shown moved to the left to close the ports, as  
 represented in Fig. 4. The slide-valve plate  
 5 then contacts with the right hand wall of the  
 chamber, and when the hand-lever moves the  
 valve in the opposite direction, the plate is  
 arranged to contact with the opposite wall of  
 the chamber when the ports are fully closed.  
 10 The hand-levers enable the operator to open  
 or close the valve instantly, and the adjust-  
 ment of the slide-valves to the walls of the  
 chamber, as just described, limits the stroke  
 of the valve without any attention upon the  
 15 part of the operator.

The lowest part of the chamber H is shown  
 connected with the header I, having an out-  
 let cock J to discharge water, a branch with  
 outlet cock K to discharge grease, a branch  
 20 with inlet cock L to supply steam, and a  
 branch with inlet cock M to supply acid, wa-  
 ter, or other solvents.

In practice the garbage is treated by intro-  
 ducing it through a man-hole, as N and sup-  
 25 plying a suitable proportion of water or sol-  
 vent thereto through the cock M and cham-  
 ber H. The material is then agitated by the  
 stirrer E while it is cooked by heat in a steam  
 jacket, or steam introduced from the cock L  
 30 through any of the slide valves. The cocks  
 leading to and from the header are closed  
 during such operation, and when the material  
 is sufficiently cooked the grease cock K is  
 opened and the upper slide valve *a* is opened  
 35 to draw off the supernatant grease. The fluid  
 discharged from the header is observed, and  
 if water succeeds the flow of grease the valve  
*a* is instantly closed by manipulating the cor-  
 responding lever *d*. If only grease flows  
 40 through the valve *a*, the succeeding valve *a'*  
 is opened and the flow is watched in a cor-  
 responding manner; and so on with each of the  
 valves until the grease is wholly withdrawn  
 from the cylinder. The grease cock K is  
 45 closed and the water cock J is then opened,  
 and the remaining valves of the series are  
 opened to draw off the water. If the ports *e*  
 become clogged by the material during dis-  
 charge of the water, the water is turned off  
 50 and steam is admitted temporarily through  
 the cock L, which drives the material out of  
 the ports back into the cylinder. The cham-  
 ber and all its valves may thus be used in  
 connection with any of the cocks with which  
 55 the header is provided, and forms a common  
 communication between any of the same and  
 the interior of the cylinder at various levels.  
 In like manner the ports *e* may be connected  
 at various levels, with the inlet cock L or M,  
 60 to introduce steam, water, or solvents to the  
 upper or lower part of the receptacle. A cock  
 may be provided at the bottom of the recep-  
 tacle, to drain the same; but any moisture  
 below the ports *e* is commonly discharged by  
 65 heating the material to dryness. Such cock  
 is not claimed herein.

Having thus set forth the nature of the in-  
 vention, what is claimed herein is—

1. In an apparatus for treating garbage, the  
 combination, with the rendering vessel, of a 70  
 head provided with several distinct series of  
 ports at different levels, a chamber applied  
 to cover in common all the series of ports, and  
 a series of slide valves inclosed within such  
 chamber and having each a series of holes cor- 75  
 responding to one of the series of ports, and  
 adapted each to open simultaneously such  
 series of ports, and provided with separate  
 lever handles, substantially as herein set  
 forth. 80

2. In an apparatus for treating garbage, the  
 combination, with the rendering vessel, of a  
 head provided with distinct series of ports at  
 different levels, and a series of slide valves 85  
 having each a series of holes corresponding  
 to one of the series of ports, the chamber H  
 fitted detachably over the valves and wholly  
 inclosing the same and the valves being pro-  
 vided with stems extending outside of the  
 chamber, substantially as herein set forth. 90

3. In an apparatus for treating garbage, the  
 combination, with the horizontal cylindrical  
 garbage receptacle A, of the head B pro-  
 vided with distinct series of ports at different  
 heights, a series of slide valves having each 95  
 a series of holes corresponding to one of the  
 series of ports, the chamber H fitted detach-  
 ably over the valves and wholly inclosing the  
 same and provided with outlets for grease and  
 water, and the valves having stems projected 100  
 outside of the chamber and provided with le-  
 vers for actuating the valves separately, sub-  
 stantially as herein set forth.

4. In an apparatus for treating garbage, the  
 combination, with the garbage receptacle A 105  
 adapted for connection to a condenser to pro-  
 duce a vacuum therein, of the head B having  
 ports at different heights, the series of slide  
 valves applied to the ports, the chamber fit-  
 ted detachably over the valves and provided 110  
 with a steam connection to press the valves  
 upon their seats, and the valves being pro-  
 vided with the stems extending outside of the  
 chamber, and with means for actuating said  
 stems independently, as and for the purpose 115  
 set forth.

5. In an apparatus for treating garbage, the  
 combination, with the garbage receptacle, of  
 a valve chamber connected thereto at differ-  
 ent levels by suitable ports, a series of slide 120  
 valves applied to such ports at different levels,  
 with hand levers for moving them independ-  
 ently, a header pipe connected with the lower  
 end of the chamber, and connections with sep-  
 arate cocks for drawing grease and water 125  
 from such header pipe, substantially as herein  
 set forth.

6. In an apparatus for treating garbage, the  
 combination, with the cylinder A, of the head  
 B provided with the series of ports and hav- 130  
 ing the valve chamber H secured detachably  
 thereto, the series of slide valve plates rest-

ing one upon another over the ports within such chamber, and provided with valve stems and hand levers for moving them independently, the header I connected with the lower  
5 part of such chamber, and connections with suitable cocks for drawing oil or water from the header and for supplying the same with steam, water or acid, substantially as set forth.

7. In an apparatus for treating garbage, the  
10 combination, with the rendering vessel, of a head provided with distinct series of ports at different levels, a chamber arranged to cover in common all the series of ports, and a series of slide valves inclosed within such chamber

and having each a series of holes corresponding to one of the series of ports, and separate  
15 cocks connected to such chamber to place such series of valves in connection with separate discharge or supply pipes, substantially as  
20 herein set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EMIL HOLTHAUS.

Witnesses:

THOMAS S. CRANE,  
L. LEE.