

(No Model.)

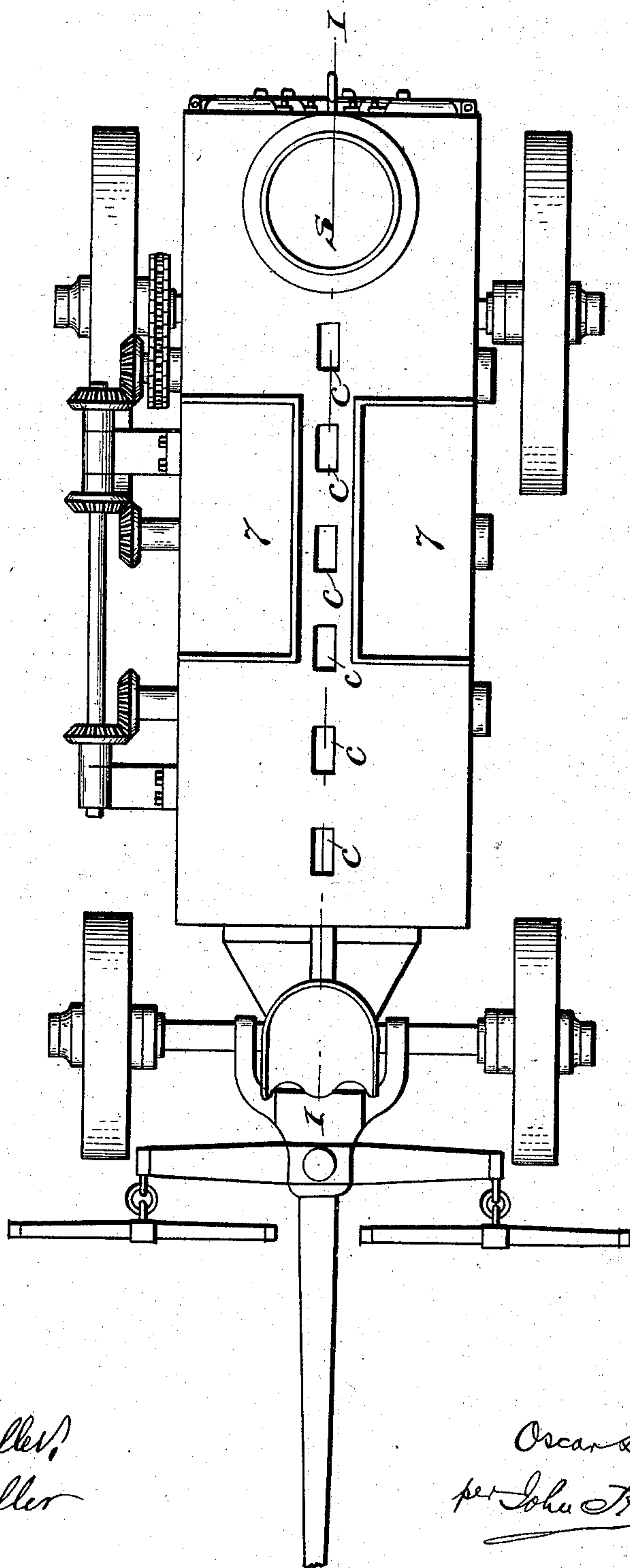
4 Sheets—Sheet 1.

O. D. McCLELLAN.

APPARATUS FOR CREMATING GARBAGE, &c.

No. 558,977.

Patented Apr. 28, 1896.



Witnesses.

*Jesse B. Heller,*  
*Ira S. Heller*

Inventor.

*Oscar D. McClellan*  
*per John B. Nolan*

Attorney.

(No Model.)

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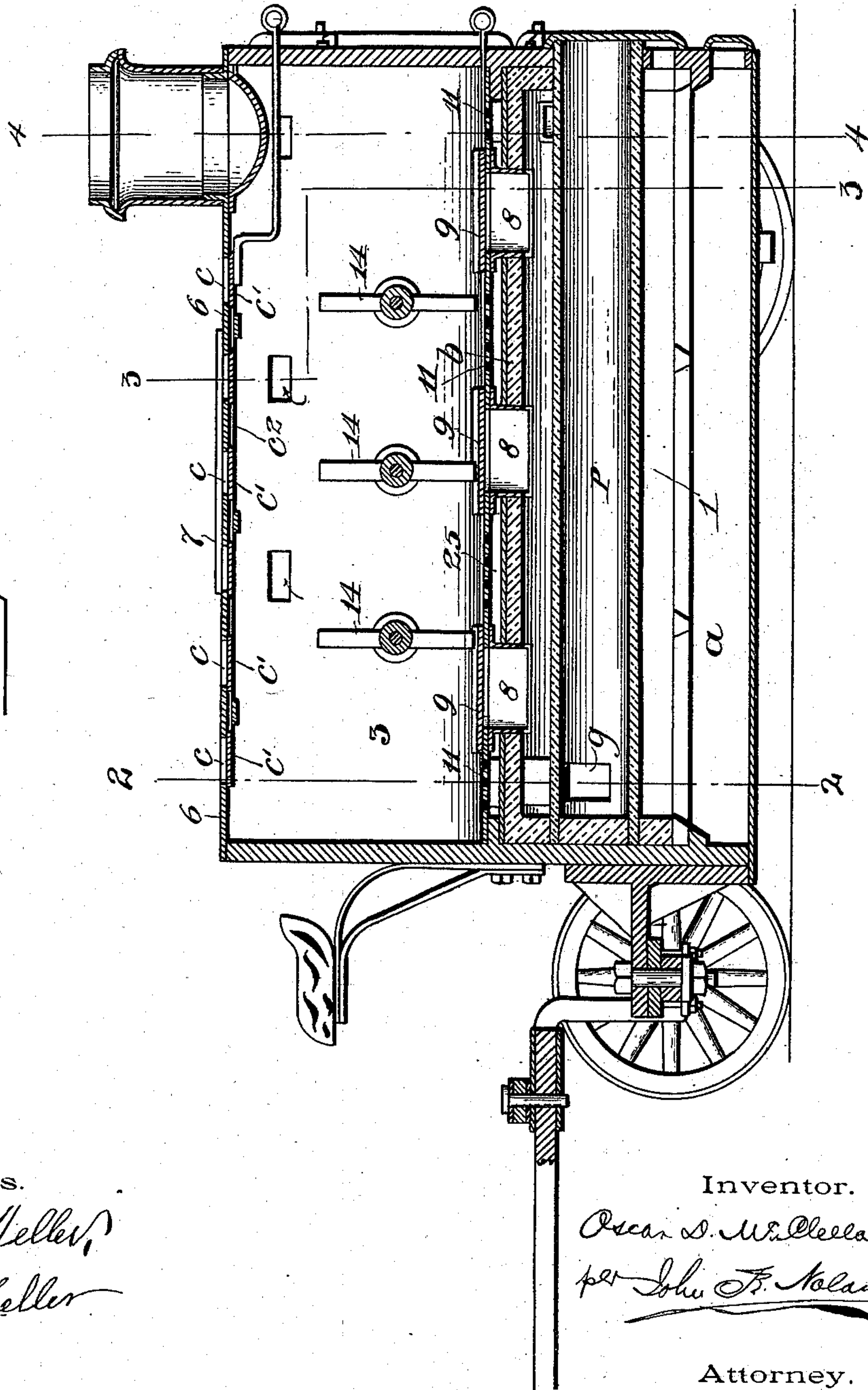
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Fig. 2.



Witnesses.

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(No Model.)

4 Sheets—Sheet 3.

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Fig. 3.

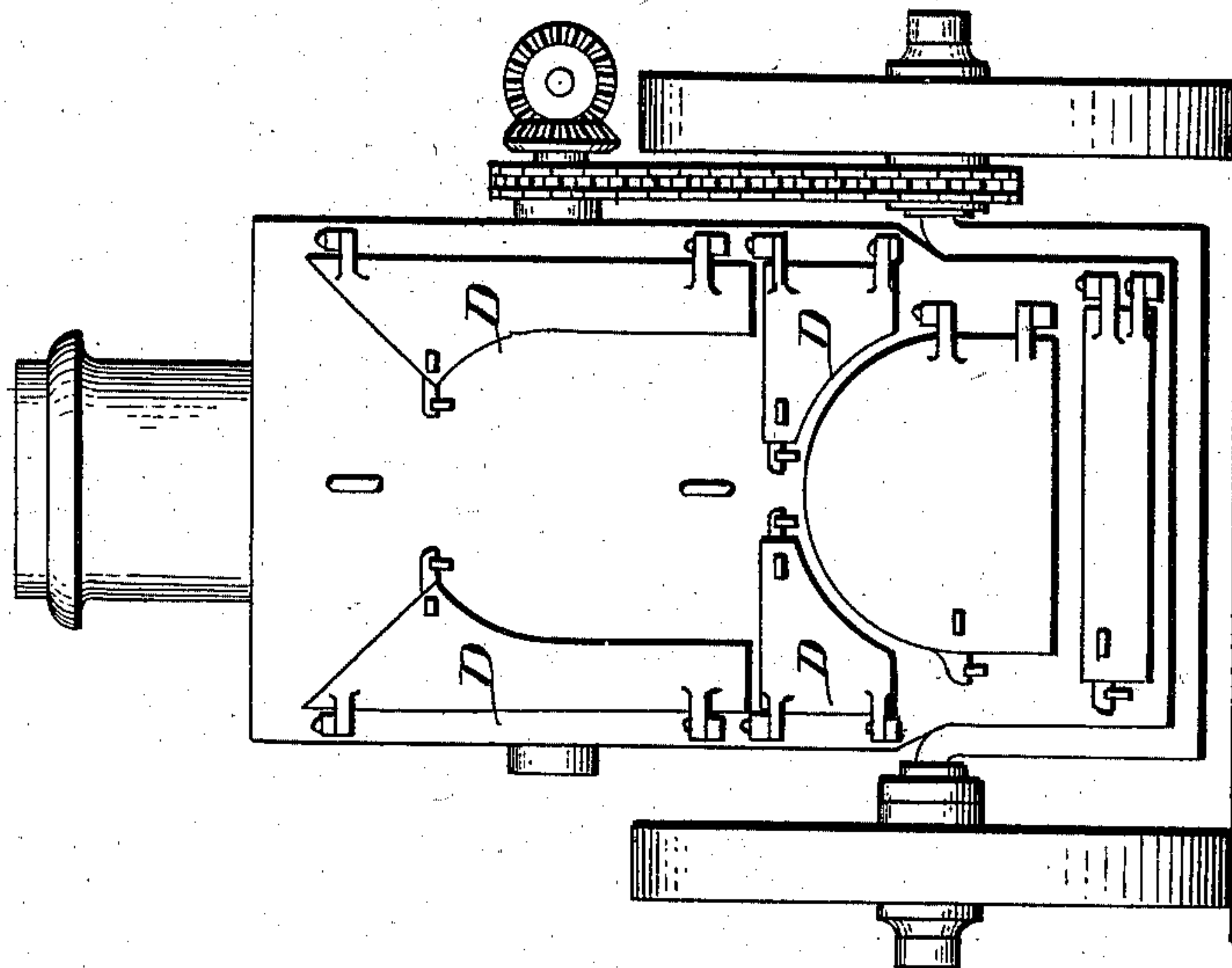
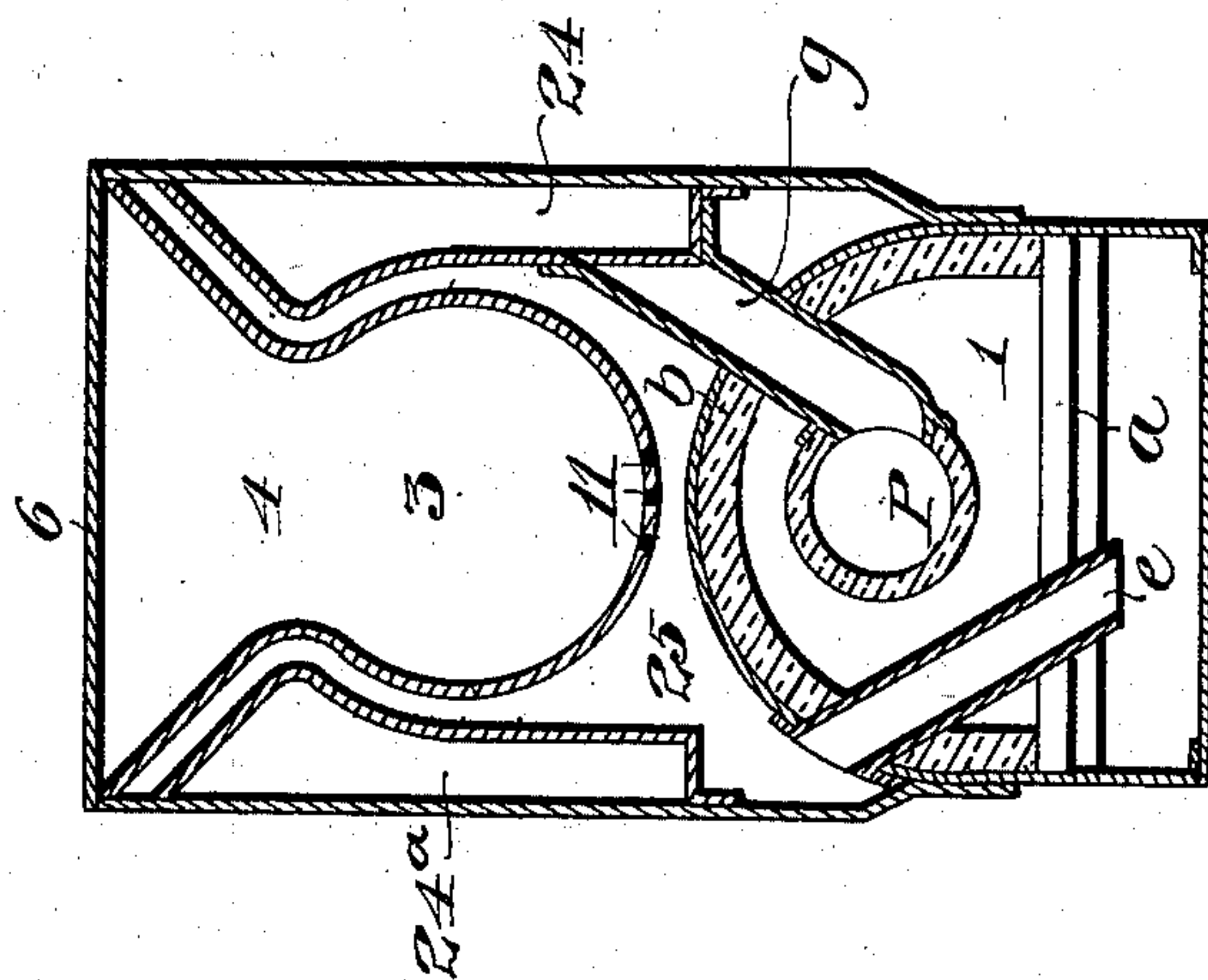


Fig. 4.



Witnesses.

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Ira S. Weller

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Attorney.



(No Model.)

4 Sheets—Sheet 4.

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Fig. 5-

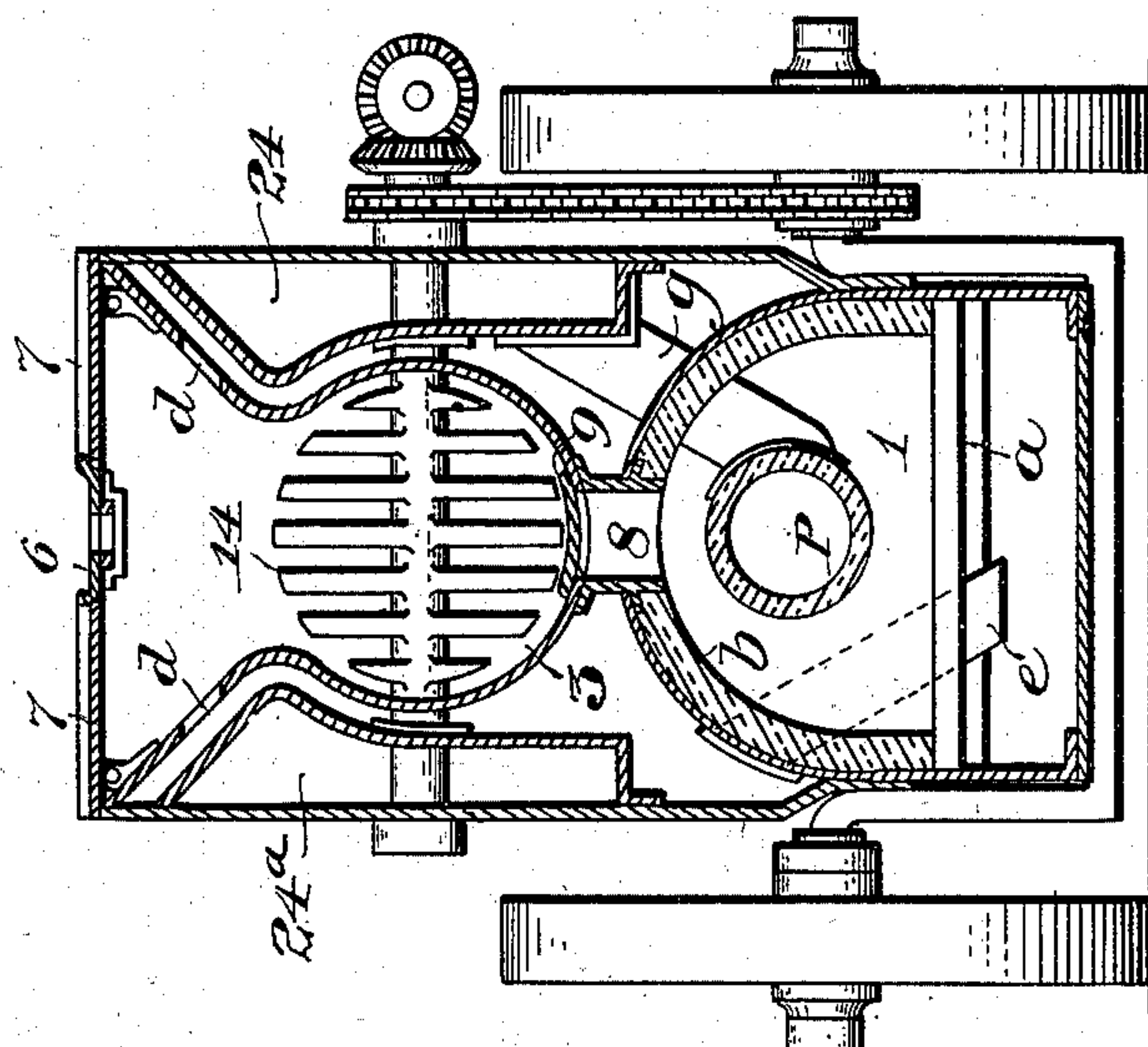
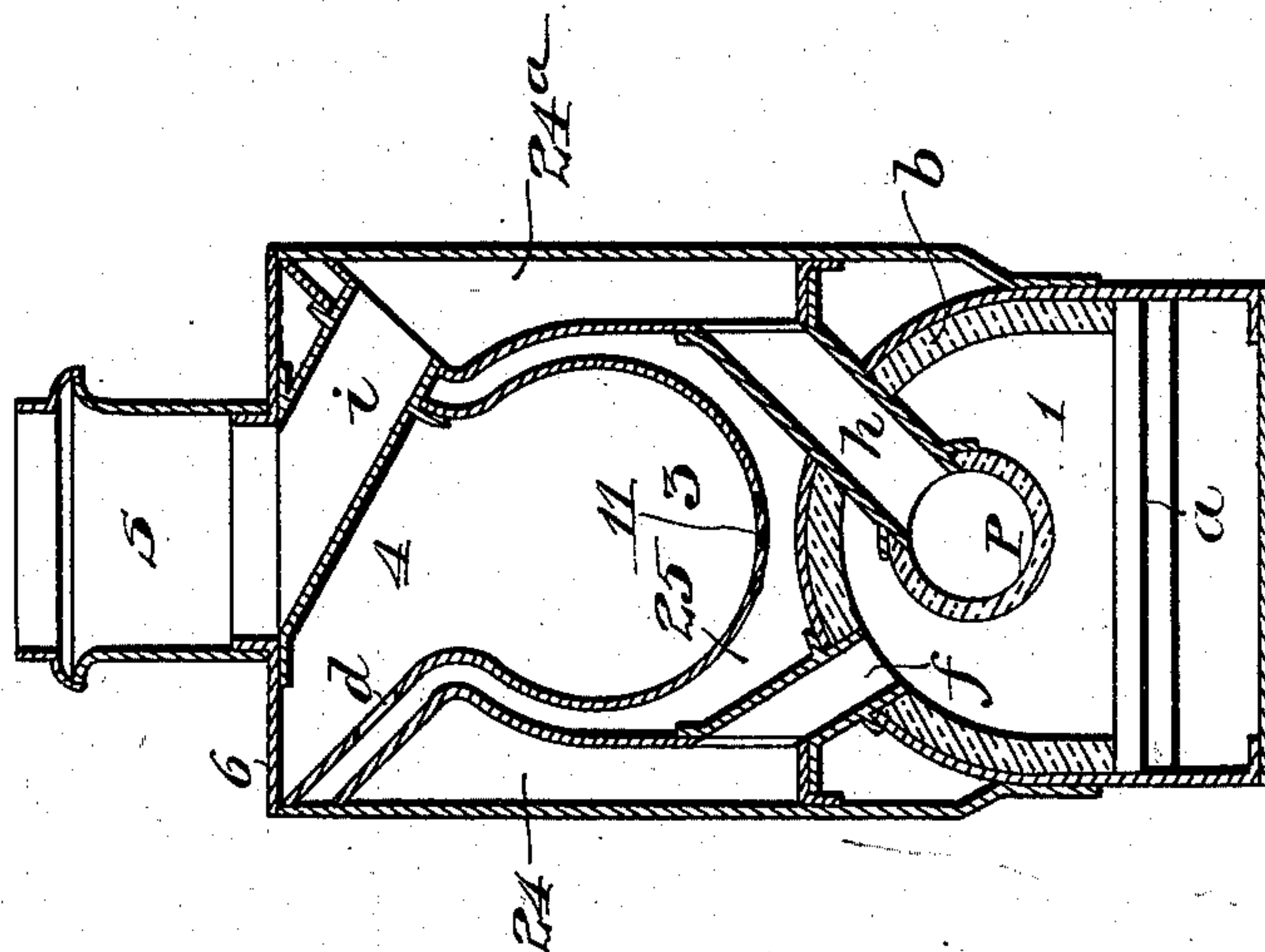


Fig. 6-



Witnesses.

Jesse B. Heller.  
Ira S. Heller

Inventor.

Oscar D. McClellan,

per John F. Nolan

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# UNITED STATES PATENT OFFICE.

OSCAR D. McCLELLAN, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO HIMSELF, FRANCIS DOUGHERTY, AND JOHN HAND PARKE, OF SAME PLACE.

## APPARATUS FOR CREMATING GARBAGE, &c.

SPECIFICATION forming part of Letters Patent No. 558,977, dated April 28, 1896.

Application filed October 13, 1894. Serial No. 525,772. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR D. McCLELLAN, a citizen of the United States, residing in the city and county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Apparatus for Cremating Garbage, &c., of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention comprehends certain improvements in the construction of that class of furnaces whereby waste vegetable and animal matter is consumed, such structure in various forms being the subjects of pending applications for Letters Patent of the United States filed by me—viz., Serial No. 482,264, filed August 3, 1893; Serial No. 515,240, filed June 21, 1894, and Serial No. 517,972, filed July 19, 1894—and also being illustrated in an application executed by me on the 27th day of September, 1894, the same being Serial No. 525,546, filed October 11, 1894.

The present improvements relate more especially to the apparatus set forth in the application last named, wherein two furnaces are employed, one of which is the main and the other a supplementary furnace, together with a novel construction and arrangement of receiving and draft chambers, whereby the liquids are vaporized and the gases therefrom are commingled with the air on its passage to the furnaces, a strong draft being created for the furnaces to maintain the fuel therein in a high state of incandescence.

In the improvements herein the several chambers occupy substantially the same relative positions as in the construction just referred to, but they are so constructed that the introduction of the air thereto and its respective courses or directions of travel are changed to insure the passage to the furnace of the gases evolved from the refuse in the receiver and their further passage through a longitudinally-disposed chamber in said furnace, which chamber is maintained at a high heat to effect the consumption of the gases before their escape to the atmosphere. This longitudinal chamber is designed to obviate the use of the supplementary furnace in that

it performs the function of the latter in a more effective manner.

Referring to the drawings, Figure 1 is a plan view of the apparatus. Fig. 2 is a longitudinal vertical section as on the line 1 1 of Fig. 1. Fig. 3 is a rear end view. Fig. 4 is a transverse vertical section as on the line 2 2 of Fig. 2. Fig. 5 is a similar section as on the line 3 3 of Fig. 2. Fig. 6 is a similar section as on the line 4 4 of Fig. 2.

The structure is illustrated as mounted upon appropriate carrying-wheels, whereby it may be drawn from place to place.

The numeral 1 designates the furnace-chamber, which is constructed to extend lengthwise of the structure, said chamber being provided with the grate-bars *a* and the arched brickwork *b*.

3 is a cylindrical receiver extending longitudinally above the furnace and having an inlet 4 with outwardly-flaring sides, a covering-plate 6 for the inlet being provided. This plate is provided with suitable doors 7, whereby the material may be introduced to the receiver. It is also provided throughout its length with a series of air-passages *c*, having slide-dampers *c'*, which are connected by means of a rod *c<sup>2</sup>*, whereby the dampers may be operated as a unit to regulate the admission of air to the receiver. If desired, these openings may be provided with air-injectors of well-known construction.

The bottom of the receiver is provided with openings 8, that communicate with the furnace-chamber, such openings having suitable slide-doors 9, whereby the passages may be opened or closed at will, as in my previous construction last mentioned. This bottom is also similarly foraminated, as at 11, to permit the liquids in the receiver to descend upon the arch or crown of the furnace and be thereupon vaporized. Arranged in the receiver are agitators 14, that are operated from one of the carrying-wheels of the machine by means of suitable gearing. As these agitating devices form no part of the present invention no detailed description thereof is necessary. Their function is simply to break and disintegrate the contained refuse within the receiver, which refuse, when thoroughly



desiccated, is discharged by way of the openings 8 into the furnace, wherein it is consumed.

Exteriorly of the receiver, on the respective sides thereof, are longitudinal chambers 24 24<sup>a</sup>, between which and the walls of the receiver is a space or intermediate chamber 25, which may be termed a "vapor-chamber."

The receiver communicates with this intermediate chamber by way of openings *d*, formed at intervals in the flaring sides of the receiver, and said chamber in turn communicates with the ash-box of the furnace by way of a chute *e* at the forward end of the machine.

The furnace-chamber communicates at the rear end of the machine, by way of a conduit *f*, with the lateral chamber 24, the other end of the latter being in its turn connected, by means of a conduit *g*, with the adjacent end of a longitudinally-disposed pipe or chamber P in the interior of the furnace. This pipe is composed of a suitable refractory material that may be heated to a state of incandescence without injury thereto. The forward portion of this pipe communicates, by way of a conduit *h*, with the adjacent portion of the lateral chamber 24<sup>a</sup>, and the latter communicates with a smoke-stack S by way of a conduit *i*, all as clearly represented in the drawings.

The operation of the apparatus, briefly described, is as follows: At the outset the furnace is fired, the products of combustion traversing the several chambers in the order above named and escaping by way of the smoke-stack. The pipe or chamber P, being located in the interior of the incandescent mass, is thus heated to a high degree. The matter to be destroyed is deposited in the receiver, wherein it is broken up and disintegrated by the agitators referred to, the liquid matter percolating through the foraminated bottom of the receiver upon the crown or arch of the furnace and being thereupon vaporized. Air being introduced to the receiver by way of the openings *c*, a strong draft is created, the same commingling with the gases in the receiver and entering the chamber 25, wherein it is blended with the gases arising from the vaporized liquid. Thence the combined gases traverse the chamber 25 and enter the ash-box, passing therefrom into the furnace-chamber to support the combustion of the contained fuel. At this stage a large volume of the combustible gases is consumed, the remainder, together with the products of combustion, being drawn into the chamber 24 by way of the conduit *f*, thence to and through

the chamber P, wherein they are effectually consumed, and their escape to the atmosphere is consequently prevented. The hot gases surrounding the receiver dry the contained disintegrated mass therein, whereupon the latter is periodically discharged into the furnace and consumed therein.

I claim as my invention—

1. The combination of the receiver, means for admitting air thereto, the furnace-chamber with which said receiver communicates, the lateral chambers extending longitudinally of the receiver, the vapor-chamber located between said lateral chambers and the walls of the receiver, said vapor-chamber having communication with the latter, a chute providing communication between said vapor-chamber and one end of the furnace-chamber, a conduit providing communication between the other end of the furnace-chamber and the adjacent end of one of the said lateral chambers, and means providing communication between the two lateral chambers, together with a smoke-stack communicating with the second lateral chamber, substantially as described.

2. The combination of the receiver, means for admitting air thereto, the furnace-chamber with which said receiver communicates, the lateral chambers extending longitudinally of the receiver, the vapor-chamber located between said lateral chambers and the walls of the receiver, said vapor-chamber having communication with the latter, a chute providing communication between said vapor-chamber and one end of the furnace-chamber, a conduit providing communication between the other end of the furnace-chamber and the adjacent end of one of the said lateral chambers, a chamber of refractory material located within the furnace-chamber, a conduit providing communication between the opposite end of said lateral chamber and one end of the chamber of refractory material, a conduit providing communication between the opposite end of said last-named chamber and the second lateral chamber, and a conduit providing communication between said latter chamber and the smoke-pipe, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

OSCAR D. McCLELLAN.

Witnesses:

JOHN R. NOLAN,  
JESSE B. HELLER.