

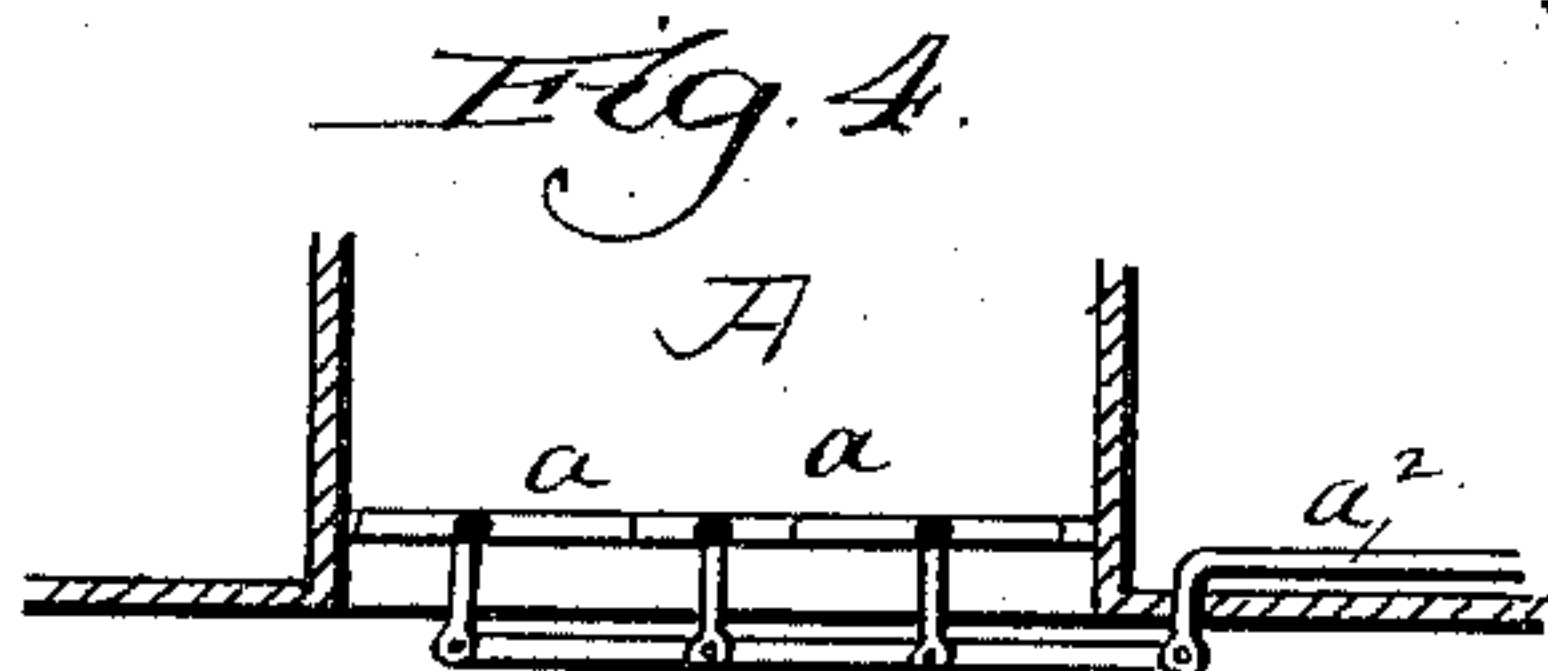
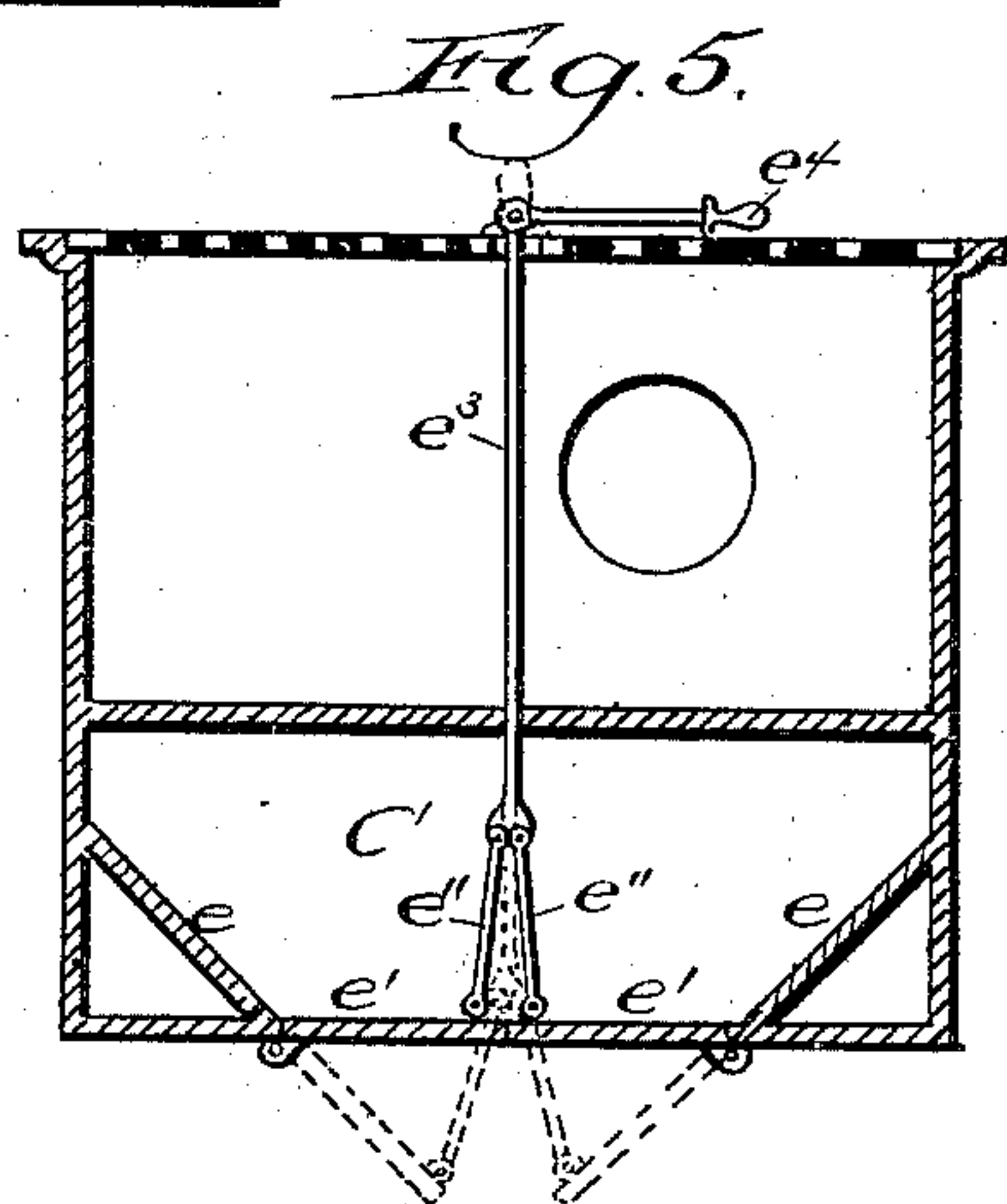
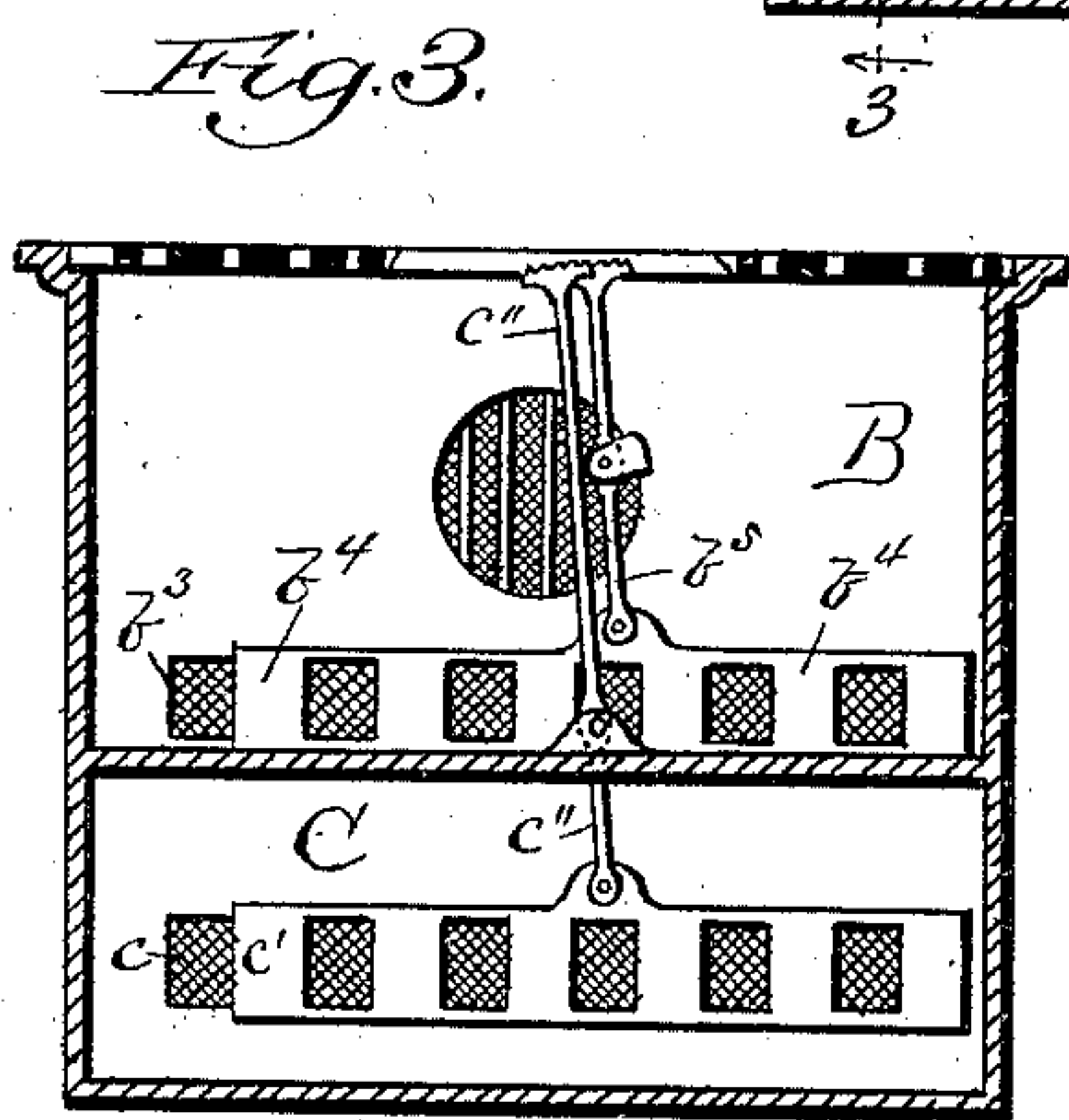
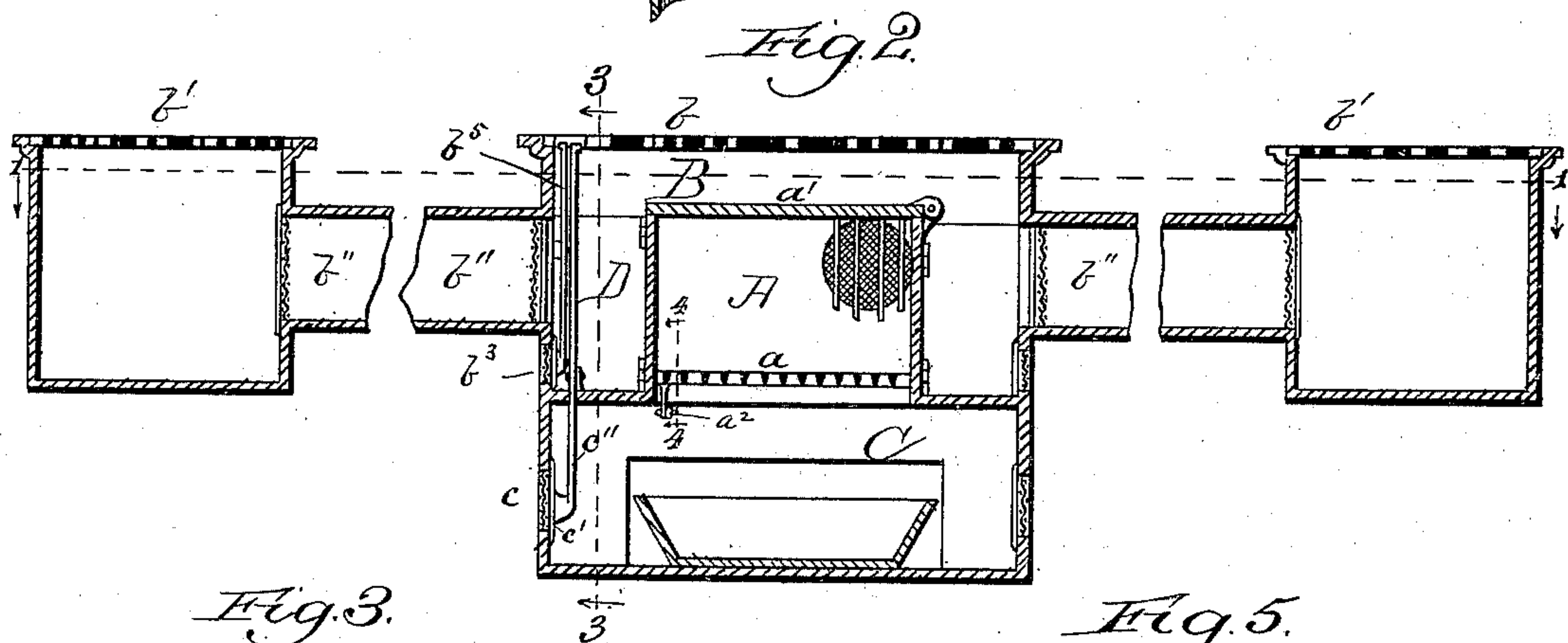
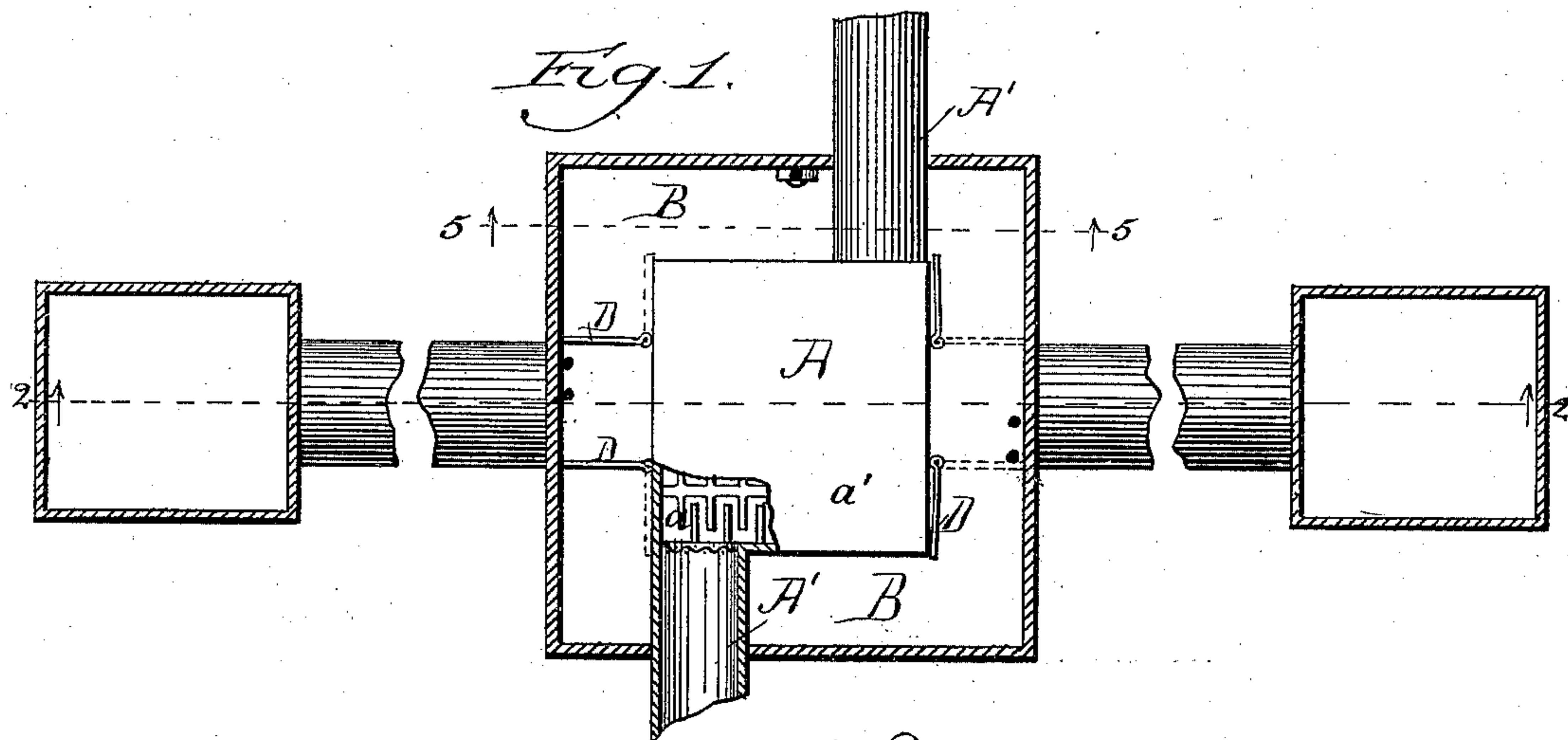
(No Model.)

J. M. SEGRAVES.

HEATING APPARATUS FOR STREET CARS.

No. 369,743.

Patented Sept. 13, 1887.



Witnesses:  
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Stuart H. Brown

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# UNITED STATES PATENT OFFICE.

JOHN M. SEGRAVES, OF CHICAGO, ILLINOIS.

## HEATING APPARATUS FOR STREET-CARS.

SPECIFICATION forming part of Letters Patent No. 369,743, dated September 13, 1887.

Application filed March 19, 1886. Serial No. 195,870. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN M. SEGRAVES, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Heating Apparatus for Street-Cars and other Vehicles, of which the following is such a full, clear, and exact description of the invention as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

The invention consists in the novel construction and combination of devices herein shown, described, and more specifically pointed out in the claims.

In said drawings, Figure 1 is a sectional plan view of a device embodying my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a transverse vertical sectional view taken on line 1 1, Fig. 2, of one portion, showing the dampers; and Fig. 4 is a sectional detail showing the grate and mode of operating it. Fig. 5 is a vertical sectional view taken on line 2 2, Fig. 1, of a portion of the apparatus, showing a modified form of ash-pit.

Similar letters of reference indicate like parts throughout the specification and several figures.

In said drawings, the letter A represents the furnace or fire-box, having a rocking or movable grate, *a*, and a hinged or otherwise secured lid, *a'*; A', the smoke-pipe leading therefrom through proper compartments in the car to and through the roof.

Surrounding the furnace A is the air-compartment B, provided at its top with the usual register, *b*, and on or to its bottom is secured, preferably, the said furnace A. I desire, generally, to place this much of my apparatus in the center of the car through an aperture in the floor, and to heat the ends of the car by separate registers *b'*, to which the heated air is fed by the conduits *b''*.

Beneath the furnace A and compartment B is an ash pit or box, C, provided with the usual pan and a door through which to remove the same. At either side is a number of air or draft holes or openings, *c*, to admit air to the fire, and also proper dampers, *c'*, operated by

means of the levers *c''* from the interior of the car, so as to afford the required amount of draft, as desired. At the bottom of the compartment B are placed at either side a number of similar openings, *b<sup>3</sup>*, provided also with dampers *b<sup>4</sup>*, operated by means of the levers *b<sup>5</sup>* from the interior of the car, to admit fresh cold air to the compartment B. This air is warmed by the furnace A, and finds its way into the interior of the car through the registers.

In order to prevent currents of cold air from entering the compartment B and immediately passing into the conduits *b''* with little or no contact with the furnace A, I provide the deflecting plates or walls D, (more clearly shown in Figs. 1 and 2,) which cause all drafts of air to pass upward at least the height of the furnace before it can reach the conduits *b''*. I do not always find it necessary to use either or both of these plates or walls, and therefore I prefer to hinge them, as shown, so that I can use them at pleasure. I also prefer, and have so shown, to have wire screening or netting placed over each of the openings *c* and *b<sup>3</sup>* and at each end of the conduits *b''*, as well as the inner end of the smoke-pipe A', in order to keep out any dust or other foreign matter. I also find it a great convenience to place across the ends of the smoke-pipes A' a few bars or a grating, so as to prevent the coal, coke, or other fuel from falling into the same.

The grate *a* may be made after any of the well-known styles of rocking grates having depending arms or fingers connected to an outside hand-lever—such as *a<sup>2</sup>*—by which it may be operated. In some cases I place a lever similar in construction to the lever *c''* inside the compartment B, extending the upper end, so as to allow the rocking of the grate from the inside of the car, and connecting the lower end to the lever *a<sup>2</sup>*.

In Fig. 5 I have illustrated a modified form of ash-pit having inclined sides *e* and hinged bottom *e'*, which latter is connected by links *e''* to the rod *e<sup>3</sup>*, and is operated by the hand-lever *e<sup>4</sup>* to dump the ashes, as shown in dotted lines.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is as follows:

1. In a car-heater, in combination with the shell provided in its lower part with the ash-

pit C and in its upper part with the furnace  
A, air-space B, surrounding the furnace, the  
air-inlet  $b^3$  and flues  $b''$  in the sides of the shell,  
and the register  $b$ , formed in the top thereof,  
5 and the deflectors D, situated in the air-cham-  
ber to deflect the air in its passage from the  
inlet  $b^3$  to the flues  $b''$ , substantially as and for  
the purpose set forth.

2. In a car-heater, in combination with the  
10 shell provided in its lower part with the ash-  
pit C and in its upper part with the furnace

A, air-space B, surrounding the furnace, air-  
inlet  $b^3$  and flues  $b''$  in the sides of the shell,  
and the register  $b$ , formed in the top thereof,  
and the deflectors D, hinged to the sides of the 15  
furnace A, to deflect the air in its passage from  
the air-inlet  $b^3$  to the flues  $b''$ , substantially as  
and for the purpose set forth.

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