

(No Model.)

D. S. RICHARDSON

HEATING DRUM.

No. 282,567.

Patented Aug. 7, 1883.

Fig. 1.

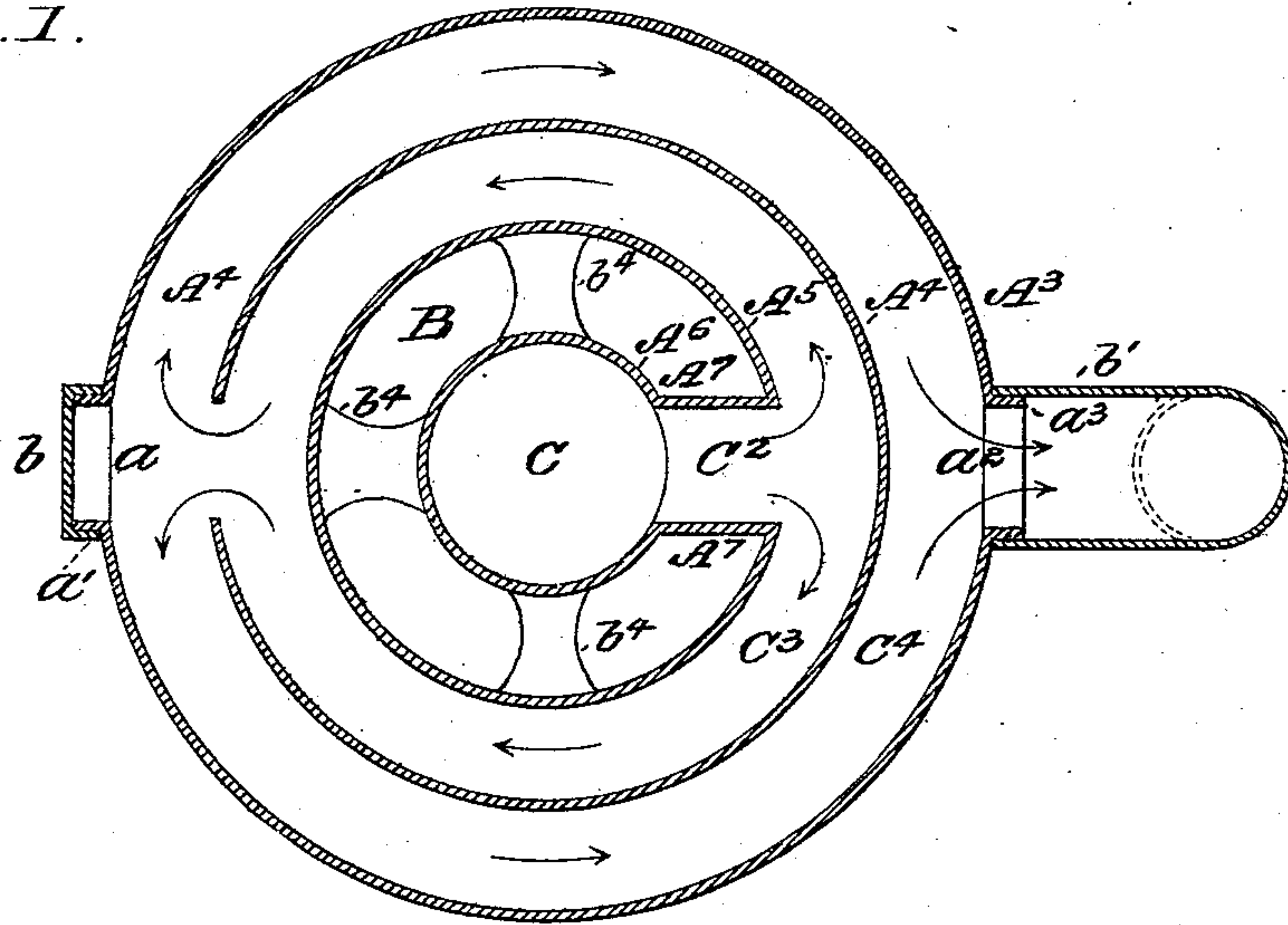
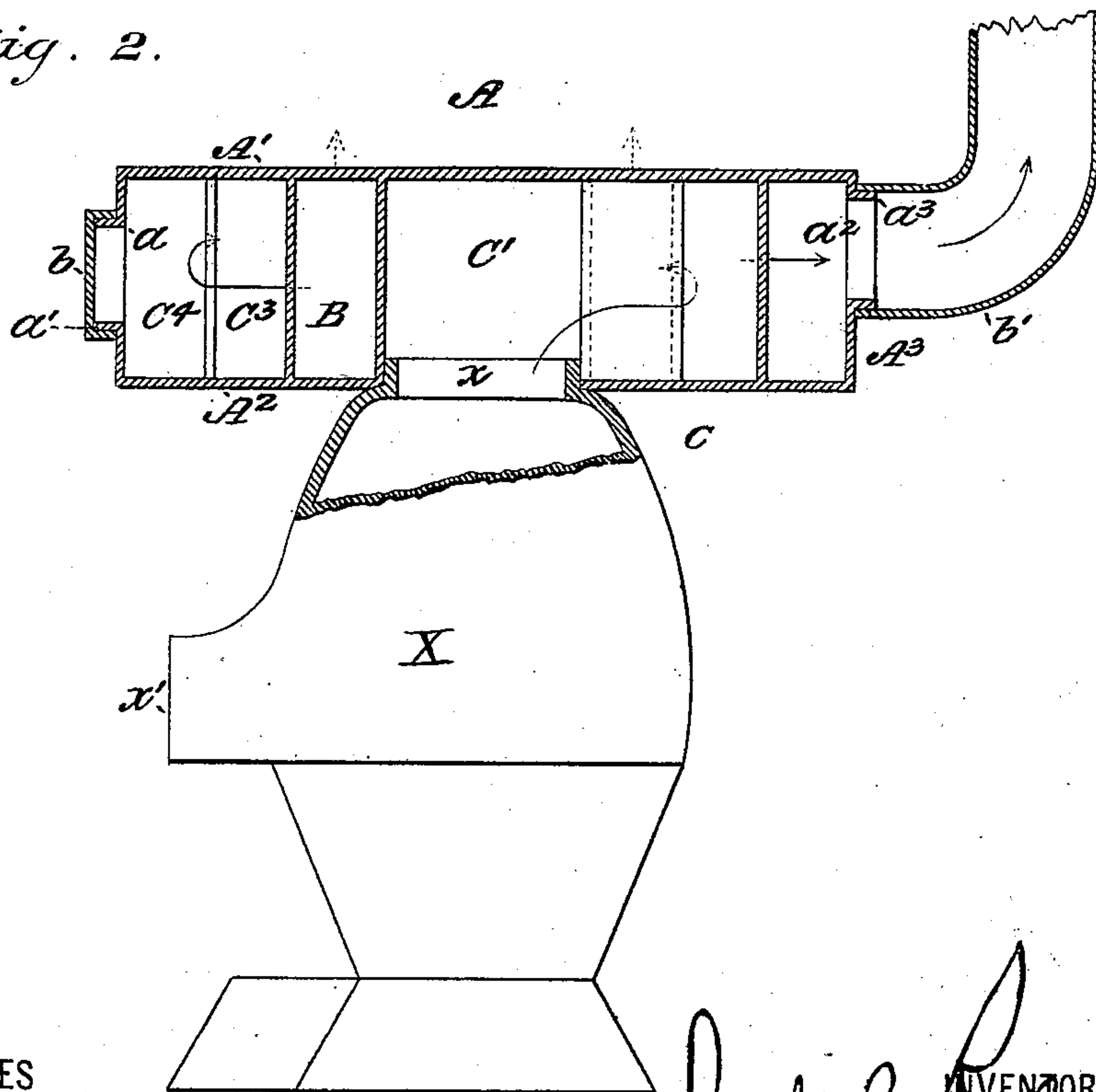


Fig. 2.



WITNESSES

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HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 282,567, dated August 7, 1883.

Application filed April 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, DWIGHT S. RICHARDSON, of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Heating-Drums, of which the following is a full, clear, and exact description.

The object of the invention is the production of a drum which, while capable of retaining and circulating the products of combustion for a sufficient length of time to thoroughly extract for utilization the heat contained in them, shall also be so constructed that all its flues shall be readily accessible for the dislodgment and removal of accumulations of soot and ashes.

In the accompanying drawings, forming a part of this specification, Figure 1 is a horizontal section, and Fig. 2 is a central vertical section, of a drum embodying my invention.

A designates the drum, A' being the top plate, A² the bottom plate, and A³ the outer annular wall, of the same. A⁴ is a segment of a ring, the opening between its ends being placed at a point opposite the exit-opening of the drum. A⁵ is a smaller segment, the space between its ends being opposite to the space in the segment A⁴. A⁶ is another segment, placed within the segment A⁵, and having a corresponding interval between its ends. A⁷ A⁷ are vertical walls connecting the sections A⁵ and A⁶.

At a point opposite the exit-opening is an orifice, *a*, in the outer casing, A³, for access to the interior of the drum, and this orifice is provided with a collar, *a'*, attached thereto in any suitable manner for receiving a removable closing-cap, *b*. A similar collar, *a''*, is fitted to the exit-opening *a''* for attachment of an exit-pipe, *b'*.

If desired, an opening for direct exit may be provided in the segment A⁴ at a point between the vertical central flue and the exit-opening *a''*, and this opening will be provided with a suitable damper for controlling the same.

In the top plate and in the bottom plate, between the vertical segmental plates A⁵ and A⁶ and their connecting-plates A⁷ A⁷, are orifices (one or more) for the admission of air. As a means of connection and support, the lower plate, and, if desired, the upper plate also, is

provided with webs *b''*, connecting the walls of the two segmental sections A⁵ and A⁶.

Thus constructed, the drum is placed by its central opening, C, formed in the plate A², over the collar *x* of a furnace or stove, X, which may be of any desired construction, and the operation will be as follows: The products of combustion rising from the combustion-chamber below into the central flue-chamber, C', of the drum pass by the short flue C² to the concentric flue C³. Reaching this, they are deflected by the section A⁴, which forms the outer wall of this flue, and, dividing, pass to the front, where they are again deflected by the annular wall A³ and the cap *b*, and are compelled to pass once more toward the rear, where they find escape by the exit-flue, all as indicated by the unfeathered arrows. Air rising from below passes into the space B, between the central rising flue or chamber, C', and the segment A⁵, and being then subjected to the action of heated interior and exterior surfaces is discharged above, as indicated by arrows in dotted lines.

Heating-drums composed of a series of segments of circles have before been made, and in some of these an air-heating passage has been embraced between smoke-flues. It is not understood, however, that in any of these are the flues so constructed and arranged that ready access can be had to all parts of all of them. This objection—a most serious one in the practical use of these appliances—it has been my effort to overcome; and it will be observed that while under my construction the outer flue, C⁴, is accessible in all its parts, on removal of the escape-pipe *b'*, not only that flue, but also the intermediate flue, C³, may be reached and effectually cleared of all deposits of soot and ashes on the removal of the cap *b*.

The short flue C² may be reached through the door *x'* of the combustion-chamber, and when the damper is opened provided in the segmental wall A⁴ all the flues may be reached through the exit-opening.

The invention having been thus described, I claim and desire to secure by Letters Patent of the United States—

1. A heating-drum having a central inlet-opening, two concentric flues, an exit-opening, and an orifice through which both the concentric flues may be reached for clearing.

2. A heating-drum having two concentric smoke-flues independent of the inlet-flue and the outlet-flue, and a clearing-orifice through which both the concentric flues are accessible.

5 3. A heating-drum having two concentric flues, the inner flue receiving the products of combustion through an orifice in its inner wall and discharging them through an orifice in its outer wall, and the outer flue, receiving the
10 products of combustion through an orifice in its inner wall on that side of the drum which is most remote from the exit-opening, and discharging them through an orifice in its outer wall, and an orifice through which the
15 concentric flues are accessible.

4. The combination of a central rising smoke-flue, an air-flue encircling the central flue, except at the point of exit therefrom, a smoke-flue encircling the air-flue, and a third smoke-
20 flue encircling the latter flue and separated therefrom by a single partition only.

5. The combination of the flue C^2 and the flue C^4 , connected therewith and contiguous thereto, and the clearing-orifice, through
25 which access to both the horizontal smoke-flues is afforded.

6. The combination of two contiguous circular or segmental smoke-flues, communicating, as described, an exit-opening at one side
30 of the same, and a clearing-orifice at the opposite side.

7. The combination of the flue-chamber C' , the flue C^2 , the flue C^3 , the flue C^4 , contiguous

to the flue C^3 , as described, and the clearing-orifice a .

8. The combination of the flue-chamber C' , the flue C^2 , the flue C^3 , the flue C^4 , separated from the flue C^3 by a single partition only, and the air-passage B between the central flue or chamber C' and the flue C^3 .

9. The combination of the rising-flue C' , the flue C^2 , the flue C^3 , the flue C^4 , contiguous to the flue C^3 , an orifice in the segmental partition at a point between the rising-flue and the exit-opening, and a damper adapted to open
45 or close such orifice.

10. The combination of the rising-flue C' , the flue C^2 , the flue C^3 , the flue C^4 , contiguous to the flue C^3 , an orifice in the segmental partition at a point between the rising-flue
50 and the exit-opening, a damper adapted to close such orifice, and a clearing-opening in the outer wall of the flue C^4 .

11. The combination of the flue-chamber C' , the flue C^2 , the flue C^3 , the flue C^4 , the front
55 clearing-opening, a , and the rear clearing-opening, a^2 .

12. The combination of the rising-flue chamber C' , the flue C^2 , the flue C^3 , the flue C^4 , the front clearing-opening, a , the clearing-opening
60 a^2 , and the air-passage B.

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Witnesses:

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