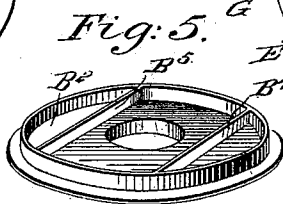
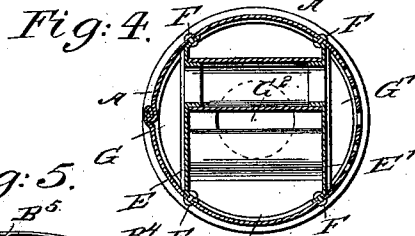
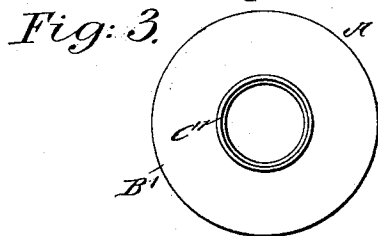
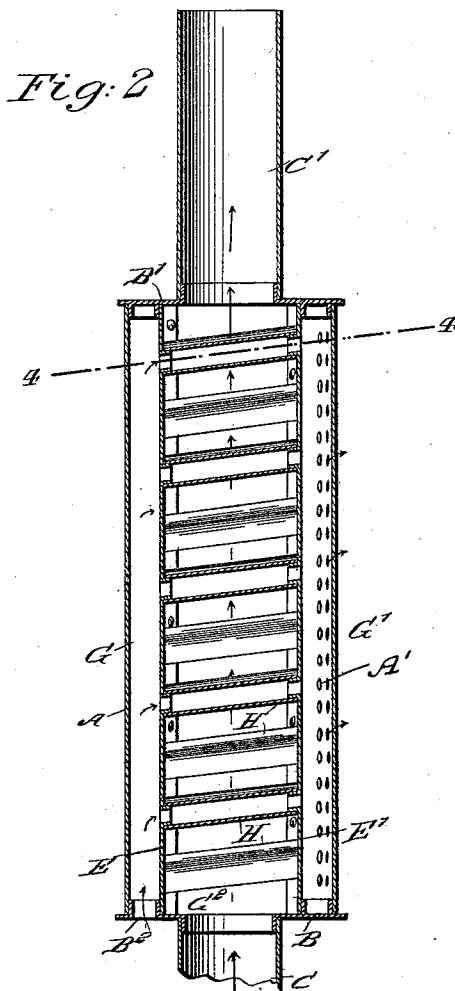
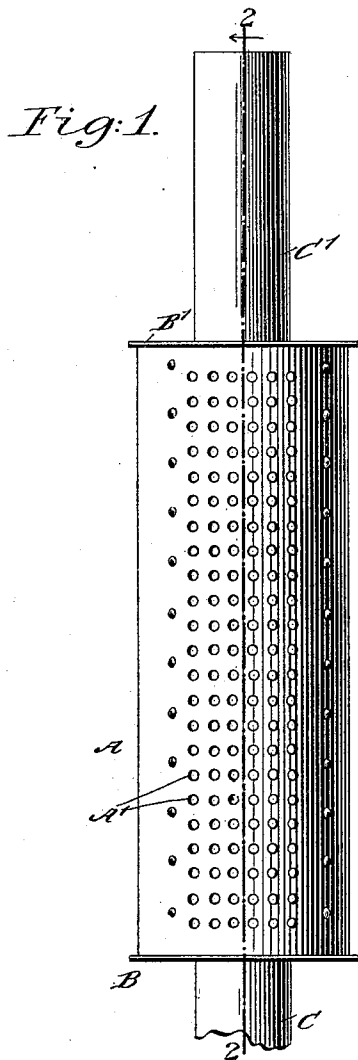


(No Model.)

J. W. JOHNSON.
HEATING DRUM.

No. 538,519.

Patented Apr. 30, 1895.



WITNESSES:
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UNITED STATES PATENT OFFICE.

JAMES WEST JOHNSON, OF PAULLINA, IOWA.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 538,519, dated April 30, 1895.

Application filed January 8, 1895. Serial No. 534,185. (No model.)

To all whom it may concern:

Be it known that I, JAMES WEST JOHNSON, of Paullina, in the county of O'Brien and State of Iowa, have invented a new and Improved Heating-Drum, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved heating drum, which is comparatively simple and durable in construction, arranged to give a large heating surface and perfect circulation for the air to be heated, at the same time retarding the smoke and gases in their discharge through the drum to insure a complete utilization of the heat.

The invention consists principally of a shell divided by partitions into air compartments and a central passage for smoke and gases, and flues held in the said partitions to open into the said compartments, the flues being arranged in an inclined position, one at one side and somewhat above the other.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the same. Fig. 4 is a sectional plan view of the same on the line 4 4 of Fig. 2, and Fig. 5 is a perspective view of the bottom shell-head.

The improved heating drum is provided with an exterior shell A having a bottom head B and a top head B', connected with the smoke pipes C and C' respectively, the smoke pipe C serving to conduct the heat and gases to the heating drum, and the other pipe C' leading the smoke and gases to the chimney or other place of discharge.

In the shell A are arranged two transverse partitions E and E', formed at their sides with flanges fastened by rivets F or other suitable means to the shell A, the said partitions forming the air compartments G and G', and a central smoke and gas passage or chamber G² through which pass the smoke and gases en-

tering by the pipe C and leaving the passage G² by the pipe C'.

In the partitions E and E' is secured a series of flues H, arranged obliquely and located at one side, one somewhat above the other, as indicated in Fig. 2, so that the smoke and gases can pass through the passage G² and still are retarded to a considerable extent, so as to insure a perfect heating of the flues and of the air circulating through the same.

In the lower head B is formed an opening B³ leading to the compartment G to permit the air from the room to pass into the said compartment G.

In the shell A is arranged a series of perforations A' opening into the compartment G', in which terminate the upper ends of the obliquely arranged or inclined flues H. Now it will be seen that the air near the floor of the room can readily enter the compartment G at the opening B³ and then circulate through the flues H from the compartment G to the compartment G', and finally pass through the openings A' to the room. The upper ends of the partitions E and E' abut against transverse flanges B⁴ and B⁵, formed in the heads B and B', so as to insure a gas-tight joint to prevent smoke and gases passing through the passage or chamber G² from entering either of the compartments G or G'.

It will be seen that by the arrangement described, a perfect circulation of the air is established. At the same time the smoke and gases, in their passage through the chamber G², are somewhat retarded by the inclined flues, so that the heat is utilized to the fullest advantage, it being understood that the air in the compartments G and G', as well as the air passing through the flues is thoroughly heated before passing back into the room through the perforations A'.

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

1. A heating drum, comprising a shell provided with transverse partitions extending from top to bottom and forming two air compartments and a central smoke and gas chamber, perforations leading into one of the said compartments, an opening in one of its heads and leading into the other compartment, and flues secured to the partitions and opening

into the said compartments, substantially as described.

2. A heating drum, comprising an apertured shell provided with heads, each having transverse flanges and one provided with an opening, transverse partitions secured to the sides of the shell and to the flanges of the heads, said partitions forming two air compartments

and a central smoke and gas chamber, and flues secured to the partitions and opening into the said compartments, substantially as herein shown and described.

JAMES WEST JOHNSON.

Witnesses:

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