(No Model.)

A. W. BROCK.

HEATING DRUM.

No. 458,013. Patented Aug. 18, 1891.

Fig 1

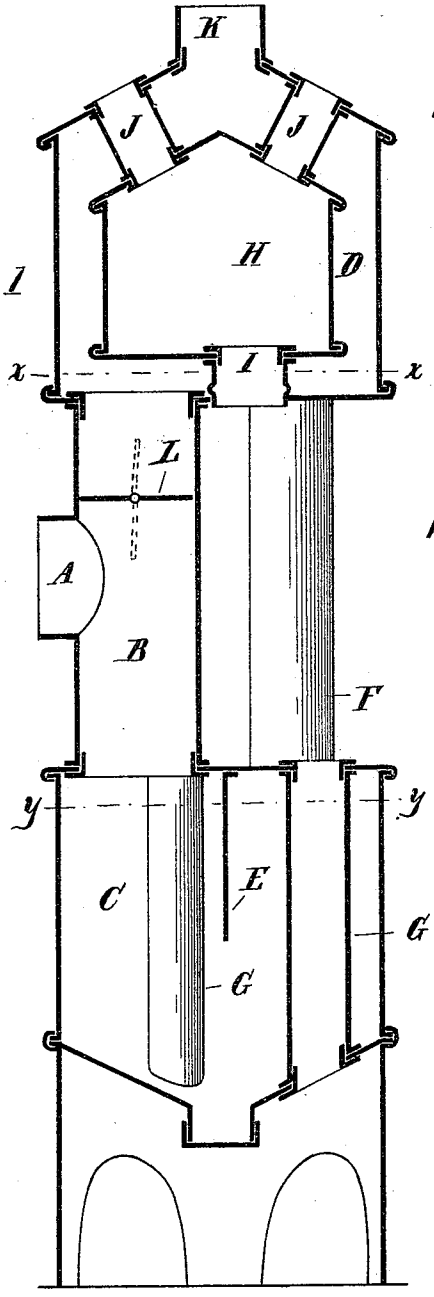


Fig. 2

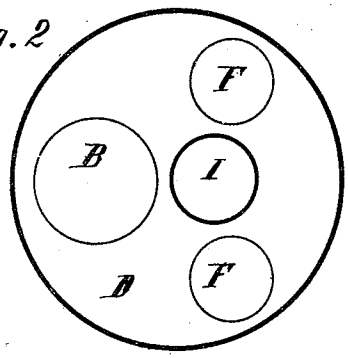


Fig. 3

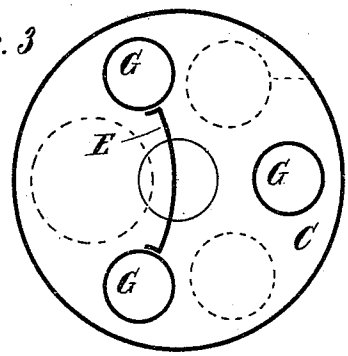
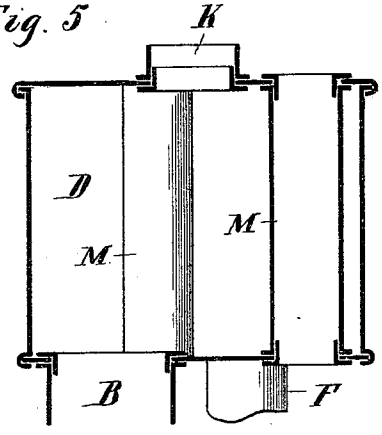
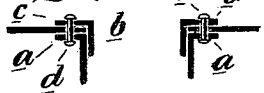


Fig. 5



Witnesses:
P. M. Hulbert
A. L. Kobbe

Fig. 4



Inventor:
Arthur W. Brock
By Mason Sprague & Son
Atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ARTHUR W. BROCK, OF SHEPHERD, MICHIGAN, ASSIGNOR OF ONE-HALF TO ISAAC N. SHEPHERD, OF SAME PLACE.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 458,013, dated August 18, 1891.

Application filed March 5, 1891. Serial No. 383,855. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR W. BROCK, a citizen of the United States, residing at Shepherd, in the county of Isabella and State of Michigan, have invented certain new and useful Improvements in Heating-Drums, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in heating-drums; and the invention consists in the peculiar construction and arrangement of the various parts, whereby a large amount of heating-surface is obtained to heat a large volume of air to a moderate temperature and circulate it rapidly through the drum, and, further, in the peculiar means employed in securing the flues in position and making a tight gas-proof joint, all as more fully hereinafter described.

In the drawings, Figure 1 is a vertical central section through my improved drum. Fig. 2 is a cross-section on line *x x*. Fig. 3 is a cross-section on line *y y*, with the position of the upper pipes shown in dotted lines. Fig. 4 is an enlarged section showing the manner of securing the flues in position; and Fig. 5 is a section similar to Fig. 1, showing a modification.

My drum applies to that class intended to be used in connection with furnaces and stoves, through which the products of combustion are to be passed, for the purposes of obtaining the benefit by radiation of the heat therefrom, and it may either be applied in the room above the stove or furnace, or in the same room, if desired.

A is the inlet-pipe for the products of combustion, which is connected centrally with the flue B. This flue is connected at the bottom into the chamber C and at the top into the chamber D. The chamber C is provided centrally with a wall or partition E, below which the products of combustion pass, and upon the other side of this partition, which is curved, as shown in Fig. 3, is arranged a series of exit-flues F, which extend from the chamber C to the chamber D. The chamber C is also provided with a series of air-flues G, which extend from the bottom to the top and around which the products of combustion must pass, the air being taken from beneath the drum and discharged above the top of the chamber C into the room.

The chamber D is provided centrally with an air-heating chamber H, which connects through the bottom of the chamber D by means of the flue I and through the top by means of the flues J, a circulating-passage being formed entirely around the chamber H in the chamber D.

K is the exit-flue connected to the chimney.

L is a damper arranged above the inlet-pipe A, and which, when turned in the position shown in full lines, will deflect the current downward through the chamber C beneath the partition E, then passing upward through the flues F into the chamber D and out through the exit-pipe K. When the damper is turned into the position shown in dotted lines, the products of combustion will pass directly upward through the chamber D and out through the exit K. As the chamber D becomes heated by the passage therethrough of the products of combustion, which heats the air, with the chamber H, and fresh air enters through the flue I, is heated therein, and passes out to the room through the flues J. Thus I obtain two short circulations, one in the upper chamber and one in the lower chamber, heating a large volume of air to a moderate temperature and circulating it rapidly through the room, which I consider gives a better result than heating a small body of air to a high temperature. Difficulty has heretofore been found in securing the flues of such a heating-drum to the casing to prevent the escape of gases.

I construct my flues of suitable length to extend from the inner wall of one side of the case to the other and provide it at each end with a flange *a*. The casing I aperture opposite the flue and insert a thimble *b*, having a corresponding flange *c*, which is on the outside of the casing. I then rivet the two flanges together through the casing by means of rivets *d*, which gives a perfectly-tight joint, as shown in Fig. 4.

Fig. 5 shows a modified form of the upper part of the drum, in which I do away with the

chamber H and substitute therefor the air-flues M.

What I claim as my invention is—

1. In a heating-drum, the combination of a vertical flue, an inlet connection therein, heating-chambers connecting with the top and bottom of said flue, a damper, and independent air-flues in both said upper and lower chambers, substantially as described.

2. In a heating-drum, the combination of the flue B, chambers C D, connecting-flues F, air-flue G, and air-heating chamber H, having inlet I and outlets J, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ARTHUR W. BROCK.

Witnesses:

M. B. O'DOGHERTY,

S. M. HULBERT.