No. 791,120. PATENTED MAY 30, 1905.

S. M. ABBOTT.

HEATING DRUM.

APPLICATION FILED APR. 30, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

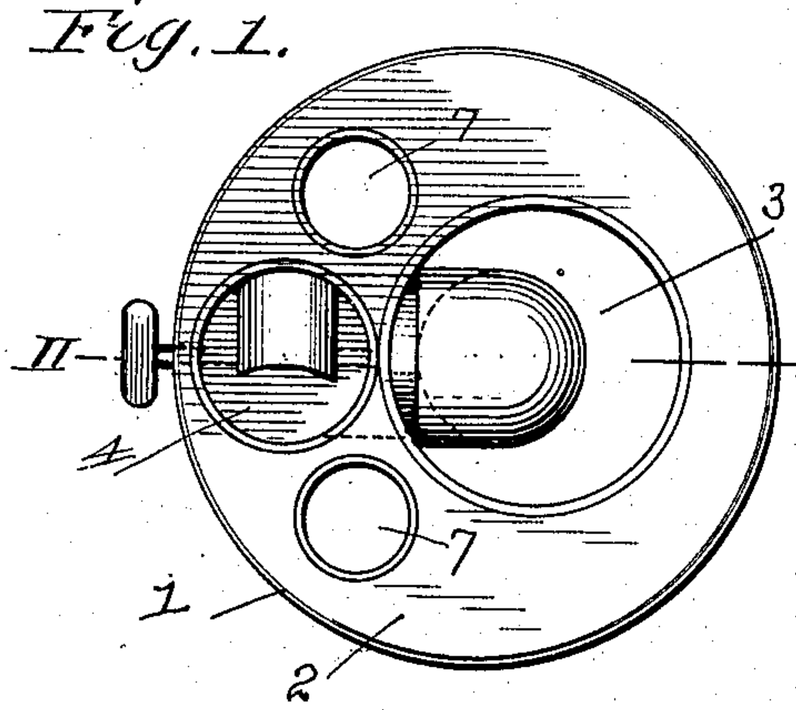


Fig. 2.

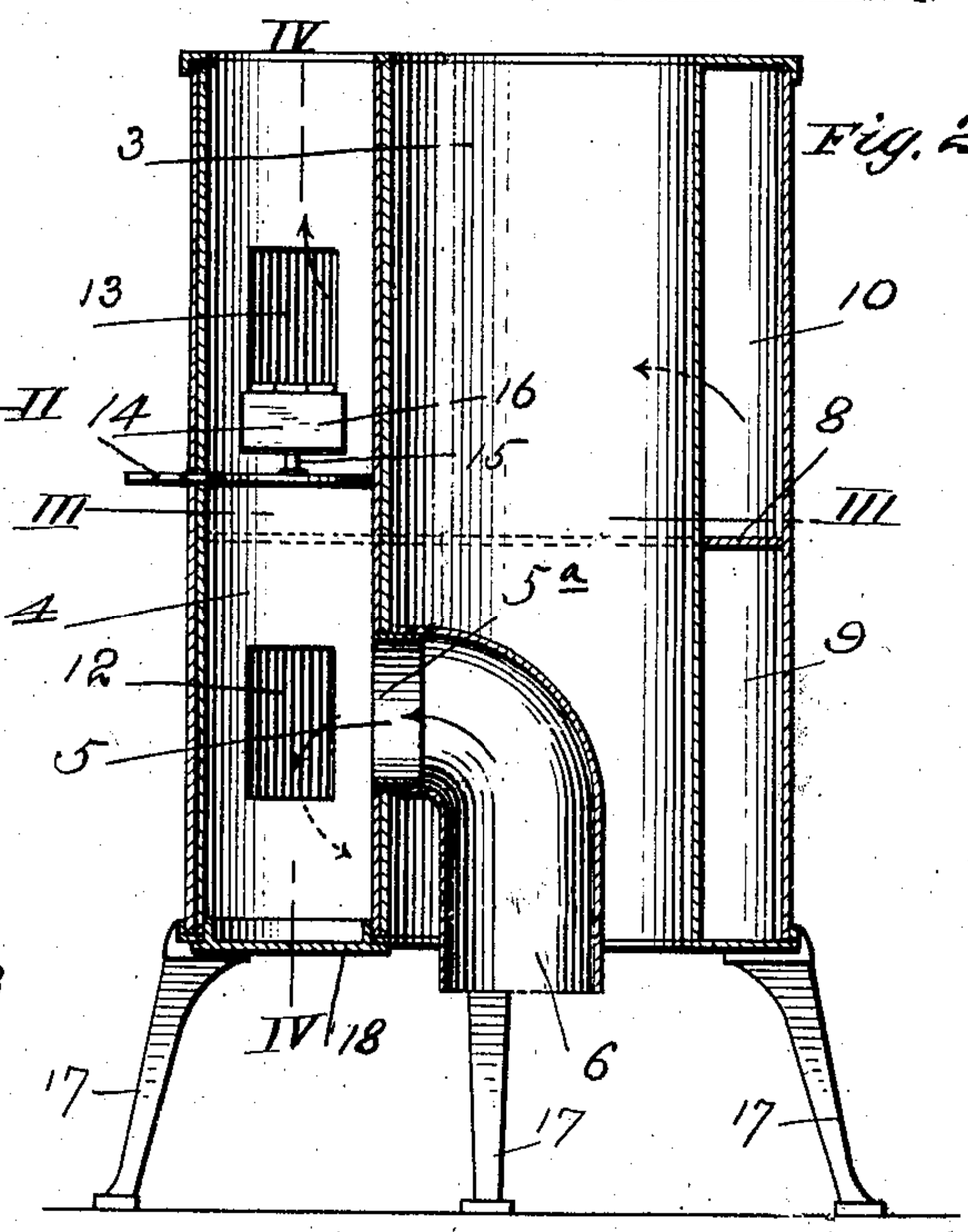


Fig. 3.

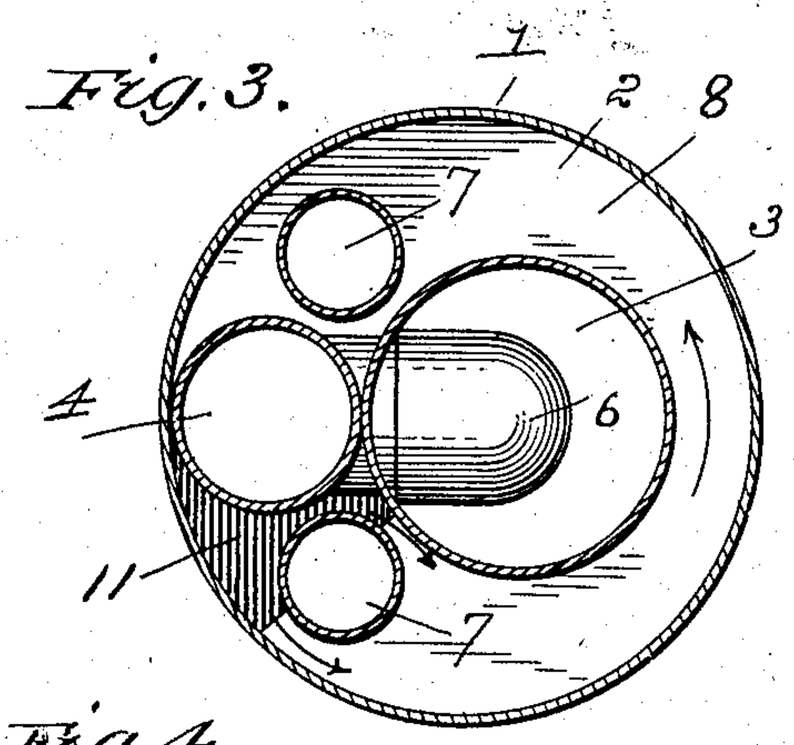


Fig. 5.

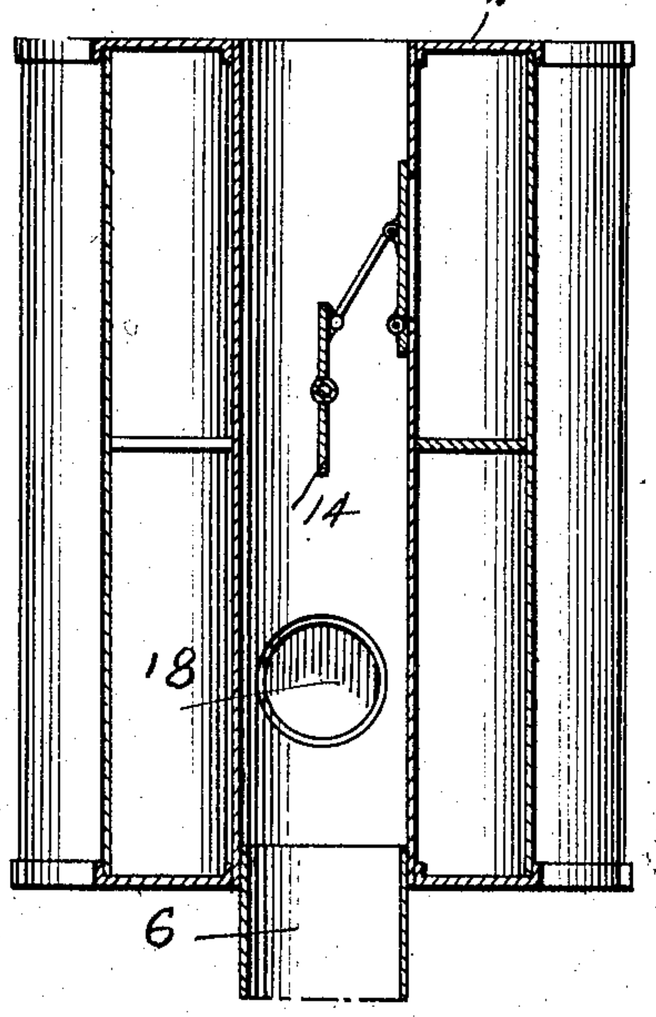
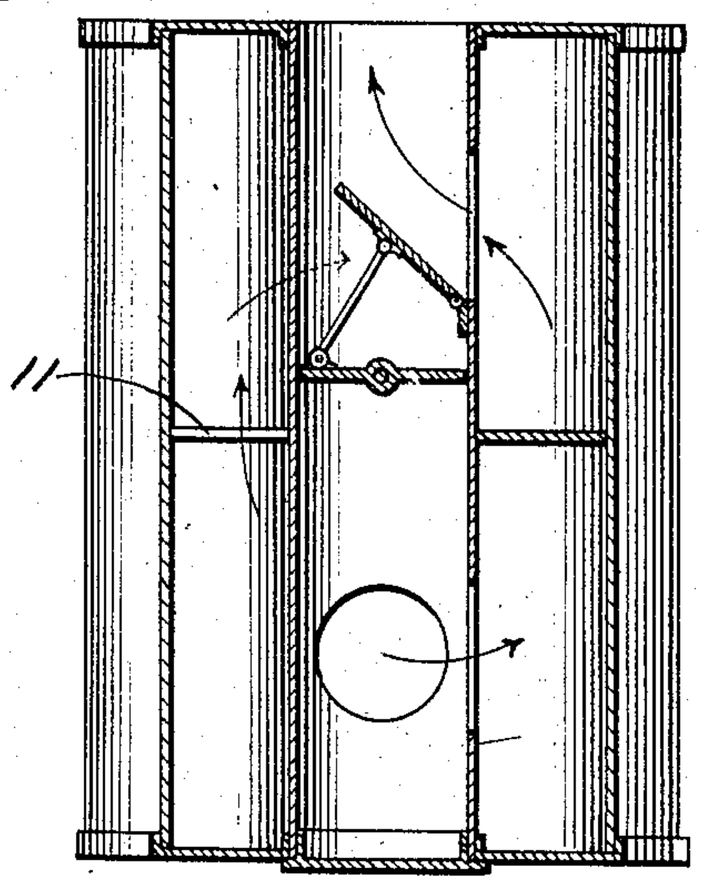


Fig. 4.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 6.

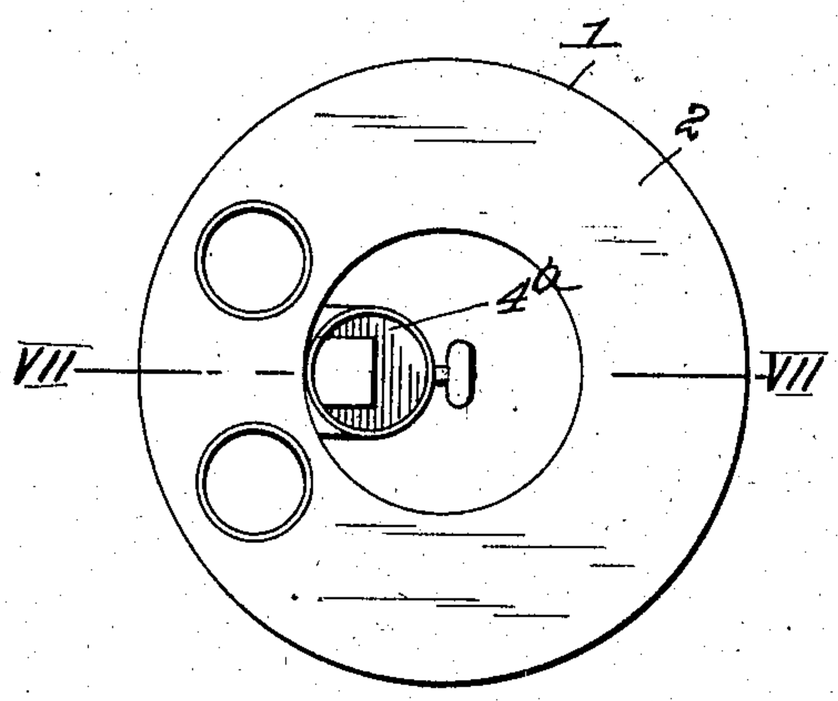


Fig. 9

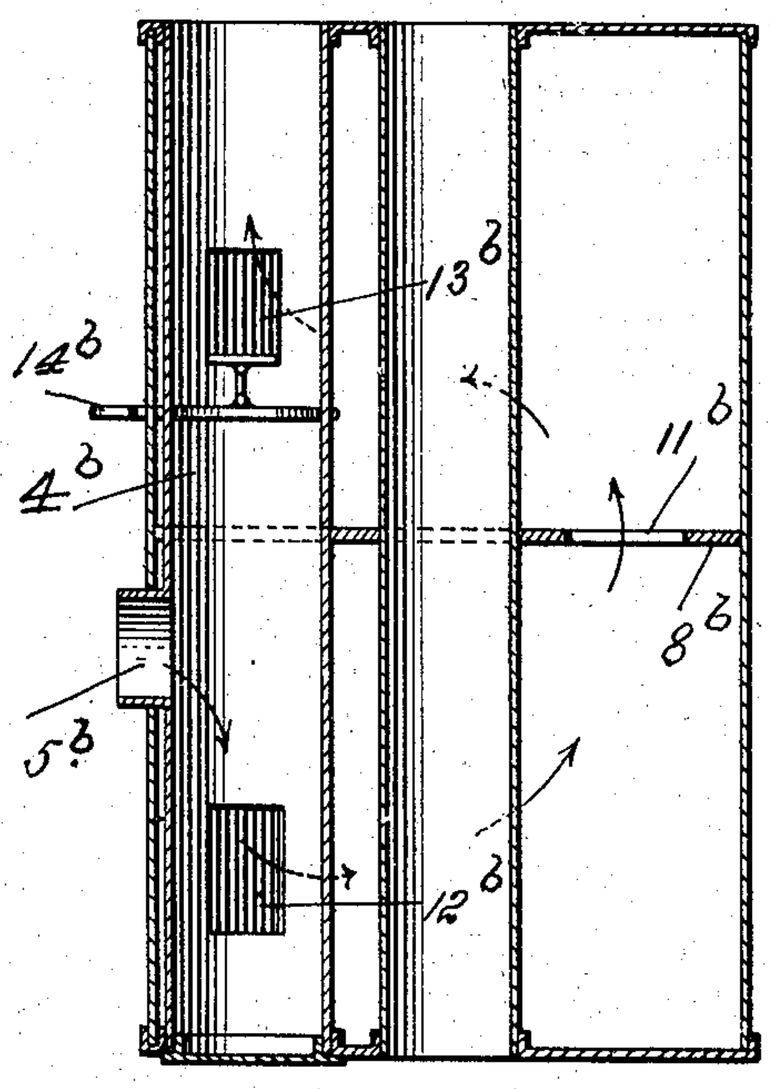


Fig. 7.

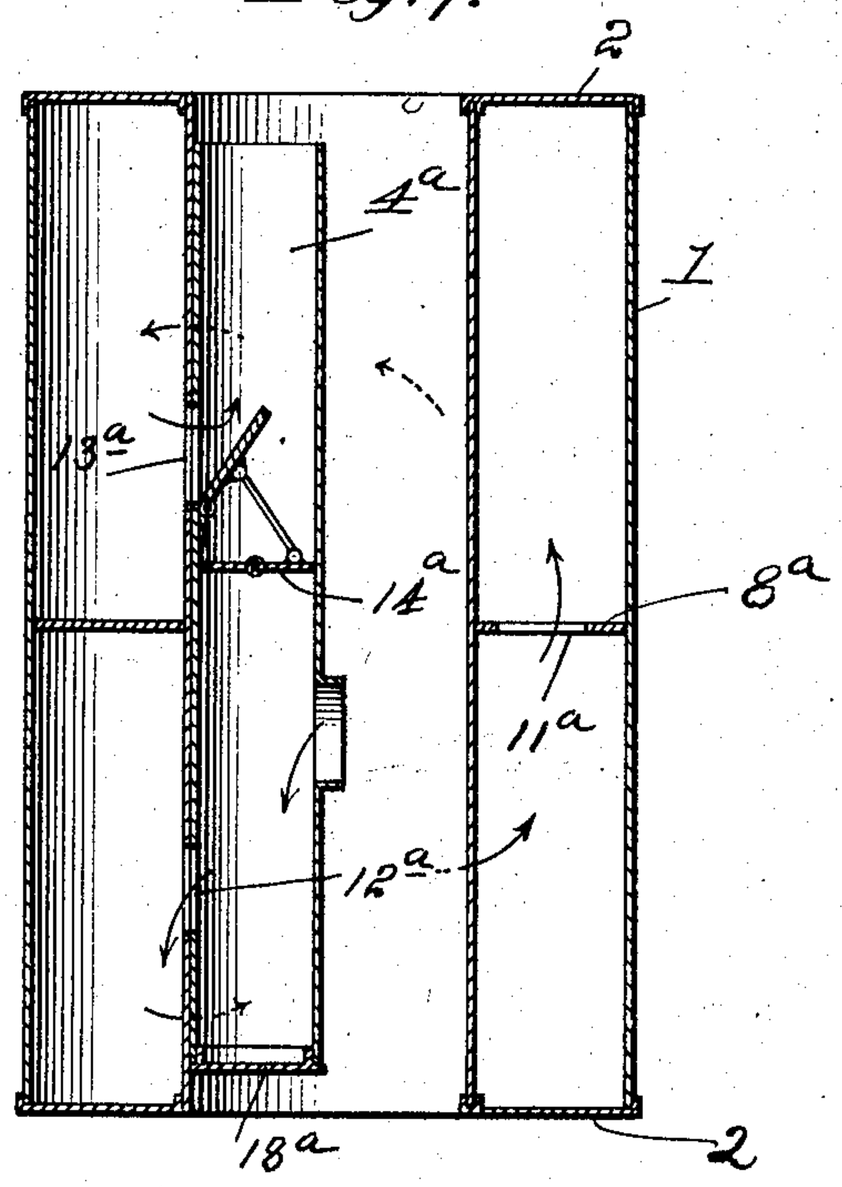
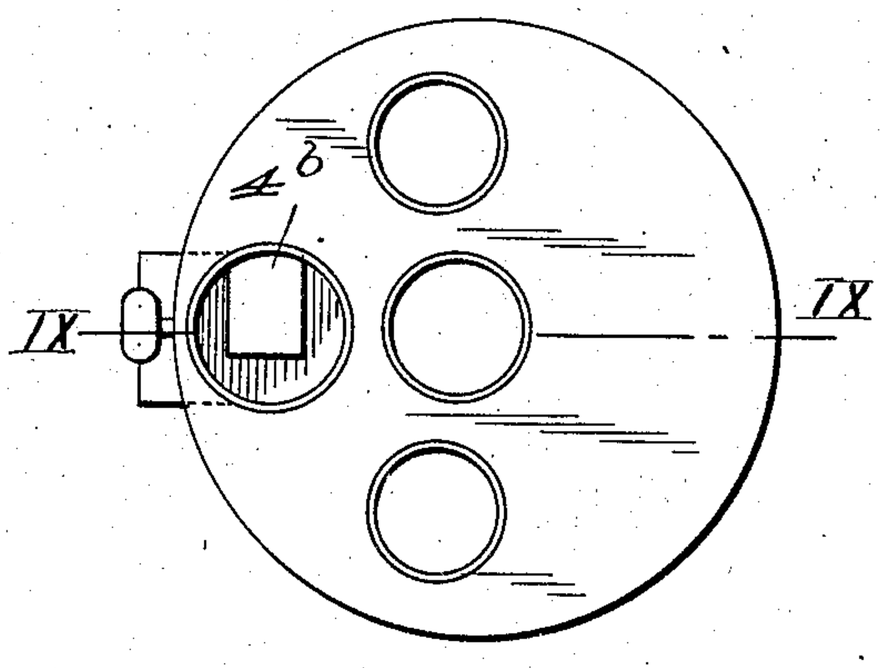


Fig. 8.



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No. 791,120. Patented May 30, 1905.

UNITED STATES PATENT OFFICE.

SCOTT M. ABBOTT, OF WATERTOWN, MINNESOTA.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 791,120, dated May 30, 1905.

Application filed April 30, 1904. Serial No. 205,647.

To all whom it may concern:

Be it known that I, SCOTT M. ABBOTT, a citizen of the United States, residing at Watertown, in the county of Carver and State of Minnesota, 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, in which—

Figure 1 is a plan view of the preferred form of drum; Fig. 2, a longitudinal vertical sectional view taken on the line II II of Fig. 1; Fig. 3, a horizontal sectional view on the line III III of Fig. 2; Fig. 4, a vertical sectional view on the line IV IV of Fig. 2 through the smoke-flue; Fig. 5, a similar view showing the damper open and the stovepipe connected to the lower end of the smoke-flue; Fig. 6, a plan view of a slightly-different form of drum; Fig. 7, a vertical sectional view on the line VII VII of Fig. 6; Fig. 8, a plan view of still another form of drum, and Fig. 9 a vertical sectional view on the line IX IX of Fig. 8.

One of the main objects of this invention is to provide an efficient heating-drum of simple construction which may be connected to the smoke-pipe of a stove and the heat of the waste gases utilized to heat the air of an adjoining room or of the same room in which the stove is located.

A further object of the invention is to provide such a heating-drum of simple construction which may be cheaply manufactured and which is adapted for use in several positions.

A further object of the invention is to provide the drum with suitable draft-directing devices by which the smoke and hot gases may be directed around the drum or be permitted to pass directly through it without interfering with the draft of the stove.

Other important objects and advantages of the invention will appear hereinafter.

Referring to various parts by numerals, 1 designates the outer vertical casing, which is shown cylindrical, but which, of course, it will be understood, may be of any desired shape in cross-section. The casing is provided with the end pieces or caps 2. Extending through the casing is a large vertical radiating-flue 3, and between said flue and the inner surface of the casing 1 is located a smoke-flue 4, said flue entirely closing said space, as shown clearly in Fig. 3. This smoke-flue is in communication with the radiating-flue 3 through an opening 5, and the smoke-pipe 6 from the stove extends into radiating-flue 3 and connects with the smoke-flue through the said opening 5, as clearly shown in Fig. 2. When the heating-drum is located above the stove—for instance, on the floor above—the smoke-pipe enters the radiating-flue from below. When, however, it is located on the same floor as the stove, the smoke-pipe may enter the radiating-flue 3 from above, as shown in dotted lines in Fig. 2.

Extending through the drum are two open-ended radiating-flues 7, one on each side of the smoke-flue. Substantially midway its ends a horizontal partition 8 is provided, which divides the casing 1 into a lower compartment 9 and an upper compartment 10, these compartments connecting through an opening 11 in said partition, said opening being located adjacent the smoke-pipe. The smoke-pipe is provided near its lower end with an opening 12, which is in communication with the lower compartment of the drum, said opening being opposite the opening 11 through the partition 8, the object being to cause the smoke and hot gases entering compartment 9 through the opening 12 to pass entirely around said compartment before reaching the opening 11. Above the partition 8 the smoke-pipe is provided with a second opening 13, said opening being also through the side of the smoke-pipe opposite the opening 11, so that the hot gases rising through the opening 11 in the partition from compartment 9 must pass entirely around the flue 3 before it can reënter the smoke-pipe through said opening 13. Mounted in the smoke-pipe between the openings 12 and 13 is a damper 14, which may be of any suitable construction. The purpose of this damper is obvious. When it is desired that the smoke shall pass directly through the smoke-flue without entering the drum, this damper is placed in its open position, as shown in Fig. 5. When it is closed, the smoke and gases must pass around the drum twice be-

fore escaping up the smoke-flue. Connected to the upper side of the damper by means of a rod 15 is a gate or closure 16, which is hinged at the lower end of the opening 13 and is adapted to be swung upward to close the said opening when the damper 14 is placed in its open position. This gate when it is closed prevents any circulation of hot gases and smoke around the drum and insures a direct draft through the smoke-flue. The drum is provided with suitable supporting-legs 17.

It will of course be understood that the smoke-pipe from the stove may enter the smoke-flue through the side of the casing 1 instead of being carried into the main radiating-flue 3. I prefer, however, to connect it as shown in Fig. 2, as the hot stovepipe will assist materially in heating the air in said main radiating-flue and will thereby materially increase the upward flow of air through said flue. The radiating-flues are all vertically disposed for the purpose of creating a circulation of air in the room in which the heating-drum is placed.

In Fig. 2 the lower end of the smoke-flue is closed by means of a cap 18; but it is obvious that, if desired, the smoke-pipe from the stove may be connected to the lower end of this flue and the cap placed in the opening 5, as shown in Fig. 5.

In the form of drum shown in Figs. 6 and 7 the smoke-pipe 4^a is arranged in the main radiating-flue and is connected to the lower and upper compartments of the main casing through openings 13^a and 12^a, said smoke-flue being provided with a damper device 14^a similar to the damper shown in Figs. 2 and 4. The lower end of the smoke-flue is preferably closed by a removable cap 18^a and the smoke-pipe from the stove connected to the side of said flue between the openings 12^a and 13^a. Partition 8^a in this form of the drum is provided with an opening 11^a to permit of the circulation of the hot gases.

In the form of drum shown in Figs. 8 and 9 the large main radiating-flue is dispensed with and three small radiating-flues are employed. The smoke-flue 4^b is connected to the smoke-pipe from the stove through an opening 5^b in the side of the casing. This smoke-flue is provided with openings 12^b and 13^b and with a damper device 14^b, which operates in a manner similar to the damper device and openings shown in Fig. 7. The partition 8^b is provided with an opening 11^b.

From the foregoing it will be readily seen that I provide a heating-drum of exceedingly-simple construction which is well adapted for utilizing the smoke and hot gases from a stove for heating the air in a room above the stove or for use in the same room with the stove or in another room on the same floor. It will also be readily seen that the device may be cheaply manufactured.

Having thus described my invention, what I claim is—

1. A heating-drum comprising, an outer casing, a main radiating-flue extending vertically therethrough, a smoke-flue extending vertically therethrough and forming a division-wall between one side of the radiating-flue and the adjacent wall of the casing and having two openings formed therein, a horizontal partition dividing the casing into upper and lower compartments and formed with an opening therein, one of the openings in the smoke-flue communicating with the upper compartment and the other communicating with the lower compartment, and a damper by which the smoke may be caused to circulate through the compartments of the casing.

2. A heating-drum comprising, an outer casing, a plurality of vertical radiating-flues extending therethrough a smoke-flue extending vertically therethrough and forming a division-wall between one of the radiating-flues and the adjacent wall of the casing and having two openings formed therein, a horizontal partition dividing the casing into upper and lower compartments and formed with an opening therein, one of the openings in the smoke-flue communicating with the compartment above the horizontal partition and the other communicating with the compartment below said partition and a damper by which the smoke may be caused to circulate through the compartments.

3. A heating-drum comprising, a main casing, a main radiating-flue extending vertically therethrough, a smoke-flue in communication with said main radiating-flue, a horizontal partition in the casing dividing it into an upper and lower compartment and provided with an opening, and means for causing the smoke and hot gases to pass through both of said compartments, and a plurality of vertical radiating-flues.

In testimony whereof I hereunto affix my signature, in the presence of two witnesses, this 5th day of April, 1904.

SCOTT M. ABBOTT.

Witnesses:
JAS. J. PONSFORD,
RAYMOND M. ABBOTT.