

UNITED STATES PATENT OFFICE.

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HEATING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 538,635, dated April 30, 1895.

Application filed January 12, 1895. Serial No. 534,678. (No model.)

To all whom it may concern:

Be it known that I, GEORGE FRANK ANDERSON, a citizen of the United States, residing at Marshalltown, in the county of Marshall and State of Iowa, have invented certain new and useful Improvements in Heating Apparatus; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in heating apparatus or drums and consists of the combination and arrangement of parts herein set forth and claimed.

In the drawings, Figure 1 represents a central vertical section of a heating drum with connections embodying my improvement. Fig. 2 represents a horizontal section of the drum on line *xx*, Fig. 1. Fig. 3 represents a sectional view of a modified form of the drum.

Similar letters indicate similar parts in the several figures.

A designates a shell or drum composed of inner and outer side walls, preferably of cylindrical form, closed at the top and bottom except as hereinafter set forth, and supported on the feet C, which raise them from the floor, thereby permitting an uninterrupted passage into the vertical opening B through said shell, of the lower strata of air in the apartment in which the drum is placed.

D, designates a pipe for the passage or conveyance of the products of combustion or other heat supply from the chimney or flue E, into the top of the shell A. Within the shell A, are the vertical partitions A', which extend from the top to near the bottom thereof. Leading from the top of the said shell and on the opposite side of the partitions A' from the pipe D is the pipe F, which passes into the flue E above the connection of the pipe D with said flue. A pipe G connects the pipes D and F. In the flue E between the said pipes D and F is a damper H; and the pipes D, F, and G are provided with the dampers J, K, and L respectively. The dampers N and P are also placed in the pipes D and F as shown.

The opening or passage way B is preferably of large diameter as compared with the distance apart of the inner and outer walls of the shell so that the heated air or products of com-

bustion in the shell may be readily brought in contact with the walls of the shell and heat the same and thereby the air in the apartment.

A vertical diaphragm M, extending from the top to the bottom of the opening B, and connected with the inner wall of the shell, divides the cold air entering the same into currents, thereby aiding in a more rapid heating of the same.

It will be seen that by closing the dampers H and L, the hot air or products of combustion will pass through the pipe D into the shell, and down into the same under the partitions A', and thence up to the pipe F, heating the walls of the drum and thereby the air in the apartment containing the latter. From the pipe F it passes into the flue E above the damper H.

If it be desired to pass the heated air through only a small portion of the room, the dampers H, N, and P, are closed and the damper L is opened. By closing the dampers L, N, and K and opening the damper H, the products of combustion will pass directly through the flue without entering the drum.

By having the inlet pipe D enter the top of the shell the products of combustion do not pass as rapidly through the shell as if the inlet pipe entered it from the lower part thereof.

It will be evident that the construction as described is a simple and yet an effective heating apparatus and one that can readily be repaired if injured.

In the modification shown in Fig. 3 instead of the cylindrical shell A, I employ a jacket A' having an opening B' in its base and provided with the feet C'. The pipes D', F', which are connected are located in the sides and lower part of said jacket resting or supported on lugs or flanges on the base thereof. The jacket is provided with a diaphragm A'' but this may be omitted if desired. The pipes D', F', are provided with the dampers N', J', and K' as shown.

Having thus described my invention, what I desire to claim by Letters Patent is—

1. A heating apparatus consisting of a shell having inner and outer walls and provided with feet, the said inner wall forming a vertical opening through said drum, the pipe D adapted to lead from a flue into the top of said shell, the pipe F leading from the shell

opposite said pipe D into said flue above said pipe D, the pipe G connecting said pipes D, F, and a damper in said pipe G, and a damper in said flue between said pipes D and F, said parts being combined, substantially as described.

2. In a heating apparatus, the flue E, the shell A having outer and inner walls, and provided with feet, the said shell being closed at its base, the inlet pipe D leading from said flue into the top of said shell, the pipe F leading from the top of said shell to said flue E above said pipe D, the partitions A' within said shell extending from the top to near the bottom thereof, the damper H in said flue, and the damper G in said flue, said parts being combined substantially as described.

3. In a heating apparatus, a shell having inner and outer walls and provided with feet, said inner wall forming a vertical passage way through said shell, vertical partitions in said shell extending from the top to near the bottom thereof, a pipe leading into the top of

said shell, a pipe leading from the top of said shell, opposite said inlet pipe, dampers in said pipes, and a diaphragm in said opening, said parts being combined substantially as described.

4. In a heating apparatus a drum having inner and outer walls with vertical partitions therein extending from the top to near the bottom thereof, said inner wall forming a vertical passage way through said shell, a pipe leading into said shell on one side of said partitions a pipe leading from said shell on the opposite side of said partitions, a pipe connecting said inlet and outlet pipes and dampers in said pipes said parts being combined substantially as described.

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

GEORGE FRANK ANDERSON.

Witnesses:

W. T. REED,

R. H. WHITENACK.