

(No Model.)

J. E. NEWHOUSE.
HEATING DRUM.

No. 529,405.

Patented Nov. 20, 1894.

FIG. 1.

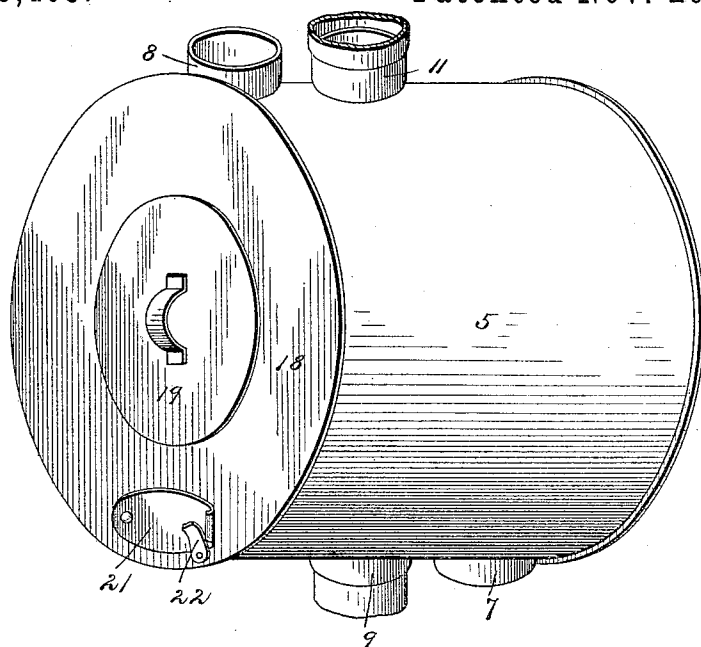


FIG. 2.

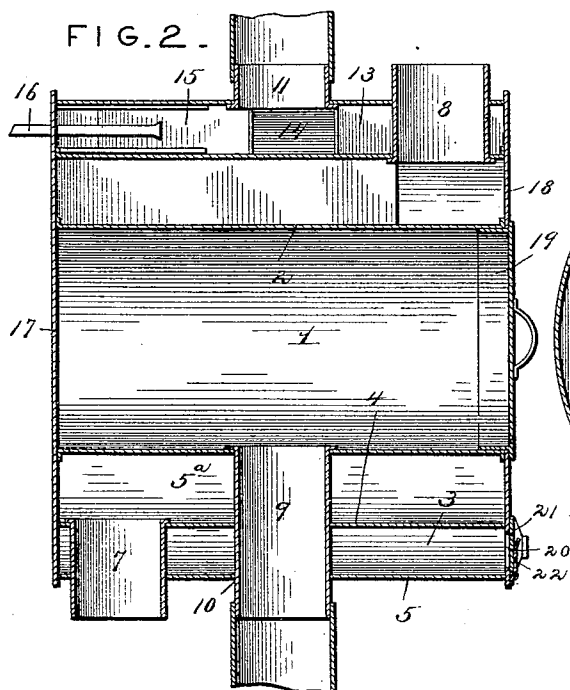
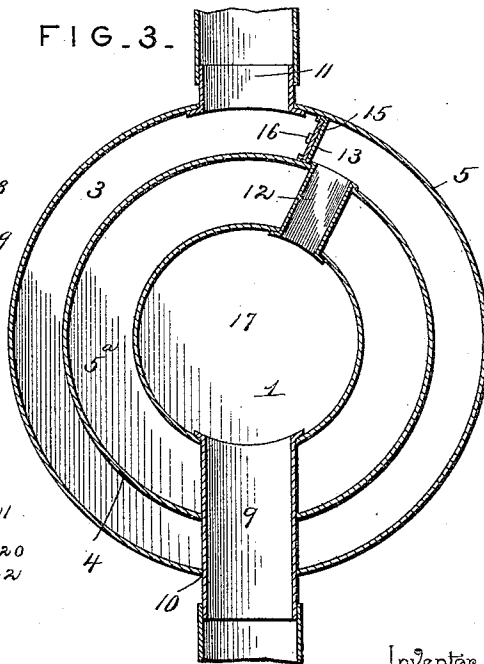


FIG. 3.



Inventor

John E. Newhouse.

Witnesses

Harry L. Amer.
[Signature]

By His Attorneys.

CA Snow & Co.

UNITED STATES PATENT OFFICE.

JOHN E. NEWHOUSE, OF MAGNETIC SPRINGS, ASSIGNOR OF TWO-THIRDS TO
SMITH N. McCLOUD AND CHARLES F. LENTS, OF MARYSVILLE, OHIO.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 529,405, dated November 20, 1894.

Application filed May 25, 1894. Serial No. 512,458. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. NEWHOUSE, a citizen of the United States, residing at Magnetic Springs, in the county of Union and State of Ohio, have invented a new and useful Heating-Drum, of which the following is a specification.

My invention relates to an improvement in heating drums, and has for its object to provide a simple and efficient construction whereby the sparks and solid particles in the products of combustion are caught before reaching the outlet flue; to provide means whereby accumulations of the solid particles may be removed without displacing the drum; and to provide means for conducting the products of combustion and the cold air through the drum and for controlling the passage of the former to provide either a direct or an indirect draft.

Further objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings—Figure 1 is a perspective view of a drum embodying my invention. Fig. 2 is a central vertical section of the same, taken longitudinally. Fig. 3 is a vertical section taken transversely.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The drum is preferably constructed of a cylindrical shape, the axis thereof being horizontal, and it consists essentially of an inner heat chamber 1, having a cylindrical wall 2, and a concentric annular passage 3, formed by the concentric inner and outer cylinders 4 and 5. Between the wall of the heat chamber and the inner wall or cylinder of the passage 3 is an annular cold air chamber 5, provided at its lower side and at one end of the drum with an inlet opening or thimble 7 and at its upper side and at the opposite end of the drum with an outlet opening or thimble 8.

9 represents a collar passing through an opening 10 in the lower side of the drum and communicating with the heat chamber 1, and 11 represents a similar collar secured to the upper side of the drum and communicating with

the annular heat passage. The heat chamber communicates, by means of a conducting flue 12, with the annular heat passage adjacent to but out of alignment with the outlet collar 11. Between the planes of the conducting flue 12 and the outlet collar 11 is arranged a longitudinal partition 13, extending the entire length of the drum within the heat passage and provided with an opening 14 in which operates a damper 15. This damper is provided with an operating stem 16, which extends longitudinally and through the closed head 17 of the drum. The opposite head 18 of the drum is provided with a removable cap 19, which closes that end of the heat chamber, and also with an opening 20 covered by a pivoted leaf 21 disposed to engage a spring catch 22 when closed. The removable cap which closes the end of the heat chamber is adapted to facilitate the removal of accumulations in said chamber, and the opening 20, which communicates with the annular passage, is designed to facilitate the removal of solid particles deposited there by the smoke or gas.

From the above description it will be understood that when the damper is open the product of combustion rising through the inlet opening collar and through the heat chamber will pass through the conducting flue into the heat passage and from thence directly to the outlet collar at the top of the drum, but when the damper is closed said products of combustion, after passing through the heat chamber and the constructing flue, will descend, as indicated by the arrows in Fig. 3, and pass entirely around the heat chamber through the heat passage, and will escape at the outlet collar as above. In this way the products are carried entirely around the cold air chamber, and the heat communicated through the walls of the passage will cause circulation of air in the direction indicated by the arrows.

By arranging the axis of the drum in a horizontal position instead of vertical, as shown in the ordinary constructions, the abrupt angles around which the products of combustion ordinarily pass are avoided and a complete circulation of the products around the inclosed cold air chamber is attained. Furthermore, said arrangement of the drum facili-

tates the removal of accumulation of solid particles, for the reason that said particles seek the lowest point of the chamber in which they are caught, and thus avoid the necessity of collecting them preparatory to removal, as when the floor of the chamber in which they are found is a plane surface. It will be seen, furthermore, from the description that the drum consists essentially of a series of three concentric cylinders, the outer cylinder forming an exterior shell, the inner cylinder inclosing an axial heat chamber, the space between the outer cylinder or shell and the intermediate cylinder forming a heat passage in communication with the said heat chamber, and the space between the said intermediate cylinder and the inner cylinder forming an air passage or chamber which is in communication with the atmosphere. It should be observed, furthermore, that by omitting the inlet openings and collar at the bottom of the drum, the heat chamber may be utilized as a fire box which would thus be entirely surrounded by the indirect heat passage or flue, and which would also be entirely surrounded by an air passage or chamber arranged between the walls of the fire box and the inner inner wall of the heat passage. Of course, the utilization of the central or axial chamber as a fire box would necessitate the use of different material in the construction of the drum than the ordinary sheet metal, which is preferably employed when the device is connected with the outline flue of a stove or furnace and is used as an ordinary heating drum.

Various changes in the form, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

In a heating-drum, the combination of outer, inner and intermediate concentric cylinders arranged with their common axis in a horizontal position, and having their ends closed, a smoke-inlet collar communicating with the central or axial space inclosed by the inner cylinder, a smoke-outlet collar communicating with the space between the outer and intermediate cylinders, and axially aligned with said smoke-inlet collar, a connecting flue between the outer and inner spaces, and deflected slightly from alignment with said inlet and outlet collars, a damper intersecting the outer space between the planes of the connecting flue and the outlet collar, and air-inlet and air-outlet thimbles arranged respectively at the lower and upper sides of the drum, at the opposite ends thereof, and communicating with the space between the inner and intermediate cylinder, substantially as specified.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOHN E. NEWHOUSE.

Witnesses:

WILL BAILEY,
F. T. ARTHUR.