(No Model.)

F. A. SMITH.

HEATING DRUM.

No. 501,901. Patented July 18, 1893.

FIG. 1.

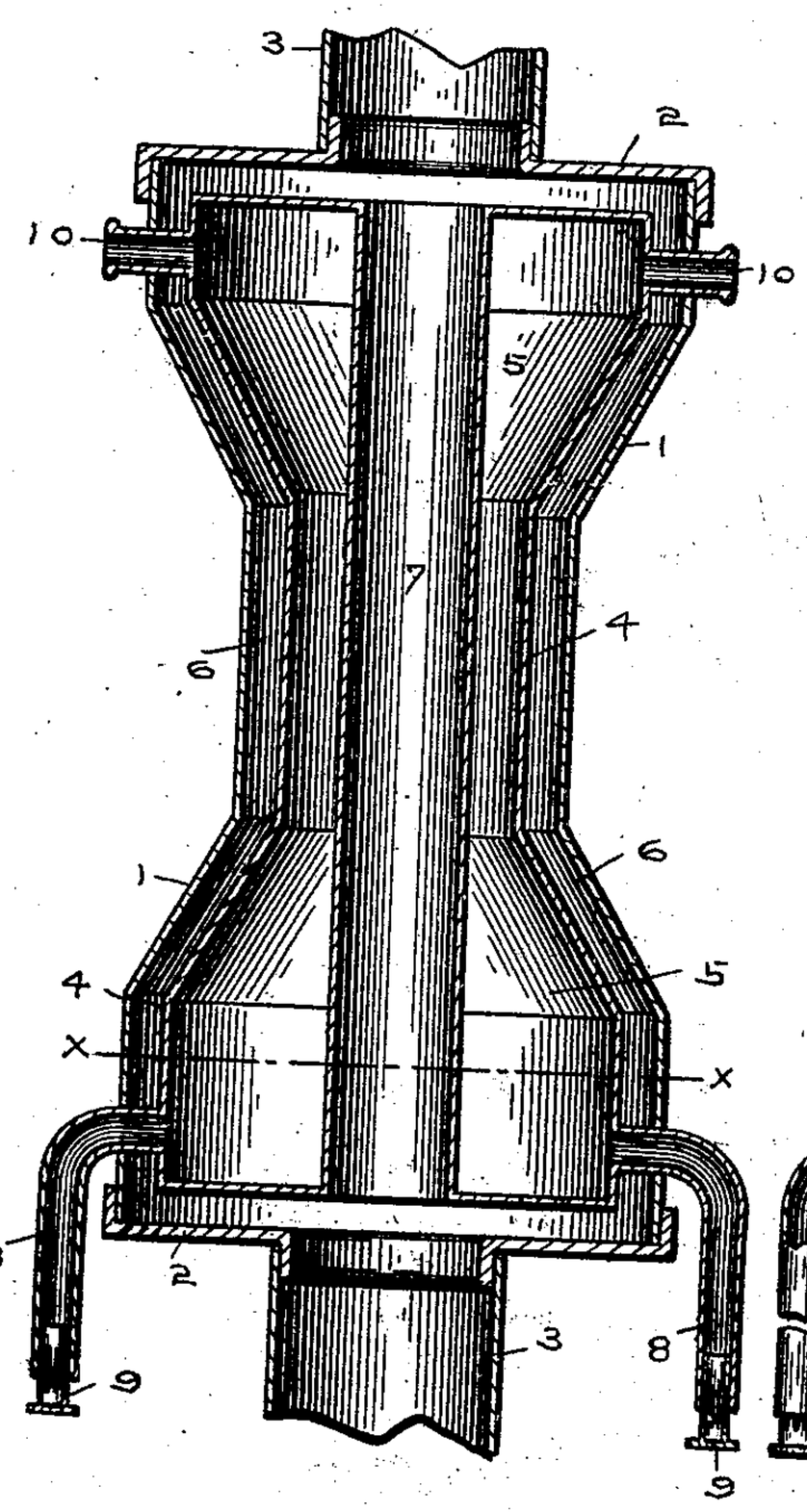


FIG. 2.

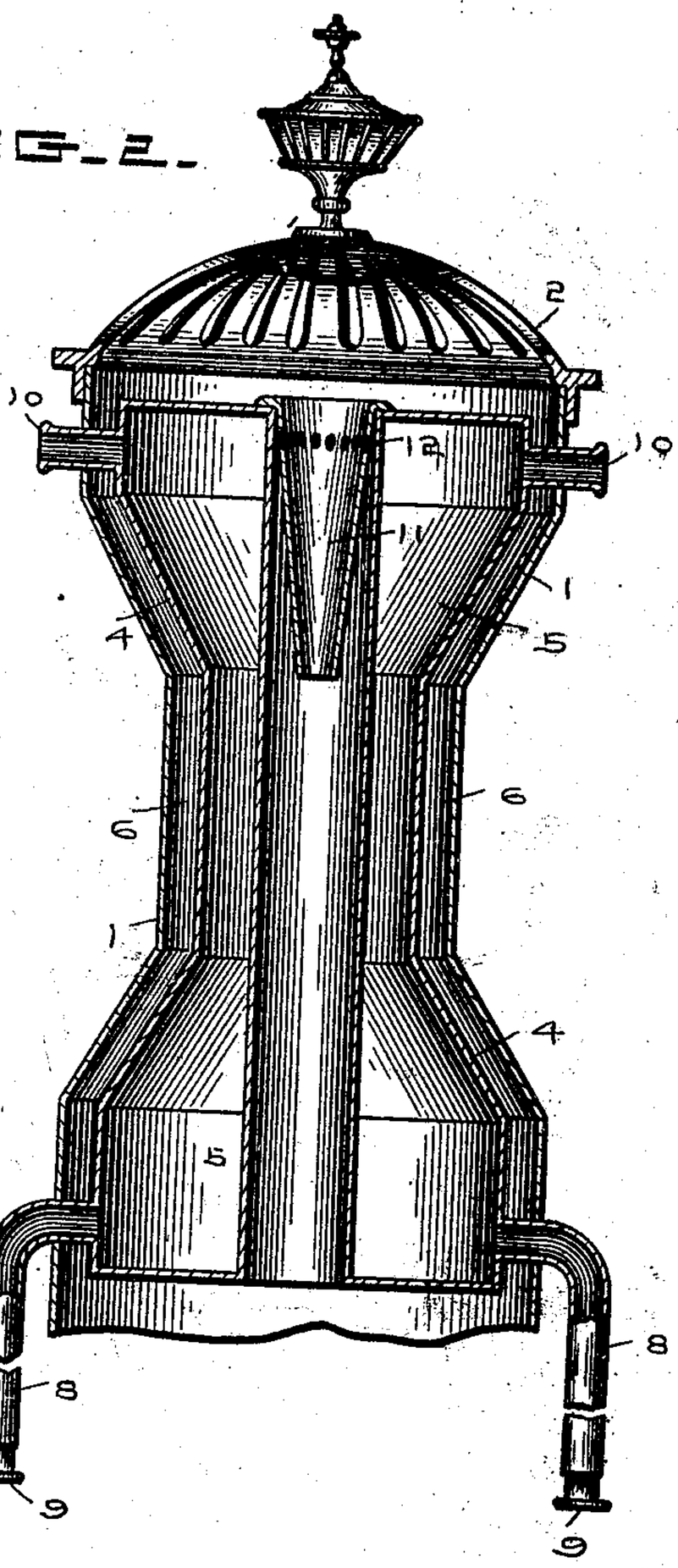
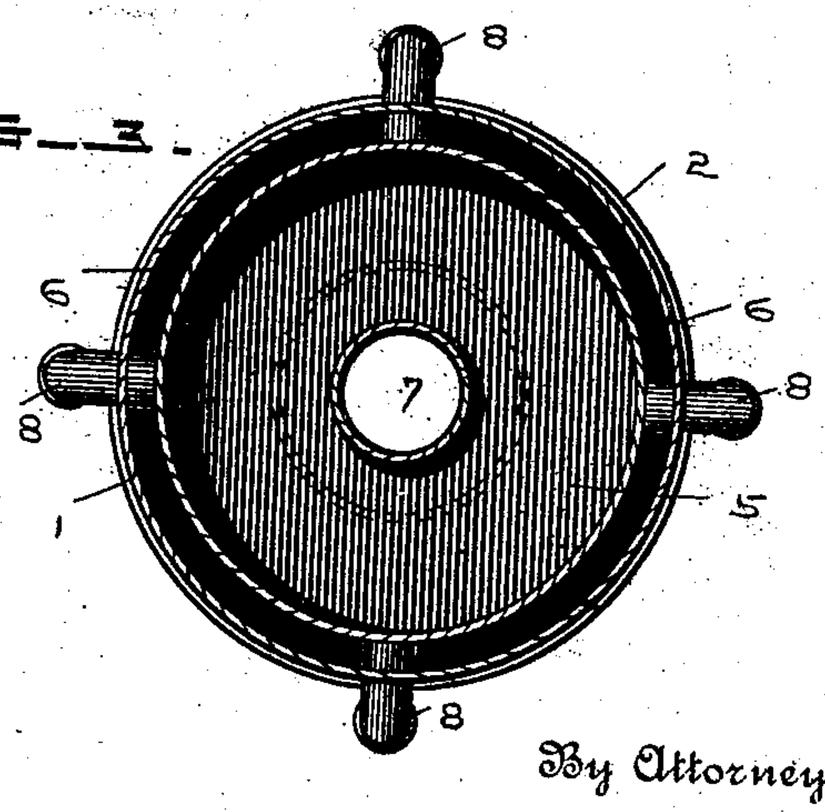


FIG. 3.



Witnesses

H. C. Neely.

G W Bemis, 2d

Inventor
Frank A Smith

By Attorneys Jacob & Co

UNITED STATES PATENT OFFICE.

FRANK A. SMITH, OF FLORA, INDIANA, ASSIGNOR OF ONE-THIRD TO JACOB KRAUSS, OF SAME PLACE.

HEATING-DRUM.

SPECIFICATION forming part of Letters Patent No. 501,901, dated July 18, 1893.

Application filed January 31, 1893. Serial No. 460,345. (No model.)

To all whom it may concern:

Be it known that I, FRANK A. SMITH, of Flora, county of Carroll, and State of Indiana, have invented certain new and useful Improvements in Heating-Drums; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like figures refer to like parts.

My invention relates to new and useful improvements in heating drums, and to one that is adapted to be connected either to the stove pipe above a stove, or, where gas or oil is used as a fuel, to be connected to or be formed integral with the stove, the object being to cause the smoke, hot air and other products of combustion from the fire to pass through the drum and to be retarded therein, heating an air current which enters the drum from the bottom, and which escapes at the top after it is heated into the room.

In the drawings, Figure 1 is a central vertical section through a drum embodying my improvements. Fig. 2 is a similar view of a slightly modified form adapted for use where gas or oil is used as a fuel, and Fig. 3 is a cross section through the drum on the line *x*—*x* of Fig. 1.

In detail, 1 represents a cylindrical drum or shell which is contracted at its center, and 2 are its ends, to which are connected sections of the stove pipe 3 at a point just above the stove. Within the burner 1 is a similar shell 4 having closed ends and forming an air chamber 5, the shell 4, which is slightly smaller than the first, leaving a flue 6 between the two shells, the shell 4 having a flue or pipe 7 extending vertically up through its center and in line with the open ends of the stove pipe 3, the flue 7 however being only about one half the size of the stove pipe 3, so that when the smoke or other products of combustion, together with the heat which is usually wasted, enters the drum, it is divided, part passing up directly through the flue 5 and the remainder passing around in the flue 6 formed between the walls of the two shells 1 and 4, and joining with the rest at the top of the drum, where both escape into the stove pipe leading to the chimney. The action of the heat, &c., in passing through the drum in the manner just described is to heat the air in the chamber 5 formed between the inner shell 4 and its central pipe or flue 7, the chamber 5 having a number of pipes 8 extending from its lower end out through the outer shell 1, and are turned downward so that they will receive the cold air which lies below and near the floor, the pipes 8 having valves or sliding ends with perforations therein so that they can be adjusted to regulate the air entering the drum, 10 being short outlets which allow the heated air to escape from the top of the drum.

In the modification shown in Fig. 2, the parts are all the same as in Fig. 1, excepting that the drum is preferably connected to the top of an oil or gas stove, or may be formed integral therewith, the top 2 of the drum having openings therein for the escape of the heat into the room, as in this class of stoves there is no pipe leading to the chimney.

In the modification I also insert a funnel 11 in the top of the central flue 7, this funnel having perforations 12 near its top and serves to retard the products of combustion from the gas or oil as it comes up through the flue, and thus holds it in the drum till all the unconsumed parts are consumed, and thus utilizing all of the heat from the fire to heat the cold air in the chamber 6.

It will thus be seen that what I accomplish is to utilize the heat from a fire which is usually wasted, and dividing it and leading it up on the inside and outside of an air chamber heat the cold air as it passes through such chamber.

The form herein shown is preferable, but it may be changed without departing from my invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a heating drum, an air chamber having inlet pipes below with closable openings therein, and outlet pipes at the top, a central flue extending up through such air chamber with a funnel resting in its top having perfoforations therein and an outer flue surrounding such air chamber, such air chamber and outer flue centrally contracted, such flues adapted to be suitably connected with the

combustion chamber of a stove substantially as set forth.

2. In a heating drum, an air chamber surrounding a central flue and having inlet pipes at the bottom with slide valves therein and outlet pipes at the top opening outside of the drum, a flue surrounding the air chamber and connected with the central flue, the outer flue and the air chamber centrally contracted, the drum suitably connected with the combustion chamber of a stove, whereby the products of combustion passing through the flues will heat the air chamber substantially as set forth.

In witness whereof I have hereunto set my hand this 24th day of January, 1893.

FRANK A. SMITH.

Witnesses:
W. A. PRUITT,
J. D. URBIN.