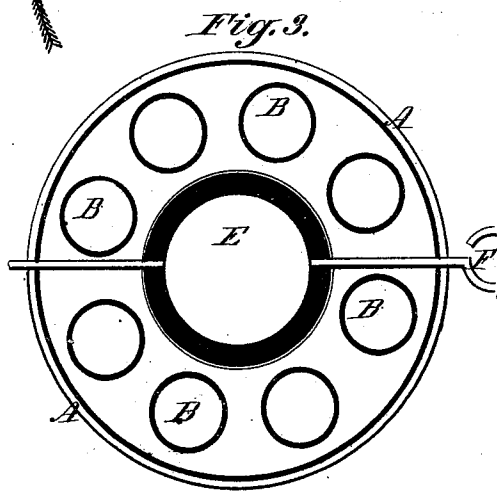
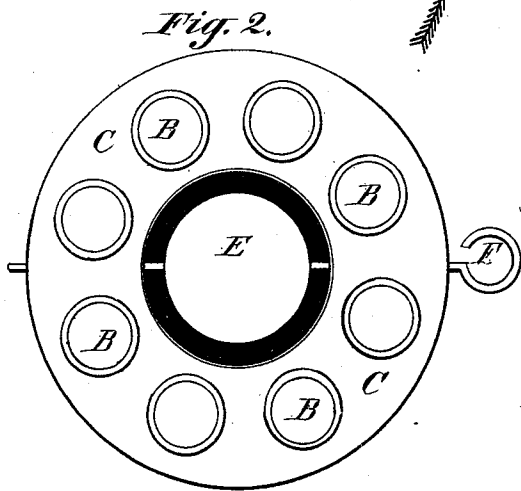
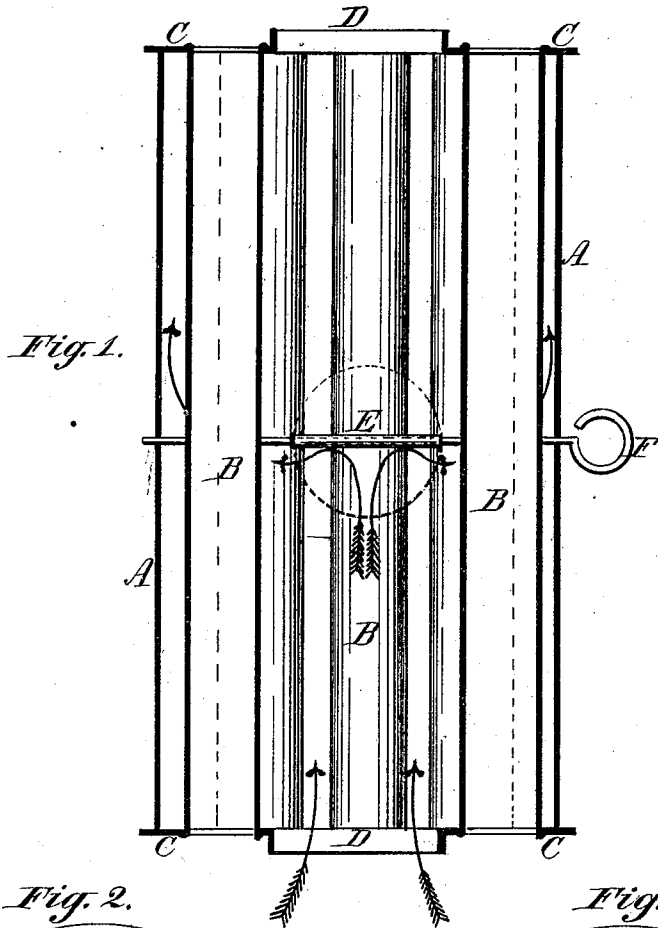


T. B. FIELD.
HEATING-DRUM.

No. 170,247.

Patented Nov. 23, 1875.



Witnesses:

W^m C. Medford
J. H. Rutherford

Inventor:

Thomas B. Field
By Johnson and Johnson
his Attys.

UNITED STATES PATENT OFFICE.

THOMAS B. FIELD, OF CORNING, NEW YORK, ASSIGNOR TO MARY E. C. FIELD, OF SAME PLACE.

IMPROVEMENT IN HEATING-DRUMS.

Specification forming part of Letters Patent No. **170,247**, dated November 23, 1875; application filed September 22, 1875.

To all whom it may concern:

Be it known that I, THOMAS B. FIELD, of Corning, in the county of Steuben and State of New York, 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, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which form a part of this specification.

This invention has reference to an air or water heating drum, which is designed to be used in connection with a stove, a stove-pipe, smoke-box, or the smoke-stack of a stove or furnace, for utilizing the escaping products of combustion as a medium for heating air and water.

The invention consists in the combination, with a closed drum or case, and a group of open-ended pipes arranged therein to form a central draft-flue, of a head or damper fixed within the central flue, to turn therein free of the flue-pipes, to open and close said central flue to a direct draft. The damper does not fill the central space formed by the group of pipes, but leaves an annular space, when turned horizontally, between it and the pipes to effect a sufficient draft within the central flue when the damper is closed.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a drum embracing my invention. Fig. 2 is a top view, and Fig. 3 a horizontal section.

The drum or cylindrical casing A is traversed by a series or group of tubes, B, which are arranged in a circle or arc of a circle, and pass through end heads or caps C of the drum. The tubes are provided with open ends, and they are secured in the heads of the drums by striking down or flanging the ends of the same.

Instead of flanging the tubes down onto the caps, as described, the heads may be cast with a flange on top side. The flues, either cast or ordinary boiler-flues, may be butted through the flue-hole in the cap against this flange above. The heads would, in this case, be held together by wrought-iron rods (with nuts or

heads) passing through the drum and through the heads. This arrangement provides for the expansion of metal.

Central openings D, made in both heads of the drum, connect, respectively, with inlet and outlet pipes, for products of combustion which may be derived from a stove, furnace, or other source. The openings D for inlet and outlet of products of combustion may, either one or both of them, be on the side of the drum or casing instead of at the ends, in which case the inlet or outlet at the end or ends, as the case may be, or both, may be closed to correspond.

A perforated dome or cap may be placed on top or bottom, or on both top and bottom, of drum A, preparatory to conveying air from the room in which the heat is generated, or if I desire to conduct the heated air through the ceiling into an upper room through a register, or if I desire to distribute air into the tubes from a blower. The drum may be located between two sections of stove-pipe; or it can be applied directly to the stove or furnace, either outside or inside of the same.

The heated gases or products of combustion entering the drum are diffused or spread laterally, so as to cause all the caloric to be absorbed by the cold-air-conducting tubes passing through the drum. In consequence thereof, the cold air will be sufficiently heated in its transit through the tubes to be available for warming rooms, &c., thus utilizing the waste products of combustion from stoves and furnaces as a heat-generating medium.

The proper deflection and commingling of the heated gases entering at the center of the drum, and the cooler air next the radiating-surface of the drum and tubes, is attained through the medium of a damper-disk, E, which is located at or about the middle portion of the drum, and inside of the group of air-heating pipes. The handle or rod F of the damper passes through the drum, so that it can be readily manipulated for intercepting the products of combustion to throw them against the tubes; or it can be opened to enable a direct draft to take place.

A drum for heating water, instead of air, is formed by connecting the pipes by a return

bend alternately at the top and bottom, forming a continuous pipe, but leaving, of course, two open ends. One of said ends is connected with a tank containing water or a pump, and at the other end there is located a gate or valve to regulate the heated water.

The damper fills the draft-space just enough to receive and direct the products of combustion laterally all round the spaces between the flues.

I claim—

In combination with the drum A and the group of open-ended pipes B, forming the cen-

tral draft-flue D therein, the turning-damper E, opening and closing the central draft-flue free of the pipes, and leaving a partial central draft when so closed, as and for the purpose set forth.

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

THOMAS B. FIELD.

Witnesses:

ELLSWORTH D. MILLS,
E. C. ENGLISH.