T. B. FIELD.

HEATING-DRUM.

No. 183,553. Patented Oct. 24, 1876.

fig. 1.

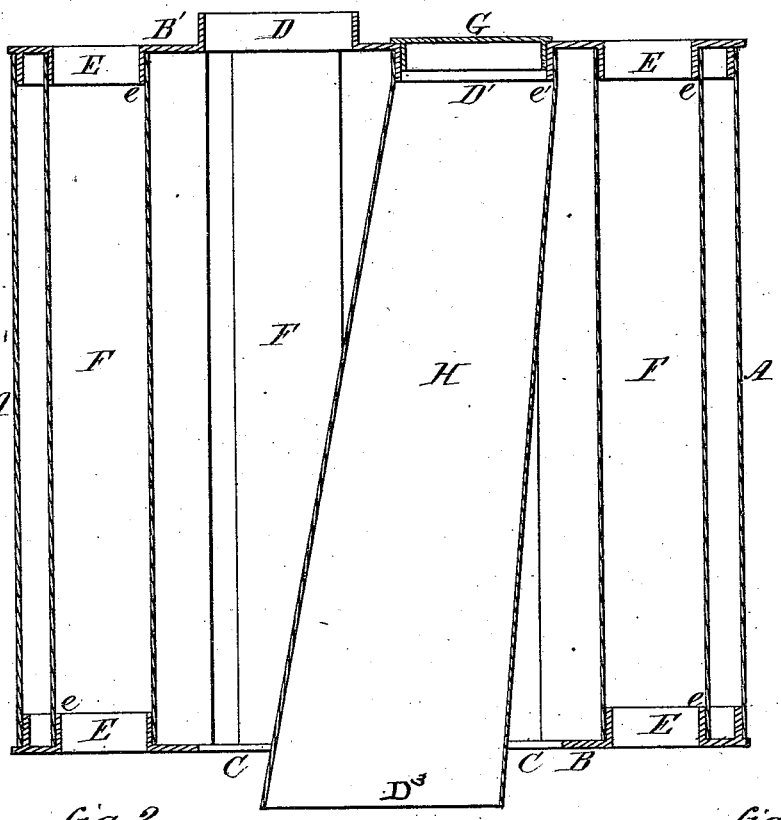


fig. 2

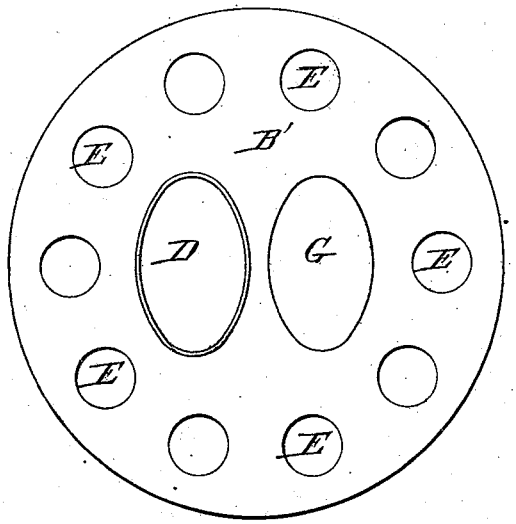
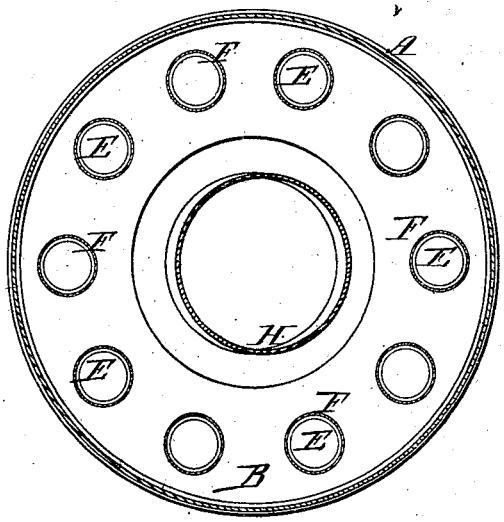


fig. 3



Witnesses:

J. Hart Wagner

J. H. Rutherford

Inventor:

Thomas B. Field

By Johnson & Johnson

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. **183,553**, dated October 24, 1876; application filed March 3, 1876.

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 new and useful Improvements in Heating-Drums, of which the following is a specification:

In the accompanying drawings, Figure 1 represents a vertical section of a heating-drum embracing my improvements; Fig. 2, a top view of the same, and Fig. 3 a horizontal section taken near the top or outlet end of said drum.

My invention has reference to a heating-drum designed for use either within or upon a stove or furnace, or in connection with the smoke-chamber, smoke-stack, or stove-pipe thereof, for the purpose of utilizing the escaping products of combustion for heating the surrounding air; and the particular feature of my improvement consists in the combination and arrangement, in a drum provided with a group of open-ended tubes, of a pipe of larger diameter suspended obliquely among the flues, whereby to serve as a deflector and radiator of the heat among the tubes, and as a fuel-magazine, if desired, as will be more fully hereinafter described.

The casing A may be cylindrical, or any other suitable or preferred form, with heads B B′, the lower one being provided with a central opening, C, for the products of combustion from the fire-chamber, and the upper one with openings D D^1 in the middle portion thereof, one of which, D, forms a collar for the outlet-pipe. Grouped around or about these openings in the upper and lower heads, and wholly or partly surrounding them, are openings E, corresponding in the two heads, and these are provided with interior collars *e e*, over which fit open-ended tubes F F, which are thus held securely in position, when the heads are connected and secured together by wrought-iron tension-rods passing through the drum, as shown and described in a patent granted to me November 23, 1875.

The group of open-end tubes may be an annular, elliptical, or other series to the figure of which the casing may conform; or they may be arranged in an arc or bent line, so as to either wholly or partly embrace the openings C D D^1, in the latter case leaving a space for a side door, if desired.

The opening D^1 has a collar, *e′*, which supports a pendent pipe, H, of a larger diameter and surface than the tubes F, and in a position inclining from the opening D^1, which is at one side of the center of the top head, to the center of the opening C in the bottom head. This pipes H serves two purposes—a heat deflector and radiator when so desired, and a fuel-magazine when desired. In either case it is a deflector, for the heat, rising through the opening C and striking its inclined sides, is deflected among the tubes.

A cap or cover, G, which is made removable, tightly closes the opening D^1, and the pipe serves as a combined radiator and deflector, for after it becomes heated through its open end D^3 the heat must be diffused by radiation laterally to the radiating-surface, while the inclined position of the central pipe forces the heated gases laterally against the radiating-surface as they pass through the central opening, within which the pipe H hangs.

As a fuel-magazine, the pipe H acts as a solid body in the heat-passage, and by its inclined walls prevents the heat from passing off too quickly through the opening D, but diverts it among the tubes. The cover G is also used with the pipe as a magazine when the drum is applied to a base-burner.

The pipe H is oval at the top, and arranged to one side of the center of the drum-top, as affording a more convenient application of the outlet-pipe to the opening D at the top of the drum, and to give the best results as a deflector and radiator for the heat entering its larger open end.

The drum may be applied either upon or within a stove or furnace, whether such stove is adapted for wood or coal; or it may be applied intermediately of two sections of furnace-pipe, the products of combustion being admitted into the drum, and traversing it either transversely or longitudinally.

A damper or dampers may be used above the drum in the smoke-pipe, for retarding or accelerating the ascending currents.

I claim—

1. The heating-drum, consisting of the cas-

ing A, heads B B′, having the bottom opening C and the top openings D D¹, the open-end pipes F, and the pipe H, extending obliquely from the opening D¹ to the opening C, all arranged as and for the purpose described.

2. The combination, with a heating-drum consisting of a chamber provided with openings C D, for the entrance and exit of the products of combustion, and a group of open-ended pipes, F, of a pipe, H, open at its lower end D³, and of larger diameter than the tubes F, and suspended among said group of tubes, and a removable cover, G, all arranged as and for the purpose herein set forth.

3. The combination, with a heating-drum consisting of a chamber provided with openings C D, for the entrance and exit of the products of combustion, and a group of open-ended pipes, F, of a pipe, H, open at its lower end and of larger diameter than the tubes F, and suspended in an oblique position within the space formed by the group of radiating tubes, as and for the purpose herein set forth.

In testimony whereof I have affixed my signature in the presence of two witnesses.

THOMAS B. FIELD.

Witnesses:
E. C. ENGLISH,
E. D. MILLS.