

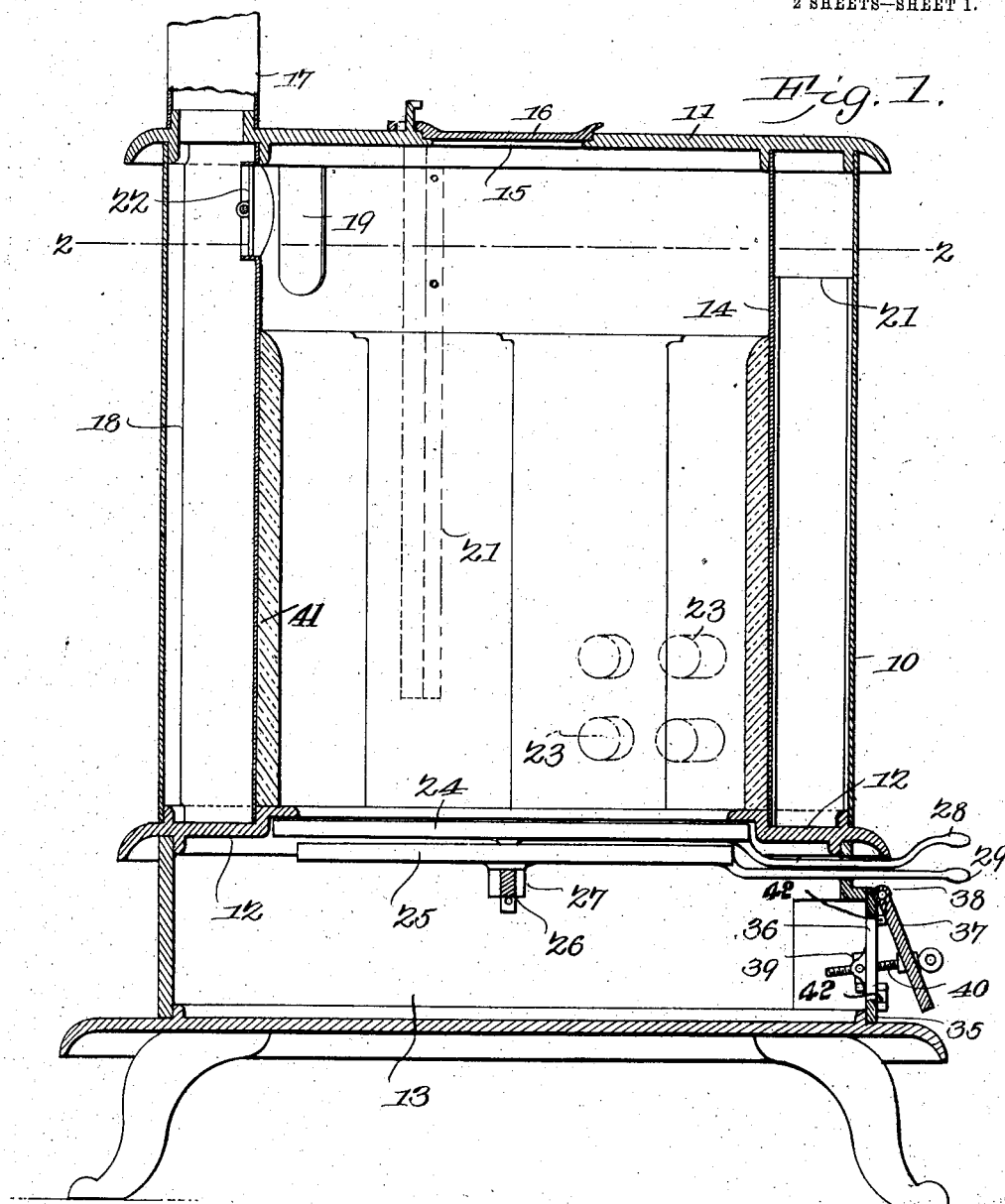
No. 834,345.

PATENTED OCT. 30, 1906.

J. M. UTZ.
STOVE.

APPLICATION FILED AUG. 24, 1905.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

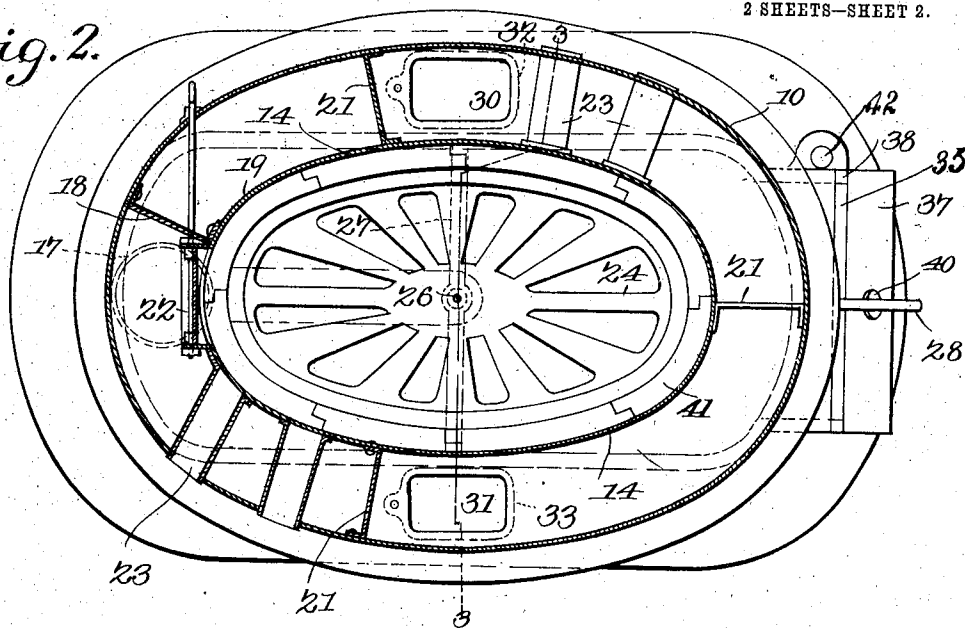
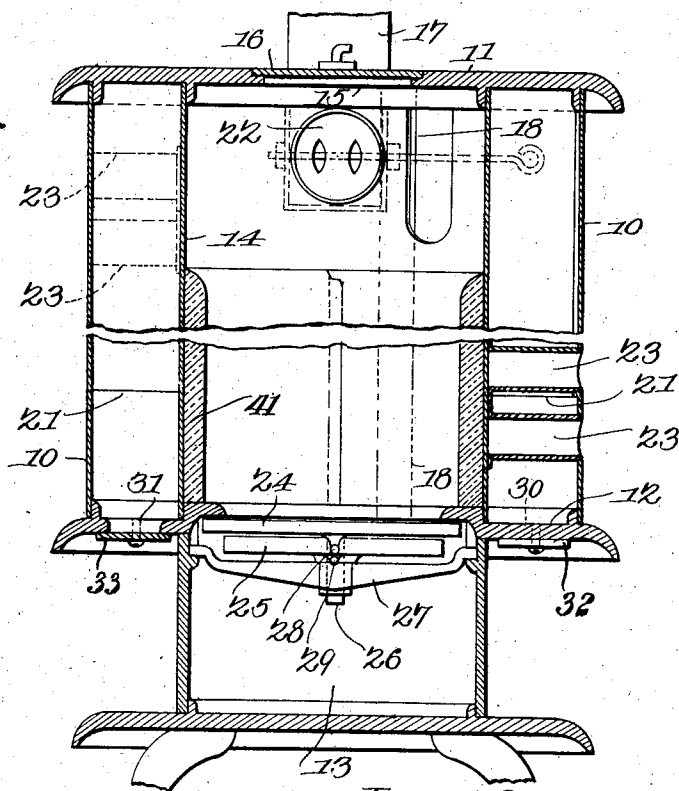


Fig. 3.



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UNITED STATES PATENT OFFICE.

JACOB M. UTZ, OF DUFF, INDIANA.

STOVE.

No. 834,345.

Specification of Letters Patent.

Patented Oct. 30, 1906.

Application filed August 24, 1905. Serial No. 275,657.

To all whom it may concern:

Be it known that I, JACOB M. UTZ, a citizen of the United States, residing at Duff, in the county of Dubois and State of Indiana, have invented a new and useful Stove, of which the following is a specification.

This invention relates to heating-stoves, and has for its object to improve the construction and increase the efficiency and utility of devices of this character.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists in certain novel features of construction, as hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which corresponding parts are denoted by like designating characters, is illustrated the preferred form of embodiment of the invention capable of carrying the same into practical operation.

In the drawings, Figure 1 is a longitudinal vertical section. Fig. 2 is a horizontal section on the line 2 2 of Fig. 1. Fig. 3 is a vertical section on the line 3 3 of Fig. 2.

The improved device comprises an outer shell or drum 10, preferably of sheet metal of requisite quality and strength and closed at the upper end by a top member 11, preferably of cast-iron, and closed at the lower end by a bottom member 12, also of cast-iron, the bottom member having an ash-pit 13 disposed below its central portion.

Within the outer shell 10 an inner shell 14 is arranged and spaced from the outer shell and extending between the top member 11 and bottom member 12, with the ash-pit 13 communicating with the inner shell.

The inner shell is provided with a fire-lining 41, preferably formed in sections, as shown.

The top member 11 is provided with a fuel-feed opening 15, having a detachable closure 16, and the top member 11 is also provided with a smoke discharge or outlet 17.

Connecting the outer and inner shells adjacent to the smoke-outlet 17 is a partition 18, extending the whole distance between the top member 11 and bottom member 12.

A smoke-aperture 19 is formed in the inner shell 14 adjacent to the partition 18 and at the opposite side of the same from the discharge member 17.

Disposed within the space between the

shells 10 and 14 are a plurality of partitions 21 of less length than the shells and arranged with the ends alternately spaced from the top and bottom members so that the smoke and other products of the combustion are caused to follow a zigzag course from the aperture 19 to the final discharge 17.

Any required number of the partitions 21 may be employed, and for the purpose of illustration three are shown, two with the passages beneath them and one with the passage above it, so that the smoke and other products of the combustion will pass downward from the aperture 19, beneath the first partition 21, thence over the next partition, thence beneath the third partition, and thence out through the discharge 19. By this means the smoke and other matter is caused to traverse upwardly and downwardly between the shells in its passage around them or in a zigzag course, the number of the courses depending on the number of the partitions 21.

A direct-draft damper 22 will preferably be arranged in the inner shell 14 adjacent to the main outlet 17 for use in first starting the fire or when otherwise required.

Disposed between the shells 10 and 14 are a plurality of tubular chambers 23, opening at the outer ends through the outer shell and with the inner ends bearing against the outer face of the inner shell, the inner shell thus forming closures to the inner ends of the chambers which come above the linings of one thickness only of the sheet metal of which the shells are constructed. By this arrangement the area within the chamber is subjected to heat radiated into the same from the fire within the inner shell through the comparatively thin end closures formed by the wall of the inner shell and also from the smoke-flame and other products of the combustion passing through the space between the shell. The air in the chamber is thus very rapidly and highly heated and expelled therefrom and replaced by the cooler air from the outside, and thus creates a rapid and continuous circulation of the air through the chamber and rapidly warming the air in the immediate vicinity of the stove. This is an important feature of the invention and increases materially its value and efficiency.

Any required number of the chambers 23 may be employed, and they will be arranged where the greatest heat occurs, or where

they will be subjected most directly to the currents of hot smoke-flame and other products of the combustion.

The grate employed in the improved heater is formed in two plates or frames 24 25, supported for rotation at 26 upon a hinge 27 and provided with handles 28 29 extending beyond the outer line of the stove structure.

The grate-frames are provided with radiating-apertures, as shown in Fig. 2, and by vibrating the two grate members in opposite directions the ashes and clinkers will be discharged into the ash-pit 13.

The ash-pit is about equal in width to the inner shell 14, and the outer shell 10 overhangs the ash-pit at the sides, as shown in Fig. 3, and the overhanging portions are provided with clean-out apertures 30 31, having detachable closures 32 33.

The entrance to the ash-pit is provided with a door 35, hinged at 42, having a plurality of draft-apertures 36, and with a closure 37, hinged at 38 to the door 35. Connected to swing upon the door 35 is a nut 39, through which a screw 40 operates, the screw being mounted to rotate in the door. By this means the swinging closure may be adjusted to any desired point and locked in any desired position to effectually control the draft of the stove.

The shells 10 14 and other parts may be of any required size or shape, but will preferably be elliptical, as represented.

Having thus described the invention, what is claimed is—

In a heating-stove a base-plate, an ash-pit extending from said base-plate, an intermediate plate bearing upon said ash-pit and extending laterally thereof at the sides and with a central aperture communicating with said ash-pit, a grate supported within the ash-pit beneath said aperture, an outer shell bearing at the lower end upon the intermediate plate, an inner shell supported at its lower end upon said intermediate plate and inclosing said aperture and the grate beneath the same and provided with an opening near the smoke-flue and communicating with the space between the shells, a top plate bearing upon the upper ends of both of said shells, a smoke-flue leading from said top plate and communicating with the space between the shells, a shut-off plate within said space between said smoke-flue and said opening in said inner shell, and a plurality of spaced deflecting-plates within said space and extending alternately upward from said intermediate plate and downward from said upper plate.

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

JACOB M. UTZ.

Witnesses:

JAMES H. ATKINSON,
WILLIAM G TEGMEYER.