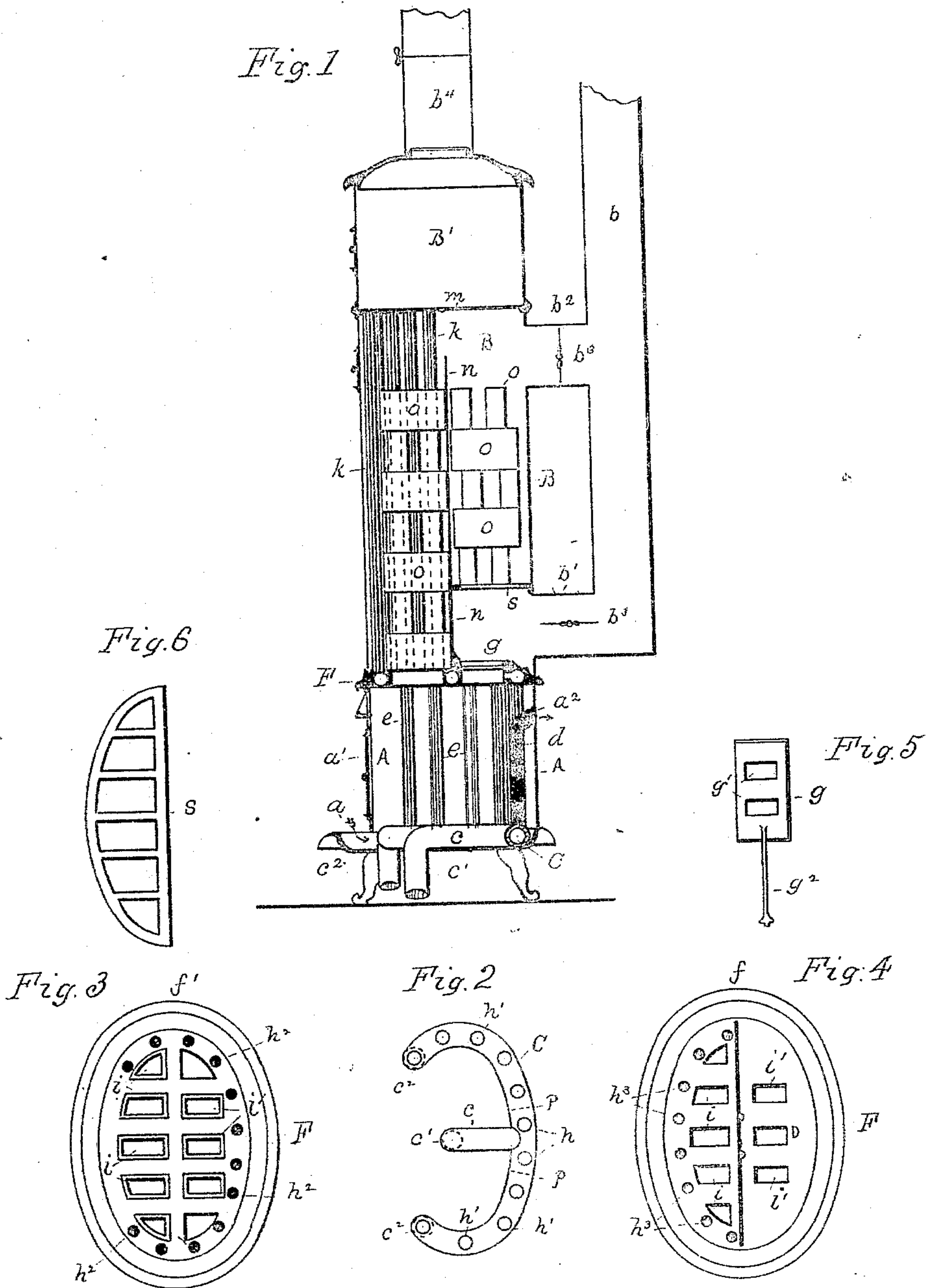


(No Model.)

H. TILDEN.  
HEATING STOVE.

No. 359,698.

Patented Mar. 22, 1906.



Witnesses:

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J. E. Miner.

Inventor:

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Attorney.



# UNITED STATES PATENT OFFICE.

HENRY TILDEN, OF MINNEAPOLIS, MINNESOTA.

## HEATING-STOVE.

SPECIFICATION forming part of Letters Patent No. 359,698, dated March 22, 1887.

Application filed March 1, 1886. Serial No. 193,657. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY TILDEN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Heating-Stoves; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a stove provided with my improvements. Fig. 2 is a top view of a tubular heater used in the combustion-chamber. Figs. 3 and 4 are respectively bottom and top views of the hollow grate placed over the combustion-chamber for heating air and for supporting fire-bricks. Fig. 5 is a slide used on the rear portion of said grate for controlling the draft, and Fig. 6 is a grate used for supporting the fire-bricks in the rear portion of the drum.

In the drawings, A represents the combustion-chamber, and B the ordinary sheet-iron drum.

b is the smoke-flue leading to the chimney, and connects with the drum B, near its base, through a branch pipe, b', and near its top through a branch pipe, b<sup>2</sup>. The pipes b' and b<sup>2</sup> have ordinary dampers, b<sup>3</sup>. The draft-inlet to the combustion-chamber is through openings a in the front plate, and is regulated by a slide, in the usual manner.

C is a tubular air-heater, curved or of other suitable form to fit within the lower part of the combustion-chamber, and has its front ends apart to permit easy removal of ashes from the ash-box through the door a' at the front of the stove. If the door a' is at the side of the stove, then the heater C should be made to fit around the opposite side and front and back, leaving a suitable space between its ends toward the side of the stove which has the door.

c is a branch tube extending from the middle portion of the heater C toward the front of the stove or door. The fuel may be placed on these tubes, and thus supported above the stove-bottom and ashes, to facilitate combustion. The forward end of the tube c communicates with an air-supply inlet or pipe, c', in the stove-bottom, and pipes d d are connected, through the holes h, with the middle portion of the heater C, which middle portion is dis-

connected from the end portions by partitions p. (Shown by dotted lines.) The pipes d terminate in openings a<sup>2</sup> in the upper portion of the walls of the combustion-chamber. Thus the air admitted through the inlet c', becoming heated in its passage through the tubes c and d, passes out at the openings a<sup>2</sup>.

Suitable air inlets or tubes, c<sup>2</sup>, in the stove-bottom supply air to the heater C, and a series of pipes, e, ranged around the sides and back of the combustion-chamber, and connected to the heater C through the holes h', conduct the air to the hollow grate over the chamber.

F is the hollow grate supported over the combustion-chamber, and it may be cast integrally or made of an upper half, f, and a lower half, f', of somewhat dish shape, fitting closely together around their margins and having an air-space between them in the interior. It is preferable, however, to have the grate of one piece, as it is difficult to make an air-tight joint between the two portions.

The pipes e communicate with this interior air-space through the holes h<sup>2</sup> in the under side of the grate. i i are the interstices in the grate, through which the products of combustion pass from the combustion-chamber into the drum above. In the rear portion of the grate are also openings i', over which is placed a sliding plate, g, having a handle, g<sup>2</sup>, projecting outside the stove. The plate is provided with openings g', corresponding with the openings i' in the grate, so that a direct draft can be had, when desired, from the combustion-chamber to the flue b.

On the upper side of the grate F are holes h<sup>3</sup>, through which a series of pipes, k, connect with the inclosed air-space of the grate. These pipes are preferably arranged only in the front portion of the drum B, and extend through the drum and through the plate m at its top.

n is a partition separating the drum B into front and rear compartments, and fits closely to the sides of the drum. It extends from the grate F into the upper portion of the drum, leaving a passage-way for the smoke and gases between the partition n and the plate m.

o o are fire-bricks built up in zigzag courses from the grate F in front of the partition n, and also in rear of that partition from a grate, s, supported above the draft-flue b' by lugs on the partition n and back of the drum.



It will be apparent that air admitted to the heater C will be subjected to heat while within, and will ascend through the heater C, the pipes e, the grate F, and the pipes k. From the upper drum, B', the heated air may be allowed to escape through openings in the sides or top of the drum; or it may be conducted through a pipe, b<sup>1</sup>, into another apartment.

I do not herein claim any of the patentable features shown other than those specifically set forth in the claims, reserving to myself, however, the right to make such claim in other applications filed by me November 9, 1885, No. 182,217, and March 1, 1886, No. 193,594.

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

1. In combination, in a heating-stove, a fire-chamber, a superimposed drum, an intermediate hollow grate, a partition dividing said drum, except the upper portion thereof, into front and rear compartments, escape-flues connected with said rear compartment near its top and bottom, dampers in said flues, a draft-

regulator for controlling the openings in the rear portion of said grate, and pipes in said fire-chamber and drum communicating with the hollow of said grate for the convection of air through the stove, substantially as set forth. 25

2. In combination, in a heating-stove, a fire-chamber, a superimposed drum, an intermediate hollow grate, a partition dividing said drum, except the upper portion thereof, into front and rear compartments, escape-flues connected with said rear compartment near its top and bottom, dampers in said flues, a draft-regulator for controlling the openings in the rear portion of said grate, pipes in said fire-chamber and drum communicating with the hollow of said grate, and fire-bricks arranged in said drum-compartments to form a devious draft-passage therein, substantially as set forth. 30 35 40

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Witnesses:

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