

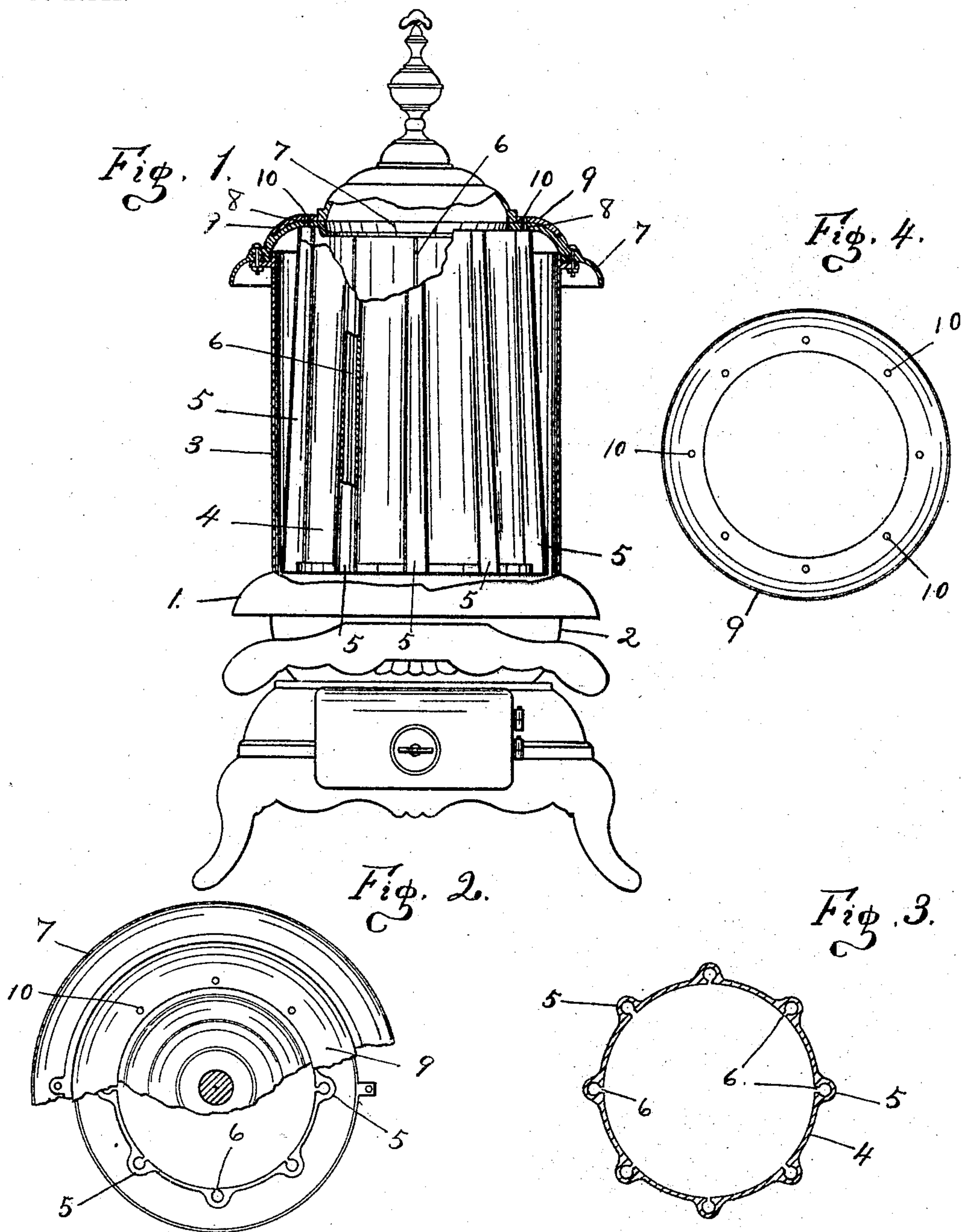
No. 764,683.

PATENTED JULY 12, 1904.

E. SCHOUF.
MAGAZINE FOR HEATING STOVES OR FURNACES.

APPLICATION FILED APR. 10, 1901.

NO MODEL.



WITNESSES:

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UNITED STATES PATENT OFFICE.

EMIL SCHOUF, OF LIMA, OHIO.

MAGAZINE FOR HEATING STOVES OR FURNACES.

SPECIFICATION forming part of Letters Patent No. 764,683, dated July 12, 1904.

Application filed April 10, 1901. Serial No. 55,145. (No model.)

To all whom it may concern:

Be it known that I, EMIL SCHOUF, a citizen of the United States, residing at Lima, in the county of Allen, in the State of Ohio, have invented certain new and useful Improvements in Magazines for Heating Stoves or Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in magazines for heating stoves or furnaces in which either hard or soft coal is used for fuel.

The object of my present invention is to provide an improved magazine for heating stoves and furnaces having a series of downdrafts by means of which the hot air, smoke, and unconsumed gases generated in the magazine are conducted downward with the draft to the fire pot or grate, where they are consumed, and in the use of which a very substantial saving of fuel is secured.

The principal novel feature of my invention resides in the construction and arrangement of downdraft conduits or flues by means of which the hot air, smoke, and gases generated in the magazine are conducted to the fire-pot.

My invention consists of an upright magazine of proper dimensions centrally arranged in a suitable stove-shell and provided with a series of peripheral longitudinal integral draft flues or conduits communicating throughout their length with the interior of the magazine by means of a longitudinal slot and means for closing the upper and outer ends of said draft-conduits.

Similar reference-numerals indicate like parts throughout the several views, in which—

Figure 1 is a side elevation of a heating-stove containing my improvement, broken away in part to show the relative arrangement of the downdraft-tubes and the means for closing the same. Fig. 2 is a plan view of Fig. 1, broken away in part to show the magazine and having the ornamental top cut

away. Fig. 3 is a cross-section of the magazine, taken at any suitable point between its ends. Fig. 4 is a plan detail of the adjustable ring by means of which the natural draft-openings are regulated and closed.

The heating-stove 1 is of any suitable form or construction, having a proper fire-pot 2 surmounted by a proper stove-shell 3, in which is suspended or surmounted in the usual manner my improved downdraft-magazine 4, constructed as follows: The hollow magazine 4, open at both top and bottom, as usual, is preferably cylindrical and slightly frusto-conical and is provided upon its periphery with a series of integral vertical tubes or natural-draft conduits 5, preferably eight in number, extending the entire length of the magazine. These conduits of proper capacity are open at each end and communicate freely with the interior of the magazine by means of a narrow vertical slot 6. This slot is too small to admit any fuel, and yet is wide enough to admit the gases of the magazine freely to the said conduits, after which they are promptly carried downward to the fire-pot or combustion-chamber by the natural draft through said conduits. While I have shown these tubes 5 as integral, they may be properly fixed upon said magazine, if desired, and they may be arranged upon the inside of the magazine adjacent to its perimeter instead of upon the outside, if preferred. My improved magazine thus constructed is surmounted, as usual, with a fixed top 7, provided with vertical draft-openings 8 in register with the said conduits, respectively. In a suitable annular recess in the top 7 is revolubly mounted an annular damper-plate 9, having a series of vertical openings 10 adapted to register with the said openings 8 when desired. These openings 8 and 10 are of proper size to properly establish a natural draft, though I prefer to make them of a less size than that of the said conduits. The said tubes or draft-conduits 5 are shown as slightly frusto-conical, though they may be of equal cross-section throughout their length, if desired. By making the conduits 5 frusto-conical or tapering it will be seen that said conduits gradually increase in diameter

and area from their upper ends to their lower ends, and consequently said conduits are enabled to accommodate the body of the air as the latter gradually increases in volume in its descent through the conduits by reason of the addition thereto of the gases drawn in through the slots 6 and with which the air becomes laden. Consequently by reason of such construction of the conduits the latter are effectively prevented becoming choked by the mixture of air and gases, and a free circulation through the conduit is maintained.

The usual opening in the top plate 7 is closed by a proper lid, as usual. (Not shown.)

The operation of my invention thus described is obvious, and, briefly stated, is as follows: When a coal fire of either hard or soft coal is started in the fire-pot, all the stove-dampers are closed, and the only draft to the combustion-chamber is downward through the said draft tubes or conduits 5, which is found by practical tests to be sufficient for a perfect combustion. Obviously when this downward draft has been established in the said conduits a suction through the said vertical slots 6 will result, thereby continually drawing from the steaming coal all the hot air, smoke, gases, and noxious fumes generated therein, which are then carried downward with the draft to the fire-pot, where they are consumed. The force and quantity of this downdraft can, of course, be regulated or entirely shut off by means of the annular damper-plate 9.

Numerous practical tests have demonstrated that a saving of nearly one-half in fuel is effected by the use of my improved downdraft-magazine.

It is apparent that my improvement is equally applicable to furnaces as to heating-stoves.

Having thus described my invention and the

manner of operating the same, what I desire to secure by Letters Patent is—

In a stove, the combination with the casing or shell thereof, a fire-box located beneath said shell, and a top surmounting the shell at its upper end, said top having an annular depression provided at intervals with draft-openings, of a magazine arranged in said casing or shell and suspended from said top, said magazine having a series of peripherally-arranged longitudinally-extending draft tubes or conduits each of which is provided with an inwardly-directed slot throughout its length to afford communication between the tubes or conduits and the interior of the magazine, the upper ends of said tubes or conduits lying directly beneath and each registering with one of the draft-openings of the top so that each tube or conduit is fed independently of the others, said draft tubes or conduits also tapering from top to bottom to increase their diameters and areas throughout their length, whereby said tubes or conduits are enabled to accommodate the body of air as the latter gradually increases in volume in its descent due to the addition of the gases drawn in through said slots, and are prevented becoming choked with the mixture of air and gases, and an annular adjustable damper-plate fitted within the depression of the top and provided with a series of openings adapted to be brought into register with the draft-openings of the top, whereby the flow of air through said openings to the draft tubes or conduits of the magazine may be regulated.

Signed by me at Lima, county of Allen, State of Ohio, this 6th day of April, A. D. 1901.

EMIL SCHOUF.

Witnesses:

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