

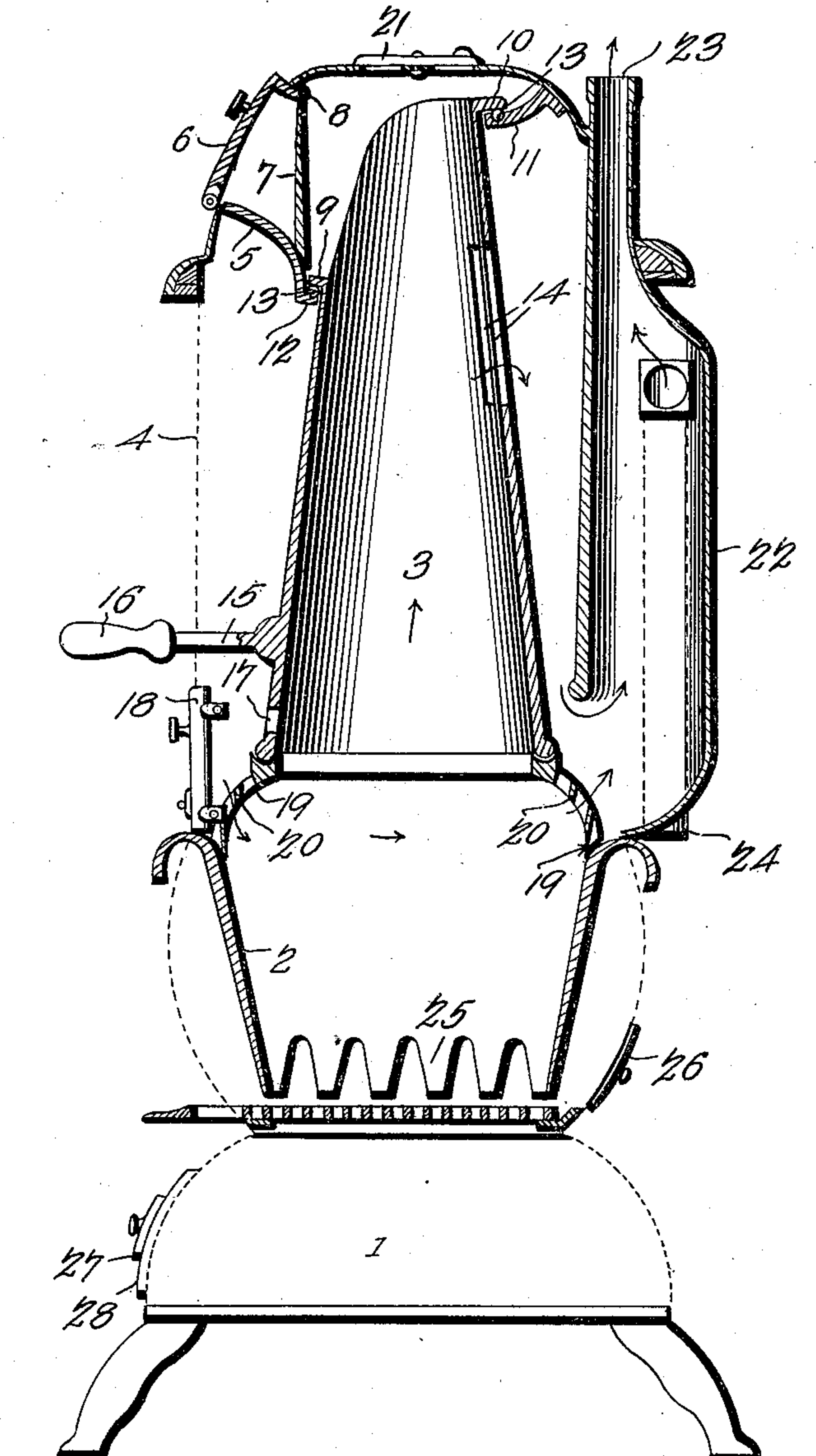
No. 704,051.

Patented July 8, 1902.

E. J. LAHAN.  
STOVE.

(Application filed Dec. 14, 1901.)

(No Model.)



Witnesses  
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# UNITED STATES PATENT OFFICE.

EDWARD JAMES LAHAN, OF QUINCY, ILLINOIS.

## STOVE.

SPECIFICATION forming part of Letters Patent No. 704,051, dated July 8, 1902.

Application filed December 14, 1901. Serial No. 85,948. (No model.)

*To all whom it may concern:*

Be it known that I, EDWARD JAMES LAHAN, a citizen of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented a new and useful Stove, of which the following is a specification.

This invention relates to stoves, and more particularly to that class used for heating purposes.

The objects of the invention are in a ready, simple, and thoroughly efficient manner to obviate the escape of gas to a room when the stove is being filled; to prevent the drum at the base portion of the stove from becoming highly heated, and thus be liable to injury from warping; to prevent when desired the rapid ignition of the fuel in the magazine by holding the fire down in the fire-pot, causing thereby the highly-heated products of combustion to pass upward to a point of escape, thus utilizing the maximum of the heat units for heating purposes; to reduce the labor of shaking the magazine to cause the fuel to settle to a minimum, and, finally, to provide means whereby a constant intake and outtake of atmospheric air may be effected without interfering with the regular draft of the stove.

With these and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a stove, as will be hereinafter fully described and claimed.

In the accompanying drawing, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated a form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention, and in the drawing the figure is a view in sectional elevation of a stove characterizing this invention, the drum or casing being indicated by dotted lines.

Referring to the drawing, 1 designates the base or ash-pit of the stove; 2, the fire-pot; 3, the magazine, and 4 the drum or casing,

the latter being indicated by dotted lines. The upper portion of the drum is provided with a downcurved feed-chute 5, covering which is a door 6, through which fuel is fed to the magazine, the chute being normally closed by a door 7, pivotally secured at its upper end to a lug 8 and operating when the feed-door is open to prevent escape of gas into the compartment in which the stove is located. The upper portion of the magazine at its front is higher than at its back, and these two portions are provided each with an outstanding flange 9 and 10, respectively, adapted to engage a suitable support to hold the magazine suspended within the drum for rotary movement, the means herein shown comprising a lug 11, secured to the top of the stove, and a lug 12, forming a continuation of the chute 5, and between the flanges 9 and 10 and the lugs 11 and 12 are disposed roller or ball bearings 13, which, as will be apparent, will render the magazine easy to be rotated. The rear portion of the magazine near its top is provided with a plurality of vertically-disposed slots 14, designed to present escapes for gas from the fuel, the gas being drawn downward to the rear of the stove and thence discharged in the manner that will presently be described. At a point near the lower end of the front portion of the magazine there is provided an extension 15, which projects outward through an opening in the drum (not shown) and is adapted to be engaged by a suitable handle 16, through the medium of which the magazine may be rotated. The magazine is also provided with a poke-hole 17, by which the coal may be operated on by an ordinary poker, the said hole being normally sealed by a door 18, arranged at the front of the drum.

The fire-pot 2, which may be of the usual or any preferred construction, supports a circle grate 19, which closes the space between the fire-pot and the lower end of the magazine, and thereby prevents the fuel from coming in contact with the drum and highly heating the same, the said grate being provided with bars or ribs 20, between the spaces of which the gases from the fire-pot partially escape to the rear of the stove when an up-draft is employed and gases from the maga-



zine when a downdraft is employed, the latter being produced by a rotary damper 21 in the top of the stove. The lower end of the drum at the back of the stove terminates a short distance above the circle grate 19 and forms, in effect, a partition or front wall of a main back flue 22, the same to be either secured to or formed integral with the drum, and between this partition and the rear portion of the magazine the gases from the magazine that escape through the slots 14 travel, as indicated by the arrows, thence escape into the main back flue 22, and thence escape through a collar-flue 23, forming the upper termination of the main back flue. Tapped into the main back flue, near its upper end, is one end of an air-intake flue 24, the other end of which projects downward any desired distance, and through this flue a constant current of external air passes and out through the collar-flue 23, setting up thereby a downdraft through the magazine and an updraft through the fire-pot, which will operate at once to put the required draft on the fuel in the fire-pot and also to withdraw the gases from the magazine through the slots 14 in the manner already described, the inner wall of the main back flue operating to prevent the incoming air to the said flue from entering the stove, thereby to obviate any decrease in the draft which would result if the flue 24 entered the main back flue 22 near its base. In other words, the uptake of air through the flue 24 will not in any way interfere with the draft of the stove. As this draft is constant, it will be seen that when the feed-door is opened and fuel is supplied to the magazine there will be no possibility of gas escaping into a room or of dust from the fuel being blown out of the stove into the face of the attendant. Below the fire-pot is the usual grate 25, which may be of the usual or any preferred construction, and therefore needs no detailed description.

In addition to the damper 21 there are provided two other draft-dampers 26 and 27, the damper 26 being arranged at the rear of the drum, near the bottom of the fire-pot, and the draft-damper 27 in the door 28, closing the front of the ash-pit. These two draft-dampers may be used as usual to augment the updraft of the stove and operate in the usual and well-known manner.

It will be seen by the provision of the slots 14 at the back of the magazine that the heat units contained in the gases that generally escape direct from the stove are utilized for heating purposes, as under the structure shown these will be drawn from near the top of the stove downward to a point near the bottom of the drum and thence upward to a point beyond the top of the drum, and in traversing this path the heat from the gases will be given out through the walls of the drum. By having the air-intake flue discharge into the main back flue 22 at a point

near its upper end a large proportion of the heat units of the gases and the highly-heated products of combustion are utilized for heating purposes before becoming admixed with the air entering the intake-pipe, so that with a minimum of fuel the maximum of heat will be obtained; but the gases still retain sufficient heat when they strike the air coming through the intake-pipe to set up a secondary combustion within the main back flue 22, thus to increase the draft on the stove. It is further to be noted that as the air-intake flue 24 is disposed at a point near the bottom or base of the stove it will operate to draw into the stove the cool air, which is naturally near the floor of the room, and discharges this, its place being taken by warm air, so that, as will be apparent, a room may be more rapidly and thoroughly heated with a stove employing such arrangement of air-intake flue than from one that depends for its supply of air for draft purposes solely from an ordinary draft-damper placed in the base or ash-pit of the stove. It will be further apparent that, owing to the continual downdraft in the stove caused by the escape of gases through the slots 14, the draft-damper 21 may be left open with impunity without danger of gas escaping through the room, and, as before stated, as the air entering through the said damper 21 operates to hold the fire down into the fire-pot it will be seen that an economical use of fuel will result from a stove constructed in accordance with the present invention.

It is to be understood that, if desired, a suitable damper may be employed in connection with the slots or gas-escape openings 14, and as this will be obvious detailed illustration thereof is deemed unnecessary.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A stove provided with a magazine having near the upper end of its rear portion a plurality of gas-escape openings, a main back flue having its inlet end disposed below the said openings, and means for supplying a constant current of air to the upper portion of the said flue thereby to draw gases out of the magazine through the said openings and to set up secondary combustion within the said flue to increase the draft of the stove.

2. A stove having a magazine provided at its top with a damper, and having at its rear a plurality of gas-escape openings, a main back flue having its inner wall terminating short of the magazine, and an air-intake flue entering the main back flue near its top and operating to withdraw gases from the magazine.

3. A stove provided with a magazine having gas-escape openings near the upper end of its rear side and operating normally to withdraw gases from the magazine, a main back flue having its intake end disposed near the fire-



pot, and a damper arranged above or near the magazine and operating, when opened, to drive the gases downward into the fire-pot.

4. A stove provided with a magazine supported for rotary movement therein and having its rear wall extended to a point near the top of the stove and provided with gas-escape openings, a feed-door, a gravity-controlled door normally closing the inlet to the magazine, and a main back flue having its inlet end disposed below the gas-escape openings.

5. A stove provided with a magazine supported for rotary movement about a vertical axis, a fire-pot, a circle grate arranged between the lower end of the magazine and the fire-pot and operating to prevent fuel from

contacting with the drum, and a main back flue having its inner wall disposed adjacent to the circle grate.

6. A stove provided with a magazine, circle grate, and fire-pot, combined with a main back flue, the inner wall of which terminates short of the bottom of the magazine, and an air-supply pipe entering the back flue near its top.

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

EDWARD JAMES LAHAN.

Witnesses:

ROBERT C. ALLEN,  
THOMAS J. LAHAN.