No. 848,314.

PATENTED MAR. 26, 1907.

P. J. MOONEY.

FORAMINOUS LEDGE STOVE.

APPLICATION FILED AUG. 16, 1906.

Fig. 1.

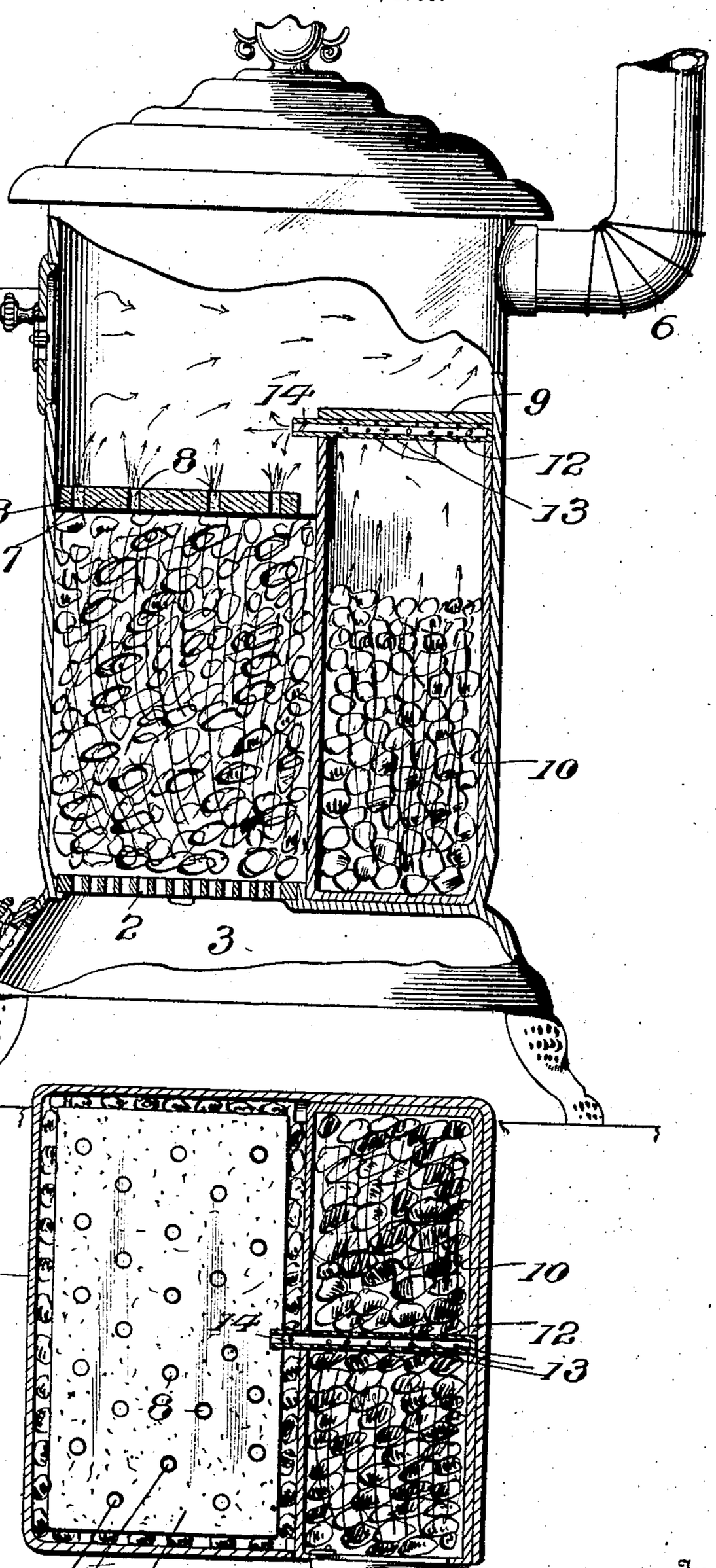

Fig. 2.

Witnesses:

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PATRICK J. MOONEY, OF BRAZIL, INDIANA.

FORAMINOUS-LEDGE STOVE.

No. 848,314. Specification of Letters Patent. Patented March 26, 1907.

Application filed August 16, 1906. Serial No. 330,928.

To all whom it may concern:

Be it known that I, PATRICK J. MOONEY, a citizen of the United States, residing at Brazil, in the county of Clay and State of Indiana, have invented certain new and useful Improvements in Foraminous-Ledge Stoves, of which the following is a specification.

My present invention contemplates certain new and useful improvements in means for promoting the thermal efficiency of coke, coal, wood, and all other substances used as fuel for heating and cooking and other purposes, and is an advance in the art of which the prior invention of my allowed application for Letters Patent of the United States, filed on or about November 21, 1905, Serial No. 288,430, is a step. My former invention just referred to was evolved from a recognition of the fact that a high per cent. of the efficiency of fuel is wasted under ordinary conditions as a result of the incomplete combustion of carbon with oxygen, the carbonaceous oxid or carbon monoxid resulting from this incomplete combustion being ordinarily, before my last invention, wasted through the outlet-pipe. The said prior invention comprehended a foraminous fire plate or cover, which is intended to rest directly upon the bed of fuel and be supported thereby, the gases entering the magazine below the grate-bars or in any other manner to gain access to the fuel and being confined to the proper degree by means of the said plate, and thereby caused to freely commingle with the fuel and with the combustible gases evolved, so as to result in the complete combustion of the fuel. Furthermore, the provision of a foraminous plate, as explained fully by the description forming part of my prior application, provides a plurality of drafts which act in the nature of suction-orifices to insure proper combustion, the carbon monoxid burning as it issues out of said orifices and the latter thereby constituting flame-jets.

My present invention embodies as a feature this foraminous fire plate or cover, before referred to, and in connection therewith means whereby the fuel, especially if it be wood, coal, coke, or other solid fuel, is prepared for proper burning when finally forming a part of the fuel-bed, while at the same time this fuel which is being prepared for consumption is caused to evolve gaseous products by contiguity to the bed of live fuel, (being placed in a retort,) and thereby assists in promoting the efficiency of combustion, as well as economies in the consumption of the fuel. In this invention, as will be more fully hereinafter described, I employ a foraminous-ledge stove embodying a retort or preparing-magazine for the fuel, said retort being placed in contiguity to the bed of live fuel, as before stated, and there being provided an eduction device for the gaseous products resulting from the slow heating of the fuel in the retort, so that the said products may escape into the live-fuel magazine at the proper elevation above the foraminous fire-plate cover of my former invention, so that such products may be consumed by coming in contact with the flame-jets issuing through the foraminous fire-plate cover and then escape through the chimney. If these gaseous products are combustible, it is obvious that they will be consumed, and thereby assist in promoting the efficiency of the stove; but if they are non-combustible they will be expelled through the chimney by the draft, and in either event by thus vaporizing the moisture and part of the combustible matter of the fuel and gradually burning or expelling the same before the fuel is actually lighted such fuel thus prepared will burn to much better advantage after being placed in the fire-box, and the annoyance resulting from large periodical clouds of smoke is reduced, while at the same time great economy results, because a large proportion of this volatile matter is combustible and is consumed, and the carbon is therefore economized.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result, reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a vertical sectional view of a stove embodying the improvements of my present invention. Fig. 2 is a horizontal sectional view showing for the purpose of illustration only one of the many forms of which the foraminous fire plate or cover and foraminous ledge may partake.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

Referring to the drawings, the numeral 1 designates the fire-box of a stove, which may be of any desired construction and design, except as hereinafter set forth.

2 designates the grate, and 3 the ash-pit

underneath the grate. Any desired form and arrangement of ash-pit and fuel-receiving door with their dampers may be provided, the same in the present instance being designated 4 and 5, respectively, and any desired form and arrangement of draft-pipe 6 may be used.

7 designates one form of the foraminous fire plate or cover, the same being placed directly upon the bed of fuel in the fire-box 1 and provided with apertures 8, forming jets or orifices, and 9 designates a ledge, which may be either horizontal or inclined and which may extend around the inner side of the wall of the stove at the upper end of the fire-box, said ledge being of any predetermined weight and extent, according to the different conditions which may be found to exist. This ledge may be used as a shelf, upon which the foraminous fire plate or cover 7 may be placed when for any reason, such as replenishing the fire-box with fuel, the plate needs to be removed from the fuel-bed, which will preclude any waste of heat or damage to the plate by unnecessary cooling and will also facilitate the convenient use of the plate. The primary object of the ledge 9 is, however, to form a means for conveniently conveying moisture or other volatile gases, whether combustible or not, from the reserve store or magazine of fuel in the retort or reservoir 10. The shape of this reservoir or retort is not essential within the purview of my invention, nor is its exact location within the stove, so long as it allows the fuel in the reservoir to come into sufficient proximity to the live coals within the fire-box 1 as to be heated thereby, and thus evolve the moisture and other gaseous products. In the present instance the retort 10 extends along the innermost rear side of the stove to practically the full height of the fire-box and is provided with a door 11, so that the reserve fuel may be inserted in the retort, and in the present instance also the ledge 9 forms the top of the retort, although this is a minor feature of construction. The ledge 9 has formed with it or secured to it on its under side an eduction-tube 12, which is foraminous, as shown, being provided with apertures 13, and to this extent the ledge itself is foraminous. At the same time it is obvious that my invention is not limited to the exact construction shown so long as there are means provided for feeding the said products from the reserve store of fuel from the retort into the fire-box above the foraminous fire-plate 7. In order to accomplish this result, the tube is in the present instance located with one end projected into the fire-box 1 at an elevation above the fire-plate 7, and this projected end is open, although there is preferably provided a check-valve 14 adjacent to such end and within the tube 12.

In the practical operation of the device of my invention, the reserve store of fuel being located in the retort 10 and live coals being in the fire-box 1, the heat of said live coals will cause the moisture and other gaseous products to be evolved from the fuel in the retort 10, and said products will enter through the apertures 13 into the tube 12 and be thence conveyed past the check-valve 14 out of the projected end of said tube into the fire-box 1 at such a point above the fire-plate 7 that the flame-jets issuing through the orifices 8 of said fire-plate will consume said gaseous products or in any event will assist in driving them off through the draft-pipe 6, and thereby accomplish all of the objects set forth at the outset of the specification. The check-valve 14 insures that these gaseous products evolved from the fuel in the retort will not return thereto.

Having thus described the invention, what is claimed as new is—

1. In a stove, the combination of a fire-box, a foraminous fire-plate adapted to be superposed on the bed of fuel in said fire-box for the purpose specified, and a retort connected to said stove in sufficient proximity to said fire-box to be heated by the fuel therein, and there being provided a passage from the retort to the fire-box, at a point above the foraminous fire-plate.

2. In a stove, the combination of a fire-box, a foraminous fire-plate adapted to be superposed on the bed of fuel in said fire-box for the purpose specified, and a retort connected to said stove in sufficient proximity to said fire-box to be heated by the fuel therein, and there being provided a passage from the retort to the fire-box, at a point above the foraminous fire-plate, and a check-valve in said passage.

3. In a stove, the combination of a fire-box, a retort in sufficient proximity to said fire-box to be heated by the fuel therein, a foraminous fire-plate adapted to be supported on the bed of fuel in said fire-box, and a foraminous ledge constituting the top of the retort and providing a passage opening in the fire-box at a point above the fire-plate.

4. In a stove, the combination of a fire-box, a retort contiguous to said fire-box, a foraminous fire-plate adapted to be superposed on the bed of fuel in said fire-box, a tube provided with apertures in its walls, said apertures opening into the retort and one end of said tube projecting into the fire-box at an elevation above the foraminous fire-plate.

In testimony whereof I affix my signature in presence of two witnesses.

PATRICK J. MOONEY. [L. S.]

Witnesses:

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