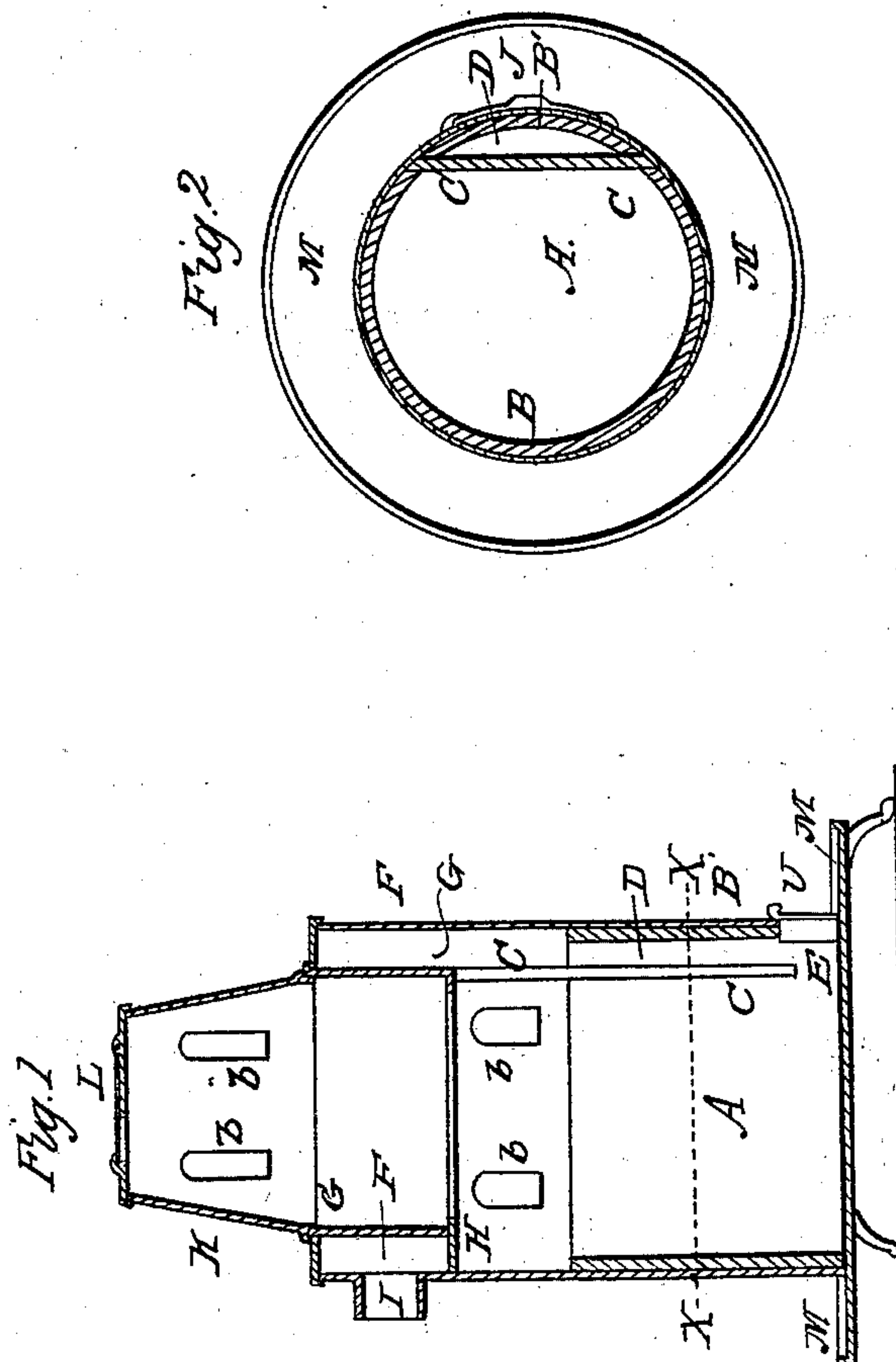


S. UTTER.  
Heating Stove.

No. 4,031.

Patented May 1, 1845.





# UNITED STATES PATENT OFFICE.

SAMUEL UTTER, OF NEW YORK, N. Y.

## STOVE.

Specification of Letters Patent No. 4,031, dated May 1, 1845.

*To all whom it may concern:*

Be it known that I, SAMUEL UTTER, of the city of New York, in the State of New York, have made a new and useful Improvement in the Manner of Constructing Stoves for Heating Apartments, which stove I usually make in a cylindrical form; and I do hereby declare that the following is a full and exact description thereof.

My stove is to be made without grate bars, the coal, either anthracite or bituminous, resting on the bottom thereof, which I intend to make of cast iron; this bottom may, if preferred, be covered with fire-brick, but this is not necessary to the free combustion of the coal, I having experimentally proved that anthracite may, in a stove of my construction, be reduced to ashes with scarcely any unburned pieces remaining from the combustion.

The lower part of my stove I close entirely, making no other opening into that portion of it than a small one for the removal of ashes, and this I close by a sliding, or other, door fitting so closely as not to admit any air capable of influencing the combustion. The part of the stove which is to contain the fuel, I line with fire-brick, and the fuel is supplied at the top, by removing a cap, or cover, on the upper part of the cylinder. The air for the support of combustion is also admitted at the top, through openings in a revolving register surrounding that through which the fuel is supplied; the draft of air to keep up the combustion descending from the upper to the lower part of the fuel, and the fire being, therefore, made to burn from the top. To carry off the smoke and gases, I form a flue on one side of the cylindrical body of the stove, by taking a slab of soap-stone, or other suitable material, which I so place as to extend down from an air-heating chamber at the upper part of the cylindrical body to within three, or four, inches of its bottom. Up this flue the smoke and gases pass and from the fire into said air-heating chamber, and escape through an exit pipe on the opposite side of the cylinder, in the ordinary way.

In the accompanying drawing, Figure 1, is a vertical section through the middle of my stove, and Fig. 2, a horizontal section thereof in the line  $x, x$ , of Fig. 1.

A, is the chamber of combustion for containing the fuel.

B, is the lining of fire-brick.

C, C, is the slab of soap-stone, which, extending across the interior of the cylinder near one of its sides, forms the flue, D; this slab of soap-stone, or of other material, terminates three, or four, inches from the bottom of the stove, leaving an opening into the flue, D, as shown at E; the opening being entirely above the bottom of the stove. The flue, D, should also be lined with fire-brick on its curved side, as shown at B'. The flue D, leads into a circular space, F, F, which constitutes the air-heating chamber, above named; this chamber being formed by an internal, cylindrical partition, G, extending up from a horizontal, annular plate, H, to the top of the cylinder. Under this arrangement, the highly heated, gaseous products of combustion that escape from the fire pass around the circular cavity, E, from the flue space D, to the exit pipe, I. This will not only increase the radiation, but has, also, the effect of heating the cold air which passes through the openings in the register at top to feed the fire, as said air has to pass in the vicinity of the circular partition plate, G, G; an effect which has been found greatly to promote the economy of combustion.

J, is the sliding door, to allow of the removal of ashes.

K, is a cap which may be made to surmount the main cylinder; or this may be omitted, the register for admitting air and the opening for supplying fuel being on a level, or nearly so, with the top of the cylinder.

At L, on the top of the cap, or on the upper plate of the stove, there is a revolving register through which the air is admitted to keep up the combustion, and by which its quantity may, of course, be regulated at pleasure;  $b, b$ , represent openings which may be made, if desired, and be covered with mica, to allow a view of the fire.

When the cap K, is not used, the register, L, which will be on a level with the top of the cylinder, may be lifted off when fuel is to be supplied; an event which, under proper management, will rarely occur more than once in twenty-four hours.

Having thus fully described the nature of my improvement in the stove for heating apartments, and shown the manner in which the same operates, I do hereby declare that I do not claim as new the causing of the draft to descend through the fuel, this having been done before, though under an arrangement



and combination of parts essentially different from that devised by me and herein described, but

What I do claim as new and desire to secure by Letters Patent, is—

The manner in which I have combined and arranged the respective parts of my stove, so as to allow the burning coal to rest on the solid stove bottom, without a grate, the lateral opening for the escape draft being entirely above the bottom of the stove,

and leading thence into the air-heating chamber F; by which device the radiation is increased, and the air for the supporting of combustion is also heated on its passage to the fire. The whole combination and arrangement being substantially the same with that herein described.

SAMUEL UTTER.

Witnesses:

THOS P. JONES,

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