(No Model.)

L. BRIDGE.

GAS STOVE.

No. 383,793. Patented May 29, 1888.

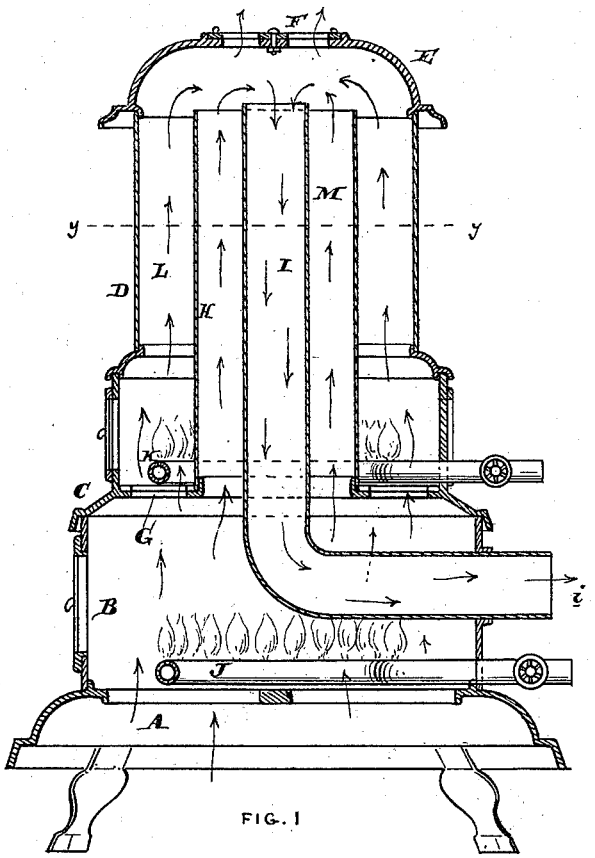

FIG. 1

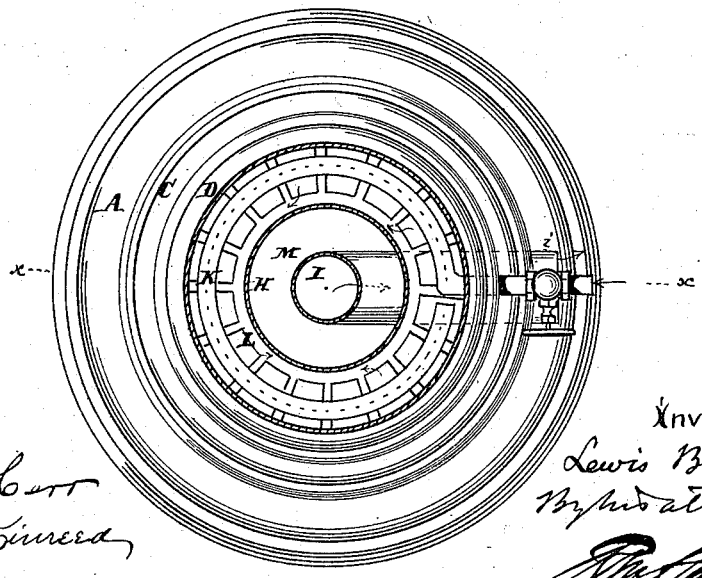

FIG. 2

Attest

Homer A. Hoyt

C. M. Breckinridge

Inventor

Lewis Bridge

By his atty.

L. Bridge

UNITED STATES PATENT OFFICE.

LEWIS BRIDGE, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE PENNSYLVANIA GLOBE GAS LIGHT COMPANY, OF PENNSYLVANIA.

GAS-STOVE.

SPECIFICATION forming part of Letters Patent No. 383,793, dated May 29, 1888.

Application filed December 27, 1886. Serial No. 222,577. (No model.)

To all whom it may concern:

Be it known that I, LEWIS BRIDGE, of the city and county of Philadelphia, and State of Pennsylvania, have invented an Improvement in Gas-Stoves, of which the following is a specification.

My invention has reference to gas-stoves; and it consists in certain improvements, all of which are fully set forth in the following specification, and shown in the accompanying drawings, which form part thereof.

In carrying out my invention I provide a cylindrical case or shell containing one or more radiating cylinders through which the products of combustion are required to pass in finding an escape. The heated currents may be produced by one or more burners, as is fully set out hereinafter. The internal cylinder or cylinders radiate their heat and thereby increase the normal temperature of the stove when in action. One or more of the cylindrical or annular passages formed by said cylinders may be cut out of action to reduce the temperature of the stove when desired.

The object of my invention is to construct a cheap and effective gas-stove for general household purposes, which shall give a maximum of heat from a minimum consumption of gas.

In the drawings, Figure 1 is a sectional elevation of a gas-stove embodying my invention on line *x x* of Fig. 2, and Fig. 2 is a cross-section of same on line *y y* of Fig. 1.

A is the base of the stove, and may be made of cast-iron with suitable air-passages for ascending air. Supported upon this base is a cast or sheet iron case, B, which may be of any suitable construction, and, if desired, formed with perforated or isinglass windows or doors. C is a cap which fits over this case B and supports the cylinder D, the base of which may be made similar to case B. The cap C has a central opening, *c*, and, if desired, an annular or other suitable valve, G, to control the draft. The cylinder D is mounted with the top casting, E, of the stove, which casting may be of any ornamental design and provided with a suitable register or valve, F.

We now come to the internal construction. Supported upon the cap C, at the edge of the opening *c*, is a cylinder, H, of sheet metal, which extends up near to the top of the stove.

I is a central cylinder arranged concentric to the cylinder H and is open at the top, the lower part passing down into the case B and out through the side thereof, forming the smoke or product outlet *i*.

J is a gas-burner arranged in the bottom of the case B, and K is another gas-burner in the bottom of chamber L and above the valve G. These gas-burners may be of any well-known construction, and can be operated independently of each other, so that either or both may be in action at one time.

In operating, the action is as follows: To obtain the greatest heat, the valve G is opened and both burners J and K ignited. The products from the burner J pass upward through the case B, and divide, part passing through the annular passage-way *c* M, and part through the valve G to the burner K, where the balance of the oxygen is burned. The resulting products pass up through the annular passage L and unite with the products ascending the chamber or passage-way M, and then pass down the central tube or cylinder, I, and out at *i*. If desired, part of the hot products may be allowed to escape into the room by the valve or register F. It will be observed that all of the oxygen which passes up with the products through the passage-way M will not be consumed, and, further, that when the gas of burner K is fully on all of the gas from the said burner will not be fully burned; hence these unburned gases are consumed at the top of the passages L and M and during their exit through central cylinder or tube. This second burning of the gases and air insures a most intense heat, and is facilitated by the intense heating of these gases before being consumed. From this it will be seen that there are essentially three distinct burnings, which are made at successively higher temperatures, and hence produce the greatest caloric effect from the minimum of materials consumed. Every part of the stove is utilized to radiate heat into the room, and this radiating effect is wonderfully increased by the use of the interior radiating-cylinders, H and L. By controlling the valve G more

or less air can be cut off from burner K, and hence, if desired, the third consumption may be greatly increased at the top of passage-ways L and M at the expense of the consumption at burner K, or, if desired, both burners K and J. To reduce the temperature, the burners K and J may be shut off, or the burner J may be extinguished and the valve G used to control the temperature of the burner K. In this latter case a current of cool air would pass up passage-way M and cool the interior of the stove.

It will thus be seen that the regulation of the stove may be performed in the most perfect manner.

I do not limit myself to the mere details of construction, as they may be modified without departing from the invention. For instance, I might dispense entirely with the cylinder H and burner K, as the essential feature of the invention would still be embodied, which is the use of an interior radiating-cylinder, such as herein set out.

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

1. In a gas-stove, the combination of an outer casing or cylinder forming a combustion-chamber, a burner at or near its bottom, a central radiating-cylinder entirely inclosed by the said outer casing and opening into it near its top, but without direct connection with the external air, and further being exposed on its outside to the products of combustion ascending in the combustion-chamber, and also adapted to receive part at least of said products of combustion through its upper end, which opens into the combustion-chamber, an elbow-outlet extending through said combustion-chamber, opening from the bottom of said radiating-cylinder and located immediately above the burner, and a register or valve in the top of the stove-case above the central cylinder to allow part of the products of combustion to escape into the room and part to enter the central elbow-outlet, the interior passages of the stove, where combustion takes place, being substantially closed to the air exterior to the stove, and draft-passages to the burner at the base of the stove.

2. In a gas-stove, the combination of three concentric passage-ways, all open at the top and communicating with each other, a gas-burner at or near the bottom of each of the two outer passage-ways, and a smoke-outlet connecting with the bottom of the inner passage-way, substantially as and for the purpose specified.

3. In a gas-stove, the combination of three concentric passage-ways, all open at the top and communicating with each other, a gas-burner at or near the bottom of each of the two outer passage-ways, a chamber into which the bottoms of the two outer concentric passage-ways open, and a smoke-outlet connecting with the bottom of the inner passage-way, substantially as and for the purpose specified.

4. In a gas-stove, the combination of three concentric passage-ways, all open at the top and communicating with each other, a chamber at the bottom communicating with the bottoms of the two outer passage-ways, a valve between the chamber and one of said outer passage-ways, a gas-burner above the valve, a second gas-burner in the chamber below the two outer concentric passage-ways, and a smoke-outlet connecting with the bottom of the central or inner passage-way, substantially as and for the purpose specified.

5. The combination, in a stove, of the outer case or shell, the central outlet-tube, I, open at the top and made angular at the bottom, passing through the case of the stove to form an escape-flue at *i*, the gas-burner J, located within the stove-case and below the cylinder I, the second cylinder, H, forming the concentric passage-ways L and M, both open at the top, and a gas-burner, K, in the bottom of passage-way L and exterior to the cylinder H, substantially as and for the purpose specified.

6. The combination, in a stove, of the outer case or shell, the central outlet-tube, I, open at the top and made angular at the bottom, passing through the case of the stove to form an escape-flue at *i*, the gas-burner J, located within the stove-case and below the cylinder I, the second cylinder H, forming the concentric passage-ways L and M, both open at the top, and a gas-burner, K, in the bottom of passage-way L and exterior to the cylinder H, and a valve, G, to connect or disconnect the passages L M at their bottoms, substantially as and for the purpose specified.

7. The combination, in a stove, of the outer case or shell, the central outlet-tube, I, open at the top and made angular at the bottom, passing through the case of the stove to form an escape-flue at *i*, the gas-burner J, located within the stove-case and below the cylinder I, the second cylinder, H, forming the concentric passage-ways L and M, both open at the top, a gas-burner, K, in the bottom of passage-way L and exterior to the cylinder H, and a register, F arranged above the top of the passage-way L M and cylinder I, substantially as and for the purpose specified.

In testimony of which invention I hereunto set my hand.

LEWIS BRIDGE.

Witnesses:
R. M. HUNTER,
WILLIAM C. MAYNE.