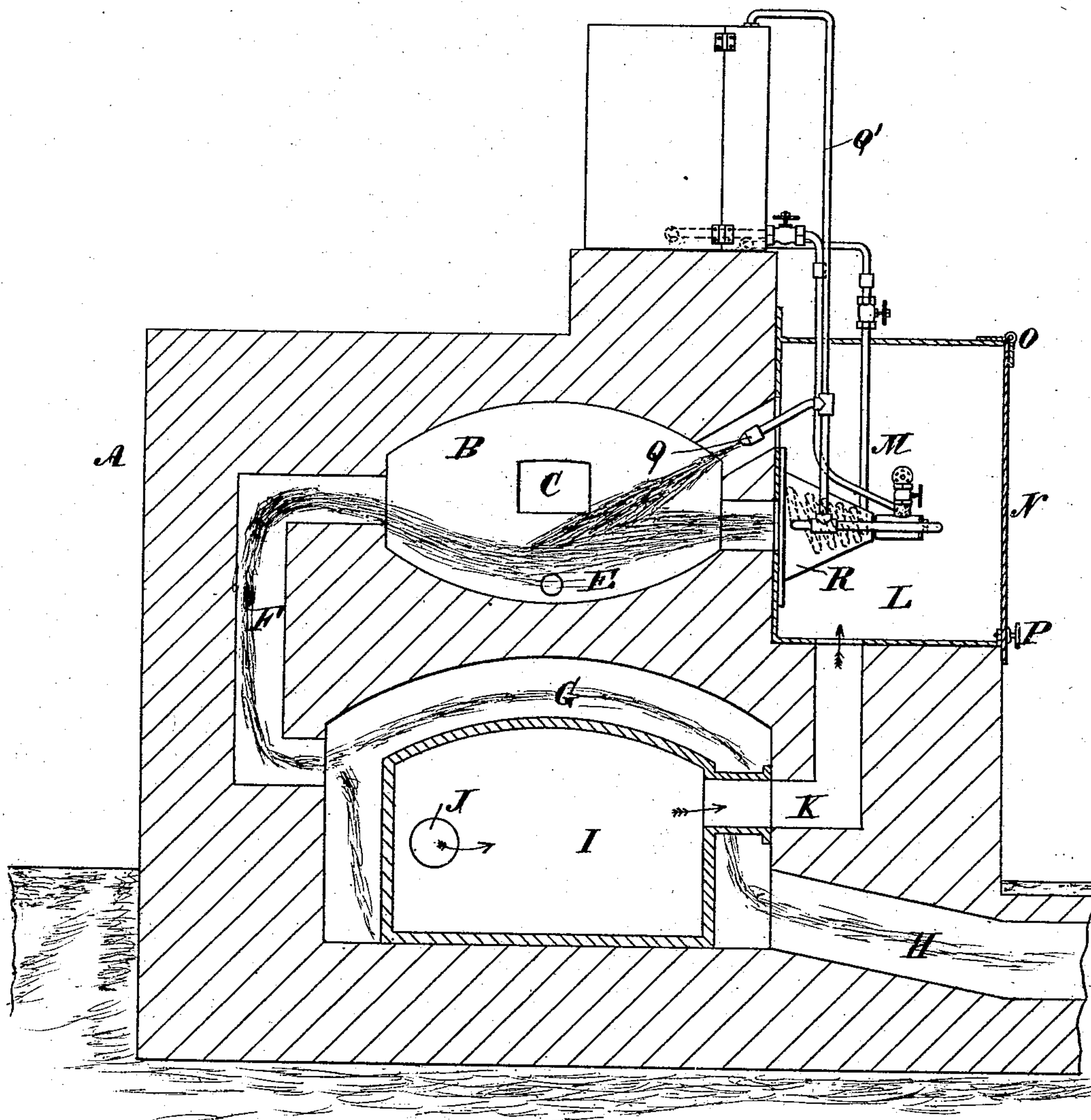


(No Model.)

G. ROSE.
LIQUID FUEL FURNACE.

No. 482,834.

Patented Sept. 20, 1892.



Witnesses:

E. B. Bolton

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UNITED STATES PATENT OFFICE.

GEORGE ROSE, OF GLASGOW, SCOTLAND.

LIQUID-FUEL FURNACE.

SPECIFICATION forming part of Letters Patent No. 482,834, dated September 20, 1892.

Application filed December 16, 1891. Serial No. 415,294. (No model.)

To all whom it may concern:

Be it known that I, GEORGE ROSE, engineer, of the city of Glasgow, in the county of Lanark, Scotland, have invented certain new and useful Improvements in Liquid-Fuel Furnaces; and I do hereby declare that the following is a full, clear, and exact description of the same.

This invention relates to liquid-fuel furnaces; and it has for its object to improve the construction of such furnaces, and also to produce a better combustion and therefore obtain a greater heat by supplying hot air to the burner.

In order that my said invention may be properly understood, I have hereunto appended two explanatory sheets of drawing, whereon the figure shows in longitudinal section a liquid-fuel furnace with a hot-blast arrangement.

The furnace shown in the drawing consists of a brick body A, having a hollow chamber B, preferably of the shape shown, for melting or puddling metals or the like.

C is the door for stirring up the molten material.

E is the tap-hole for drawing off the molten material.

F is the flue which carries the flame and the products of combustion to the large chamber G.

H is the chimney for carrying off the products of combustion to the smoke-stack. Situated in the chamber G is a box I, made of cast metal or other suitable material. Air is admitted into this box through the opening J and is heated in the box by the hot gases and products of combustion which fill up the chamber G. From the box I the heated air passes by the channel K to the liquid-fuel burner M to support combustion.

The liquid-fuel burner and apparatus may be of any suitable construction; but I prefer in all cases to use one of my automatic-action self-generating steam appliances, as shown, wherein steam generated from water in the water-tank of the apparatus is used to spray the liquid fuel. The liquid-fuel burner is inclosed in a box or casing L, fitted on the furnace. The box may be a metal one, with a door N, hinged at O.

P is a locking-handle.

The box is closed air-tight, so as to prevent cold air gaining access to the burner.

Q is an auxiliary jet of steam which plays upon the main liquid-fuel flame, as shown, and beats it down to the bottom of the chamber B, so as to thoroughly heat the molten material in said chamber. The steam-jet Q is conducted from the steam-pipe Q' of the heating appliance. R is a casing for inclosing part of the liquid-fuel burner. With this arrangement as the heated gases and products of combustion pass off from the chamber B they pass along the flue F and fill up the chamber G, heating the box I and the air contained therein. The hot air from the box I is drawn up to the box or casing L by the sucking action of the liquid-fuel flame.

In this arrangement of furnace the air-blast is not forced to the burner, but is drawn in naturally to support combustion by the simple action of the flame.

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

1. In combination with a furnace B, a chamber G, through which the products of combustion pass to the stack, a closed chamber L, having a burner therein, and means for supplying air to the burner-chamber, consisting of a chamber I, located in the chamber G and having an air-inlet and an air-supply pipe from the chamber I to the burner-chamber, substantially as described.

2. In combination with the closed burner-chamber L, an air-supply leading thereto, a burner within the chamber, and supply-pipes for the burner, extending into the chamber, an opening in line with the burner, leading to the combustion-chamber, and a second opening from the chamber L to the combustion-chamber, with a steam-pipe located within the same and discharging a jet upon the main flame from the burner after it has entered the furnace, substantially as described.

In witness whereof I have hereunto signed my name, at Glasgow, Scotland, this 31st day of March, 1891.

GEORGE ROSE.

Witnesses:

HUGH FITZPATRICK,
WILLIAM FLEMING.