

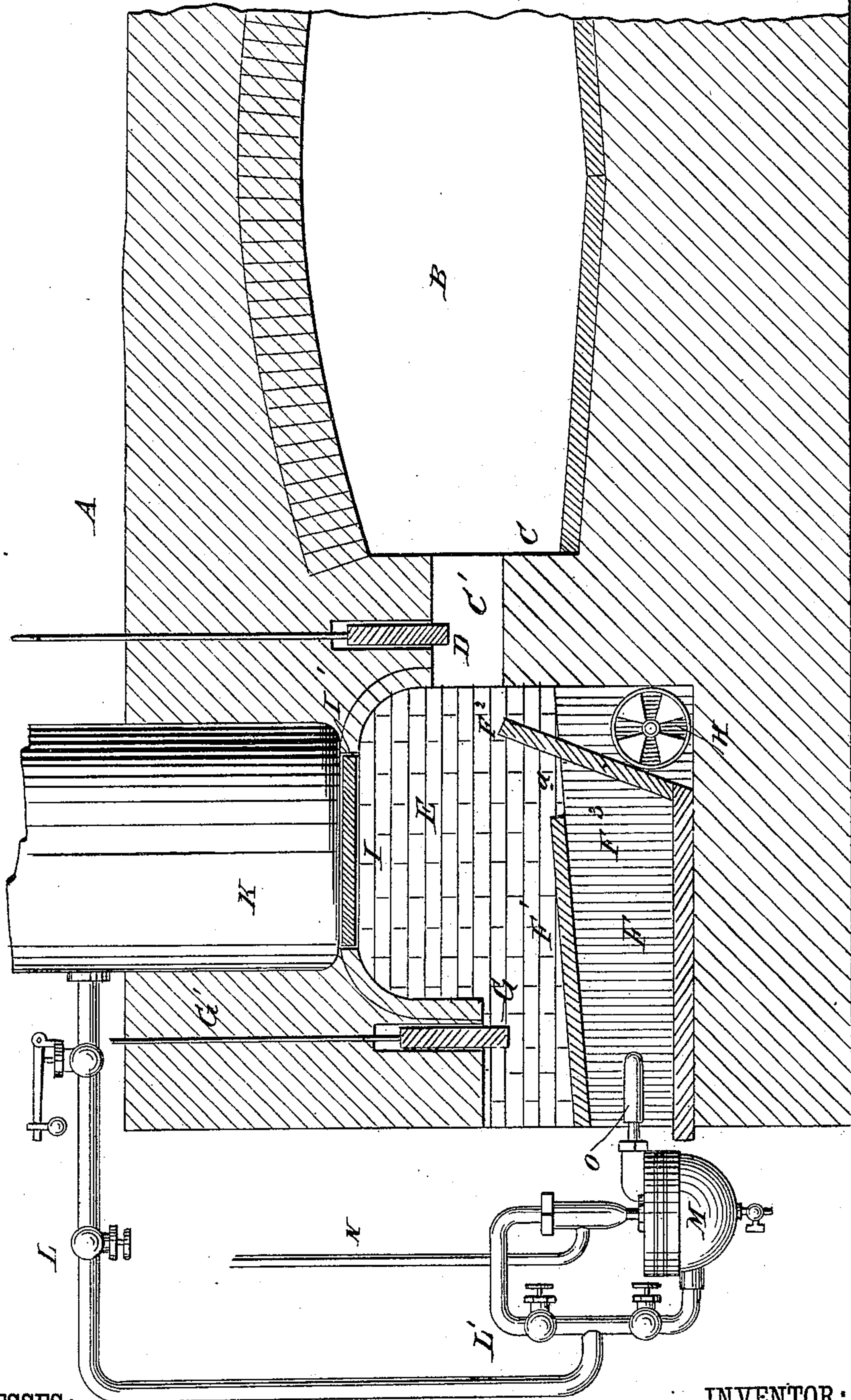
(No Model.)

F. A. MEYER.

FURNACE FOR BURNING LIQUID FUEL.

No. 253,217.

Patented Feb. 7, 1882.



WITNESSES:

Chas. Nida
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UNITED STATES PATENT OFFICE.

FREDERICK A. MEYER, OF NEW YORK, N. Y., ASSIGNOR OF TWO-THIRDS TO MARSHALL LEFFERTS AND JOHN A. LEFFERTS, OF SAME PLACE.

FURNACE FOR BURNING LIQUID FUEL.

SPECIFICATION forming part of Letters Patent No. 253,217, dated February 7, 1882.

Application filed June 7, 1881. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK A. MEYER, of the city, county, and State of New York, have invented certain useful Improvements in
5 Furnaces for Burning Liquid Fuel, of which the following is a specification.

The object of this invention is to construct an improved furnace for the application of petroleum and other liquid fuels to the working
10 of metals, glass, &c.

The invention consists of a furnace provided with an improved gas-and-steam-mixing chamber that has an adjustable cover or partition for regulating the size of the exit therefrom,
15 provided also with an improved combustion-chamber, located above the mixing-chamber and communicating with the body of the furnace, and provided with air-openings and dampers or registers located in novel positions
20 relatively to the mixing and combustion chambers, thereby giving the operator better control over the temperature and character of the flame, all of which will be hereinafter set forth.

25 The drawing represents a longitudinal sectional elevation of the furnace with a steam-boiler and liquid-fuel injector applied thereto.

In the drawing, A represents the furnace, of which B is the working-chamber or body of
30 the furnace; C, the bridge-wall; C', the opening over the bridge-wall C, serving as a means of communication between the working-chamber B and the combustion-chamber E, and regulated by a damper, D.

35 Located in the front of the furnace or in the lower part of the combustion-chamber E is the mixing-chamber F, into which the mingled steam and vapor of petroleum or other liquid fuel is injected. This chamber F is preferably
40 nearly rectangular in shape, and is provided with an adjustable cover, F', that rests on the side walls, F³, of said chamber F, and can be easily moved in and out to contract or enlarge the exit *a* from said chamber F into the com-
45 bustion-chamber E, to regulate the escape of the burning steam and gas. The longer the said steam and gas are retained in the mixing-chamber F the more thoroughly mingled do they become before escaping into the combus-
50 tion-chamber.

A damper, G, operated by a handle, G', regulates the admission of air through the mouth

of the combustion-chamber E, to aid in the combustion of the steam and gases issuing from the chamber F, and it is of special advantage
55 that the air for this purpose should enter over and in contact with the cover F', and thereby become heated before mixing with said mixture of steam and gases.

In the side of the combustion-chamber E
60 and in rear of the mixing-chamber F is a register, H, through which air may be admitted to assure the perfect combustion of the mingled steam and liquid-fuel vapor as they pass
65 through the furnace; and by means of air admitted through the register H an oxidizing-flame can at any time be created on the bottom of the working-chamber B, and the tempera-
70 ture of the said chamber B may be lowered by opening said register H to its full extent. The rear end of the chamber F is preferably projected upward on a slope, as shown at F², to direct the products of combustion more accurately or directly over the bridge-wall C. The
75 roof of the combustion-chamber E is arched and provided with a laterally-sliding damper, I, closing its central opening, I', and over this opening I' there is set in the furnace an upright boiler, K, that supplies steam through
80 pipes L L' to an injector, M, through or by which the liquid fuel (supplied through a pipe, N) and steam are introduced through a nozzle, O, into the mixing-chamber F. In a broad furnace one or more of these mixing-chambers F
85 may be used, each one supplied by a separate injector.

By adjusting the damper I the amount of heat applied to the boiler K may be regulated.

This furnace is simple of construction and durable, and so arranged in respect to its com-
90 bustion and mixing chambers, dampers, and register that a flame of any character and any desired degree of intensity may be produced.

I do not confine myself to the shape of the working-chamber as herein shown, since it is
95 evident that that may be made in any form desired, according to the uses to which it may be applied.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—
100

1. A liquid-fuel-consuming furnace constructed substantially as herein shown and described, provided with a combustion-chamber, E, having in its bottom a mixing-chamber, F,

provided with an adjustable sliding cover, F', damper D, for regulating the admission of the products of combustion to the furnace working-chamber, damper G, for regulating the admission of air over the chamber F into the combustion-chamber, and register H in rear of the mixing-chamber F, to regulate the admission of air especially for affecting the character of the flame, as set forth.

10 2. In a liquid-fuel-consuming furnace, the combination, with the combustion-chamber, of a gas-and-steam-mixing chamber provided with a sliding cover and located in the bottom of said combustion-chamber, substantially
15 as herein shown and described.

3. In a liquid-fuel-consuming furnace, the

gas-and-steam-mixing chamber F, provided with sliding cover or partition F' and inclined upward-projecting rear end, F², substantially as herein shown and described. 20

4. In a liquid-fuel-consuming furnace constructed, substantially as herein shown and described, with mixing-chamber located in the bottom of the combustion-chamber, the register H, fixed in the side of the combustion-
25 chamber near its bottom and in rear of the mixing-chamber, as and for the purpose set forth.

FREDERICK A. MEYER.

Witnesses:

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C. SEDGWICK.