

(No Model.)

J. WILSON & A. MASON.
HYDROCARBON BURNER.

No. 438,515.

Patented Oct. 14, 1890.

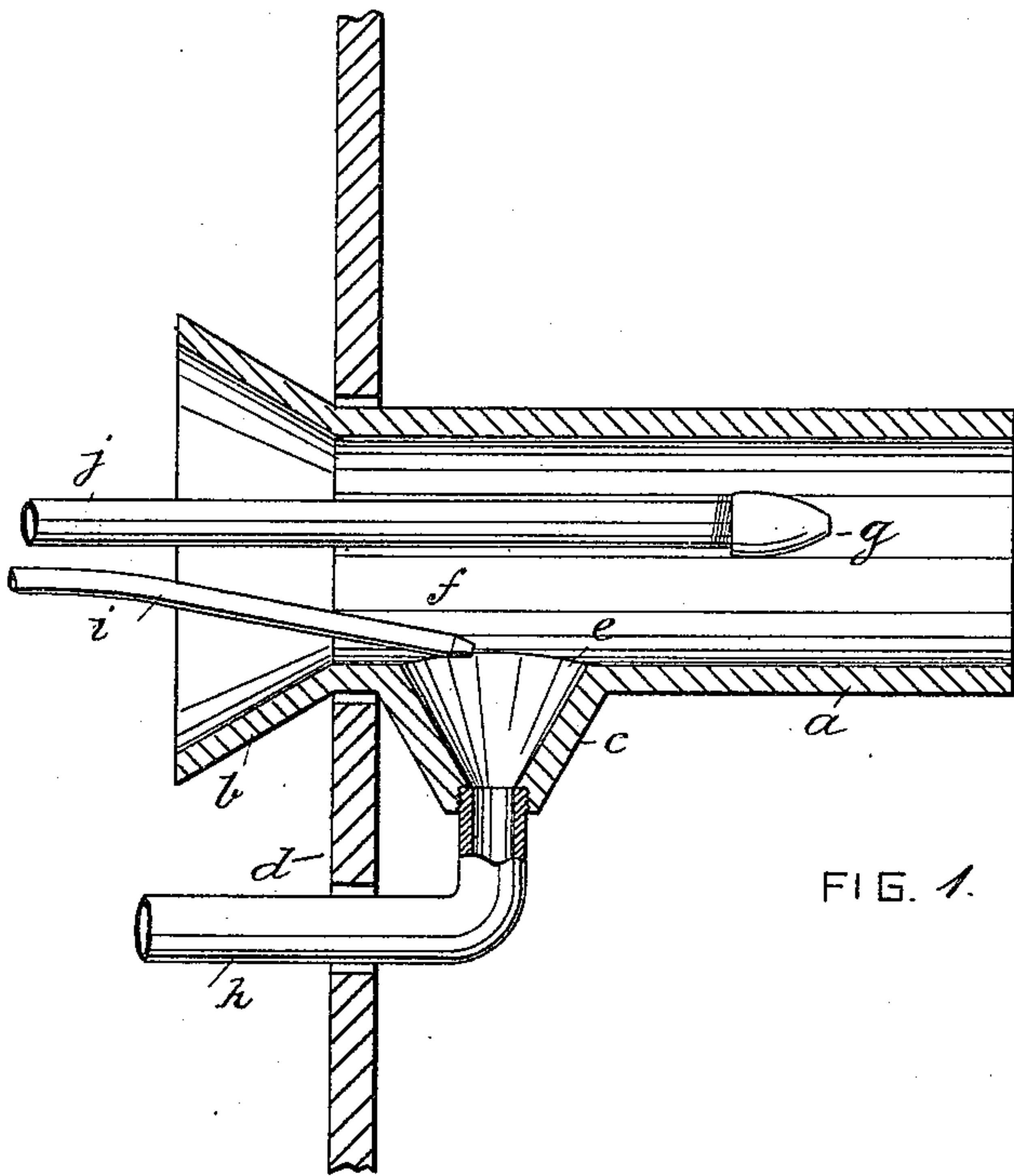


FIG. 1.

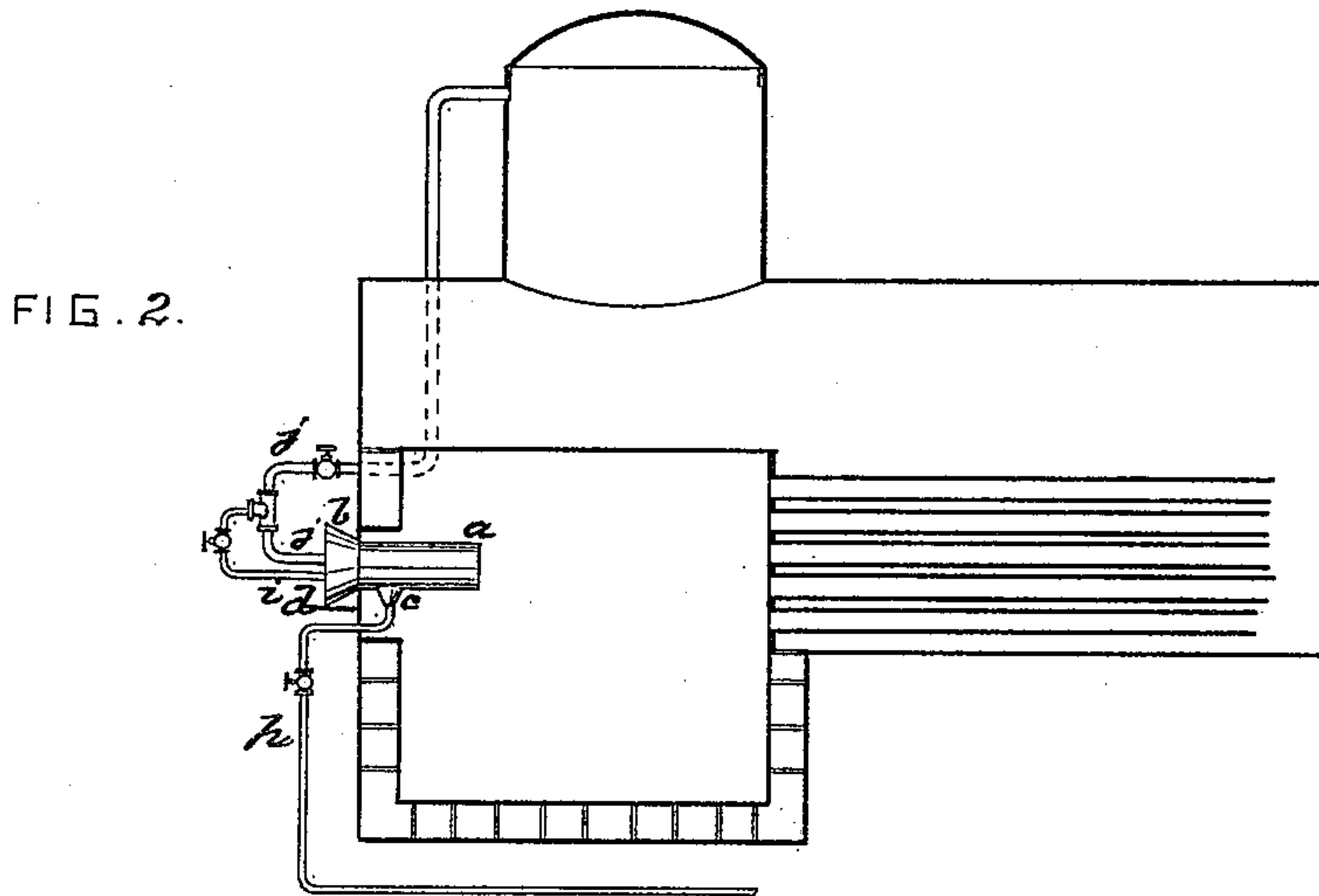


FIG. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

JOHN WILSON, OF NEW YORK, AND ALLAN MASON, OF BROOKLYN, ASSIGN-
ORS TO HERBERT H. SANDERSON, TRUSTEE, OF NEW YORK, N. Y.

HYDROCARBON-BURNER.

SPECIFICATION forming part of Letters Patent No. 438,515, dated October 14, 1890.

Application filed August 3, 1888. Renewed March 26, 1890. Serial No. 345,627. (No model.)

To all whom it may concern:

Be it known that we, JOHN WILSON and ALLAN MASON, citizens of the United States, and residents of New York city, in the county and State of New York, and Brooklyn, Kings county, New York, respectively, have invented certain new and useful Improvements in Hydrocarbon-Burners, of which the following is a specification.

Our invention consists of improved contrivances of the injecting and spraying apparatus for introducing the oil into the furnace and effectively combining the atoms of the combustible elements for more perfect combustion, as hereinafter fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional elevation of our improved burner apparatus; and Fig. 2 is a sectional elevation of a boiler-furnace, showing the application of the burner thereto.

We provide an air-inlet tube *a* of approved size and preferably having a funnel *b* on one end and an oil-feed-pipe connection *c* in the side near the funnel, which tube we fit into the front plate *d*, or door of the furnace, with the funnel projecting outward and the rest projecting inward of the furnace, securing the same in any approved way, and preferably with the feed-pipe connection *c*, inside of the front plate, (but it may be outside, if preferred,) which pipe-connection has a funnel-mouth opening into the tubes, or it may be only partially funnel-shaped—that is, made with a slope or inclination at *e* in the direction of the furnace-chamber—with which we provide an injector-nozzle *f*, suitably directed to impinge the steam-jet for drawing in the oil and air and spraying the oil on said slope just below the top for an effective means of breaking up the oil for advantageous mixture with the air and steam, and also for projecting the stream of combined elements in an upward direction into the range of another injector-nozzle *g*, discharging more directly into the furnace-chamber and adapted to materially increase the intermixture of the

atoms of the different elements, and thereby promote more perfect combustion; but we propose in some cases to use injector *f*, impinging on the slope *e*, without injector *g*, which we find a very effective contrivance, quite sufficient for many purposes.

The oil-feed pipe *h*, connected with the inlet *c*, will also connect with an oil-tank or other approved source of supply, and the injector-tubes *i j* will connect with the boiler for the steam-supply, and all will have suitable stop and regulating cocks for the purpose.

We prefer to arrange the sloping mouth of the oil-inlet in the lower side of the tube *a*; but it may be placed at the top or intermediately, as preferred. The effect will be about the same.

What we claim, and desire to secure by Letters Patent, is—

1. The combination, in a hydrocarbon-burner, of the air-inlet tube *a*, open to the air at the outer end, the oil-inlet entering the lower side of the said tube in an inclined or sloping direction toward the furnace-chamber, and the injector-nozzle directed to impinge the inducing-jet on the rear side of said inclined or sloping mouth, substantially as described.

2. The combination, in a hydrocarbon-burner, of the air-inlet tube *a*, open to the air at the outer end, the oil-inlet entering the lower side of said tube in an inclined or sloping direction toward the furnace-chamber, the injector-nozzle directed to impinge the inducing-jet on the rear side of said inclined or sloping mouth, and the injector discharging in the spray upwardly projected from said sloping mouth, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 12th day of April, A. D. 1888.

JOHN WILSON.
ALLAN MASON.

Witnesses:

W. J. MORGAN,
G. T. JANVRIN.