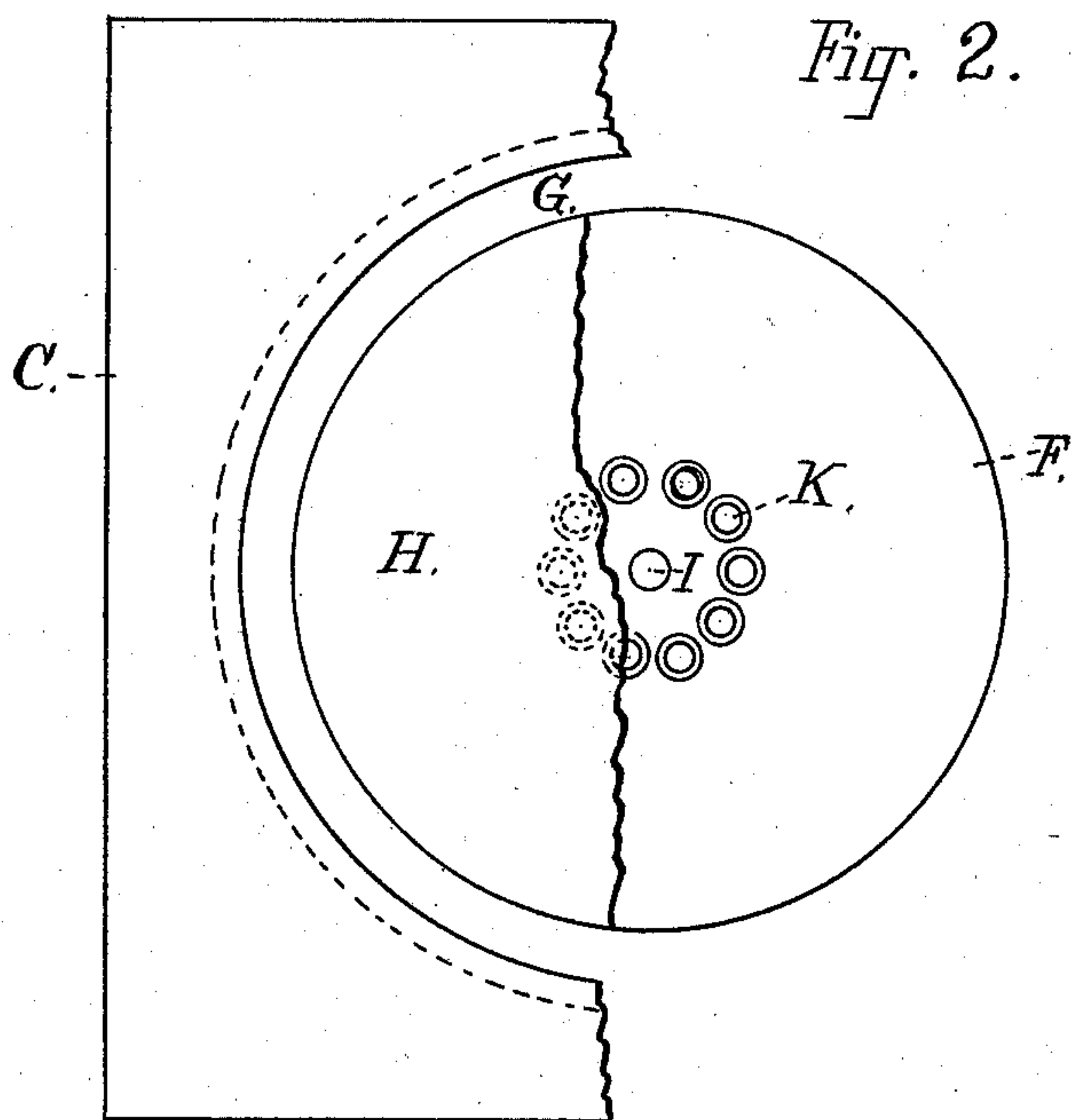
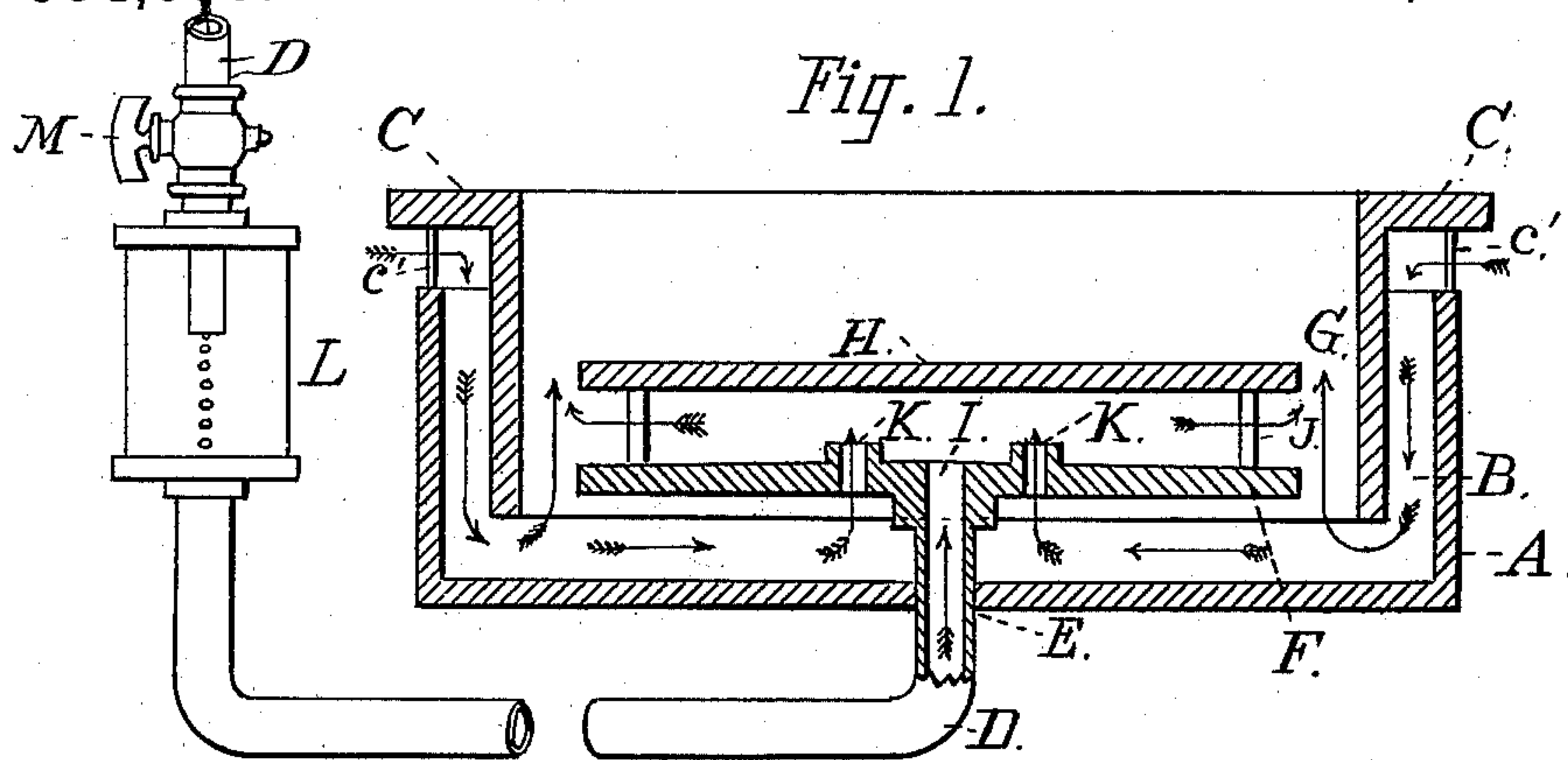


J. E. PATTERSON & A. NOTEMAN.  
HYDROCARBON VAPORIZER AND BURNER.

No. 384,068.

Patented June 5, 1888.



Attest:  
Carroll J. Webster,  
Floyd R. Webster,

Inventors:  
Jesse Earland Patterson,  
Alonzo Noteman,  
By Wm Webster, Atty

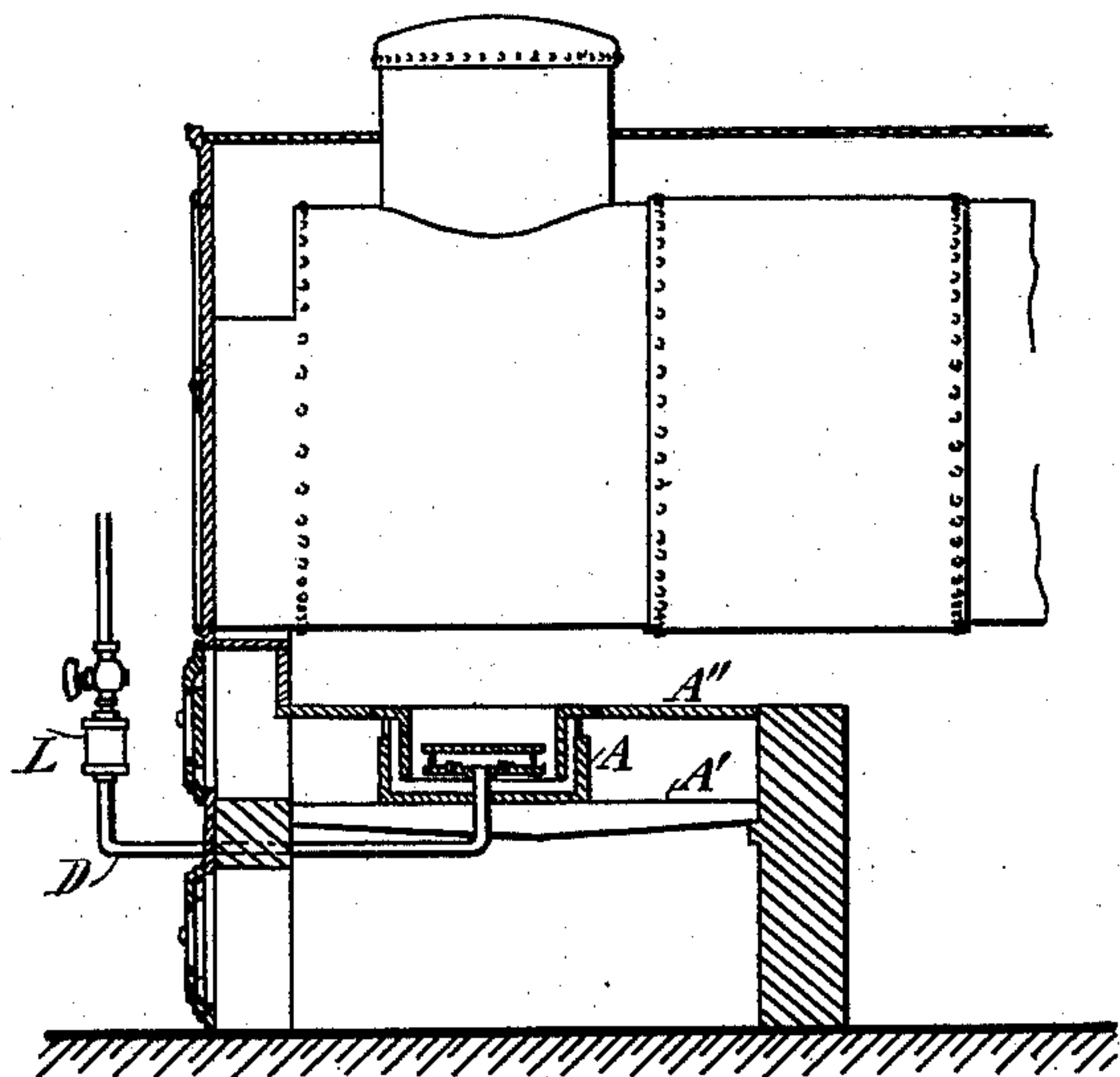
(No Model.)

2 Sheets—Sheet 2.

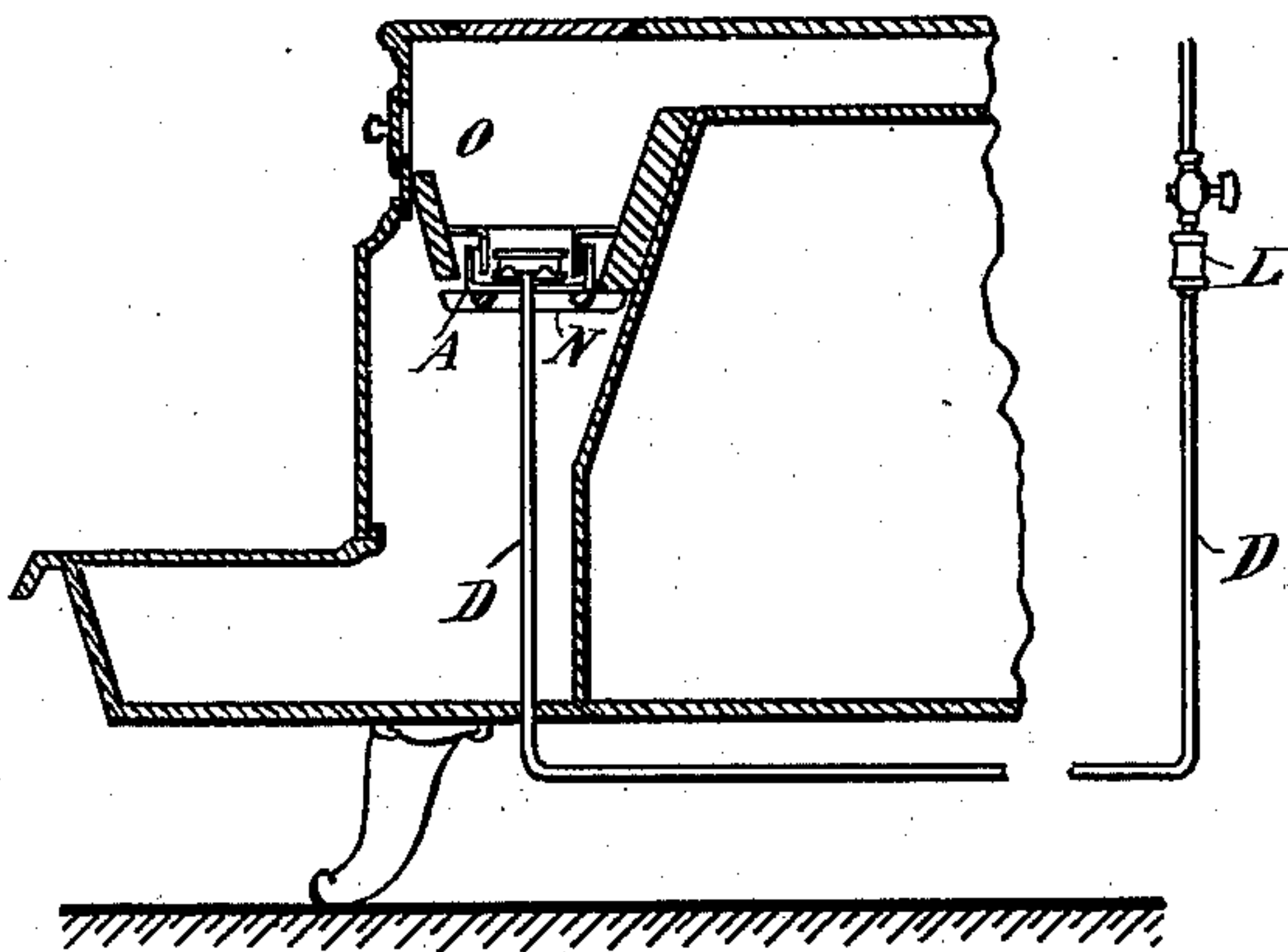
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*Fig. 3.*



*Fig. 4.*

*Witnesses.*

*Carroll J. Webster.*

*James Rayner.*

*Inventors.*

*J. E. Patterson.*

*A. Noteman.*

*By William Webster.*  
*Atty.*



# UNITED STATES PATENT OFFICE.

JESSE EARLAND PATTERSON AND ALONZO NOTEMAN, OF TOLEDO, OHIO,  
ASSIGNORS OF ONE-THIRD TO WALTER C. LLOYD AND GEORGE F. WORTS,  
OF SAME PLACE.

## HYDROCARBON VAPORIZER AND BURNER.

SPECIFICATION forming part of Letters Patent No. 384,068, dated June 5, 1888.

Application filed July 5, 1887. Serial No. 243,362. (No model.)

*To all whom it may concern:*

Be it known that we, JESSE EARLAND PATTERSON and ALONZO NOTEMAN, of Toledo, in the county of Lucas and State of Ohio, have  
5 invented certain new and useful Improvements in a Hydrocarbon Vaporizer and Burner; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the  
10 art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

15 Our invention relates to a hydrocarbon-burner, and has for its object to secure complete combustion of liquid fuel—such as petroleum, either crude or refined—and to provide a burner that shall be adapted for domestic or  
20 manufacturing purposes, as well as for locomotives. We attain these objects by the construction illustrated in the drawings, in which—

25 Figure 1 is a central vertical section through the burner, showing also the observation-feed and atmospheric cut-off in perspective. Fig. 2 is a top plan view with the top plate or deflector broken away to show the oil and central air-induction ports, a portion of the  
30 flanged cylinder being also shown. Fig. 3 is an elevation of a portion of a boiler, showing the vaporizer and burner in position beneath the same for generating steam therein. Fig. 4 is a longitudinal vertical section of an ordinary cook-stove with the vaporizer and burner  
35 within the fire-box.

Like letters of reference indicate like parts in all the views.

40 A represents the bottom pan, preferably of cylindrical shape and having a perforation, E, through its bottom, through which is passed the main feed-pipe D.

45 G is a cylinder of less diameter than pan A, and is provided with flanges C at its top, adapted to rest upon supports C', resting upon the upper edge of pan A, thereby holding the flange C at some distance above the upper edge of the pan A, for a purpose that will presently appear.

F and H, respectively, are plates, preferably 50 of cylindrical form, the lower plate, F, being tapped through its center at I to form the induction-port through which the liquid fuel passes. This plate is also perforated at K, (the number of perforations corresponding to the 55 size of the burner,) any desired number being employed, these perforations being designed for the induction of air as it is induced through the space B formed by the varying diameter of the two cylinders and the overhanging 60 flange C. The upper plate, H, is held upon supports J, which rest upon plate F, thereby forming a chamber or generator in which the vaporization of the hydrocarbon is effected and in which combustion takes place. This 65 operation is as follows: The liquid fuel, being fed through pipe D, passes out at I, and, flowing toward the periphery of plate F, the induced current of air rushing in through space B with an increased draft, (the fuel having 70 been ignited upon plate F, the rarefaction of air as it becomes heated causing a vacuum,) a portion of air is deflected by plate F, and it finds its way toward the center of said plate, and, rushing up through ports K, is deflected 75 toward the center periphery of the generator by striking upon the under side of the upper plate, H, and joins the current of air passing up through the space formed by the varying diameter of cylinder G and plates F and H. 80 The liquid fuel is held in check as it nears the outer periphery by this latter current of air, and, being thoroughly vaporized by the refraction of heat from plate F and the influence of the counter-current of air as it passes out- 85 ward from ports K, complete and economic combustion results, and the flame as it passes out of cylinder G is ready to be used for any purpose, being especially adapted for domestic purposes, as it is devoid of smoke or odor. 90

It will be observed that by our construction the great difficulty heretofore met in burning crude petroleum of a carbon formation upon the feed-pipes is entirely overcome. The feed 95 being directly upon the lower pan of the generator, there are no perforations to become closed by this means; also, the necessity of using steam for spraying the liquid fuel, which



has been resorted to to obviate this carbon formation, is obviated, by this means producing a much greater ratio of heat to the quantity of material used. When the burner is used for  
5 generating steam in boilers, we arrange the same, as shown in Fig. 3, with the bottom pan, A, resting upon the grate-bars A' in furnace A'', the pipe D leading therefrom to the source of supply.

10 When used for domestic purposes, the burner is placed within the fire-box O, the bottom pan, A, resting upon grate N, the pipe D being led to the source of supply.

15 While we have described our device as having an interior of cylindrical form, we wish it understood that we may vary this shape without departing from the spirit of our invention.

20 Having described our invention, what we claim, and desire to secure by Letters Patent, is—

In a hydrocarbon vaporizer and burner, a bottom pan, a cylinder therein having a top flange overlapping the bottom pan, forming an air-space, as described, in combination 25 with upper and lower burner-plates, the lower plate being provided with an induction-port for fuel centrally thereof, air-induction ports concentric therewith, said burner-plates being of less diameter than the cylinder, whereby an 30 air-space is formed between the cylinder and peripheries of the plates, as and for the purpose set forth.

In testimony that we claim the foregoing as our own we hereby affix our signatures in presence of two witnesses. 35

JESSE EARLAND PATTERSON.  
ALONZO NOTEMAN.

Witnesses:

WILLIAM WEBSTER,  
J. E. RAYMER.