

(No Model.)

J. BAINS.
OIL BURNER.

No. 396,525.

Patented Jan. 22, 1889.

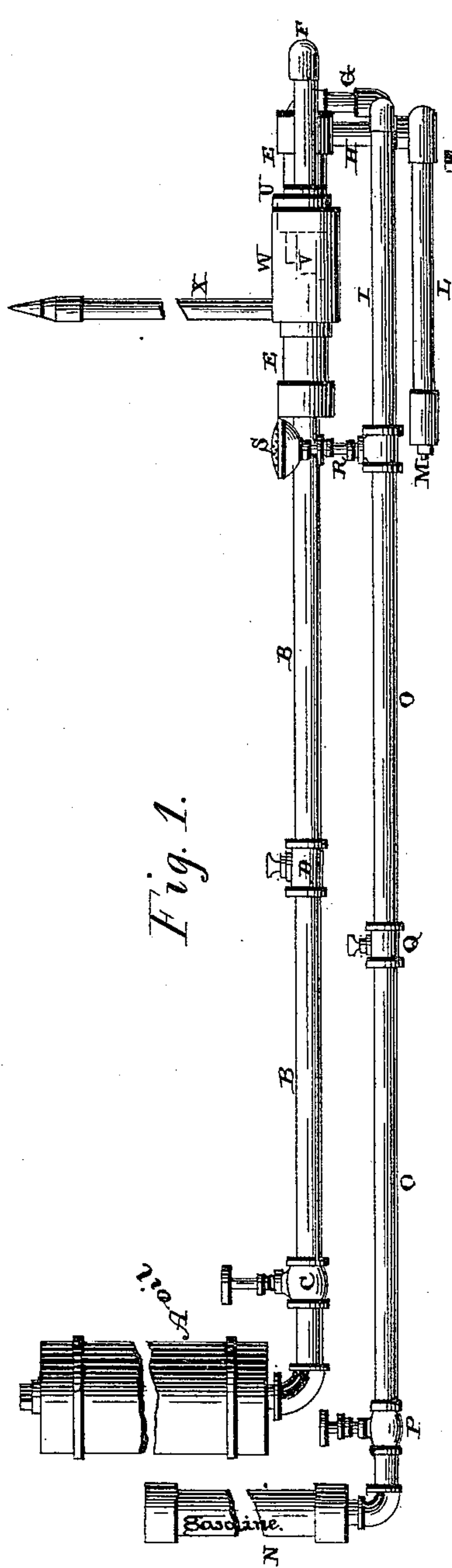


Fig. 1.

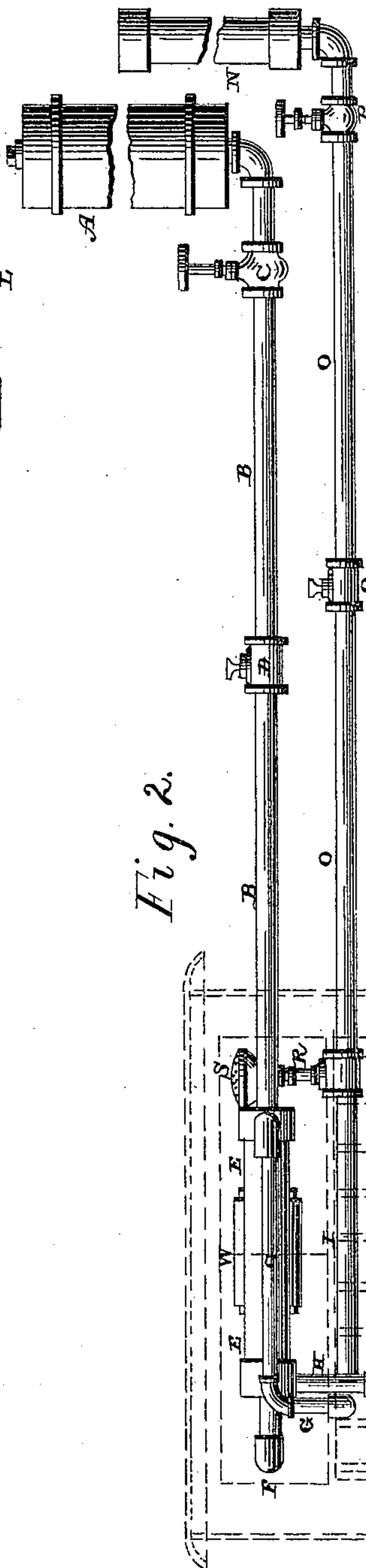


Fig. 2.

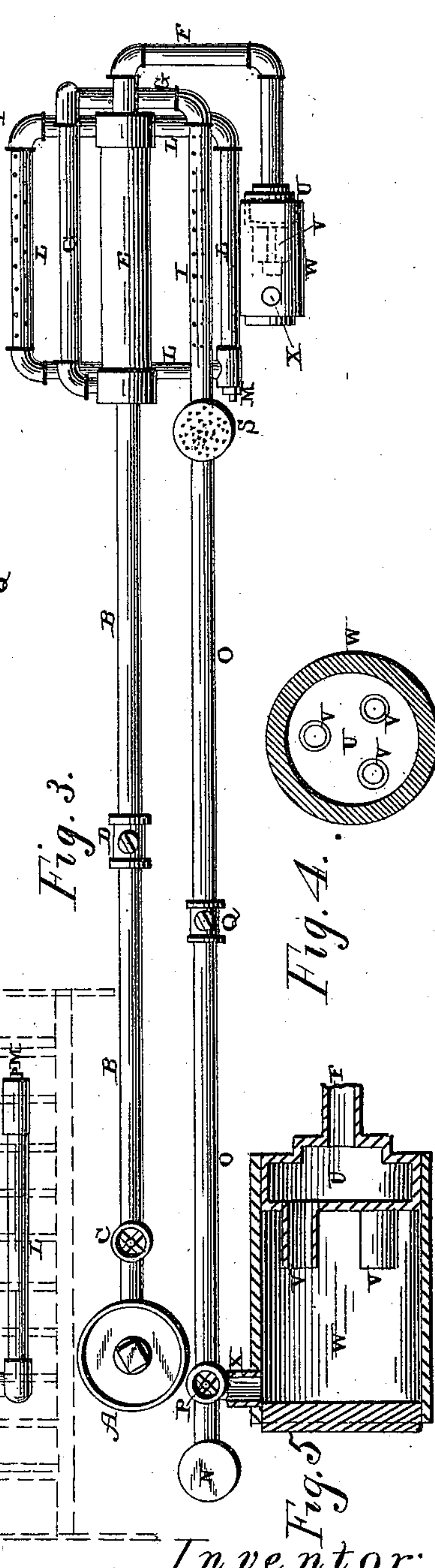


Fig. 3.

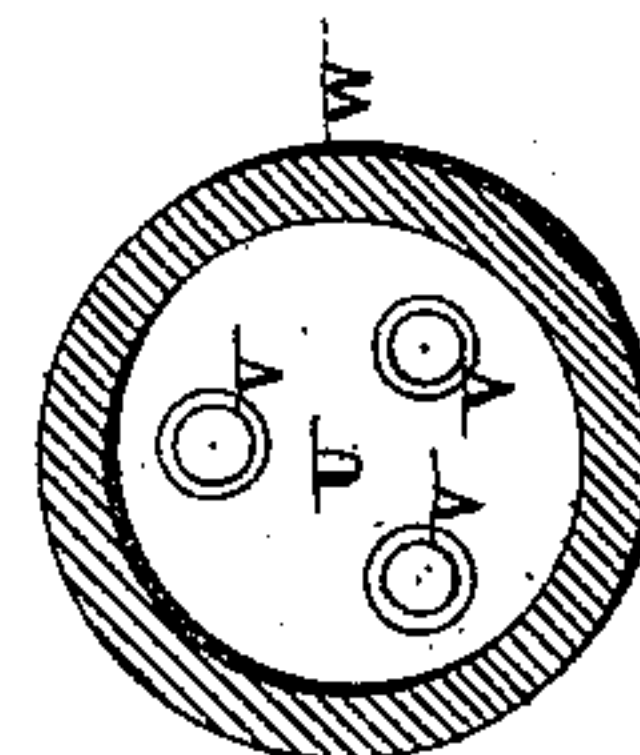


Fig. 4.

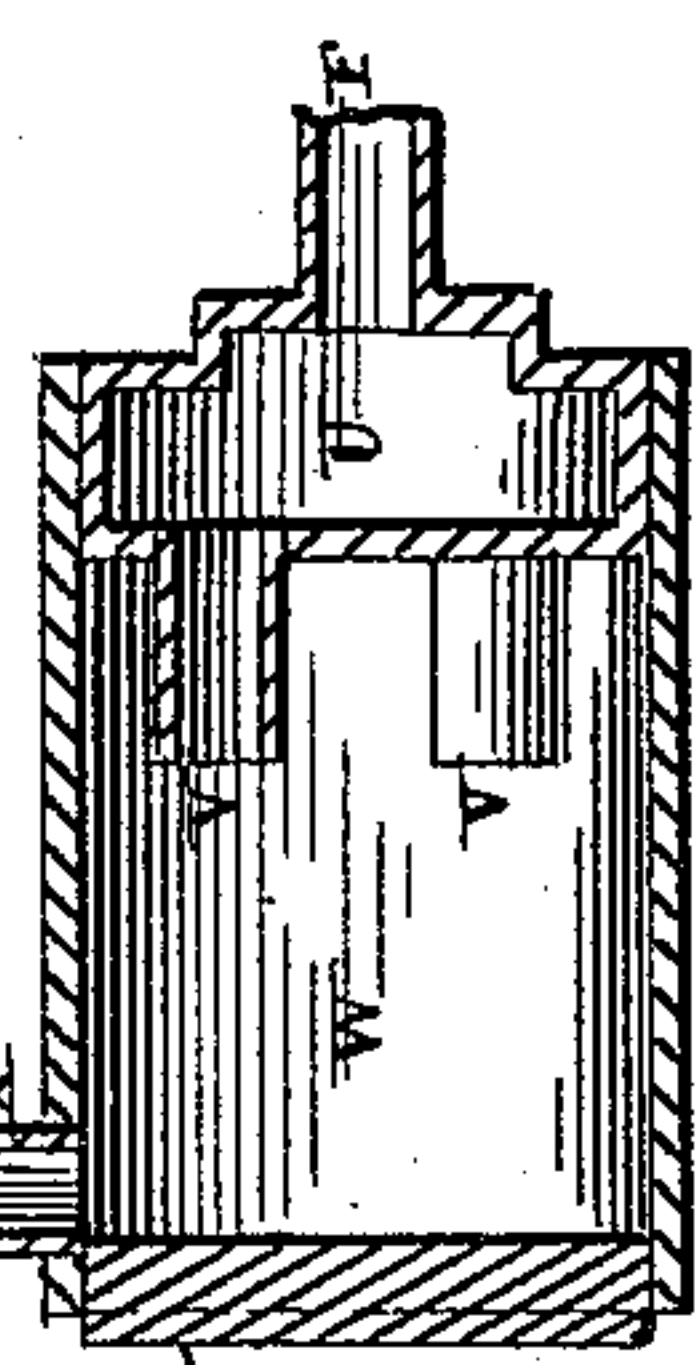


Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES BAINS, OF CINCINNATI, OHIO.

OIL-BURNER.

SPECIFICATION forming part of Letters Patent No. 396,525, dated January 22, 1889.

Application filed August 8, 1888. Serial No. 282,196. (No model.)

To all whom it may concern:

Be it known that I, JAMES BAINS, of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Oil-Burners; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in oil-burners for stoves and grates; and the objects of my invention are to burn both oil and gasoline together for the purpose of not only producing a more intense heat for cooking and heating purposes, but to produce a vapor, which is especially adapted for illuminating purposes, and to provide regulating pipes or openings for conveying the oil and vapor to the vaporizer, so that the vapor can pass into the vaporizer above the oil.

Figures 1 and 2 are side elevations of the burner embodying my invention, taken from opposite sides. Fig. 3 is a plan view. Fig. 4 is a vertical cross-section taken through the vaporizer. Fig. 5 is an enlarged section of the generator, taken at right angles to Fig. 4.

A represents the tank, reservoir, or holder in which the oil, grease, or fat of any kind is placed; and B the conducting-pipe, which extends from the bottom of this tank or reservoir for conveying the oil to the burner, and which is provided with the stop-cock C for regulating the flow of oil to the burner. This stop-cock is provided with a suitable indicator—such as is generally used—so as to indicate the flow through the pipe B. Also placed in this pipe B is a second stop-cock, D, for the purpose of preventing more than a certain regulated quantity of oil flowing to the burner. This stop-cock will be regulated at a certain safety-point, and will not be changed by those operating the burner. Should the stop-cock C be opened too wide, this cock D will serve as a regulator to prevent accidents.

The inner end of the pipe B is connected to the retort or chamber E, which is located a suitable distance above the burner, and in which the vaporization of the oil takes place. The opposite end of this retort from

the pipe B has the pipe F leading therefrom, and connected to the inner end of the retort next to the pipe B is the pipe G, which extends downward at its outer end, and is connected to the outer end of the gasoline-burner I. This pipe G serves to convey the vapor generated from the gasoline into the retort, so as to cause it to mix with the vapor generated from the oil, and thus form a mixture which will give a much more intense heat than the vapor generated from the oil alone or the gasoline alone. Also extending downward from this retort E is a pipe, H, which is connected to the rectangular pipe L. This pipe L is perforated upon one or both of its sides and forms the burner. Where only one side is perforated, as is here shown, the remaining portion of this pipe forms a receiver, in which the vapor and oil are held until burned. A screw-threaded opening is made in this pipe L at M, so that a safety-valve, or pipe to which a safety-valve is attached, may be used, and thus prevent any accident in case the burner should become clogged at any time from sediment. From this rectangular pipe L may extend a pipe or pipes, which will convey vapor to a burner or burners located at any suitable distance away.

The tank or reservoir N, for holding gasoline or other light hydrocarbons, is smaller than the one A. Leading from the bottom of this tank N is the pipe O, which is provided with the two stop-cocks P Q, the same as the pipe B. The inner end of the pipe O is perforated, so as to form a gasoline-burner, I, and extending from the inner end of the gasoline-burner is the pipe G, as already described, for carrying off all surplus vapor from this burner, so as to mingle it in the retort E with the vapor of the head-light, crude, or other oil. Extending from this pipe O to any distance is a short pipe, R, upon which a burner, S, shaped like a nozzle of a watering-can, is placed. This nozzle-shaped burner, by means of its jointed pipe R, can be turned in any direction, so as to convey the flame or heat under a pot or vessel placed upon the stove. The pipe R is made of a number of short sections, any one of which can be removed or replaced by others, so as to bring the burner S in any desired position.

This burner gives a special flame for any one vessel which is to be heated, and therefore is made so that it can be turned in any direction.

5 Extending from the inner end of the retort is a pipe, F, and upon this pipe F is placed a small chamber, U, from the inner end of which extends two or more small pipes, V, and these pipes V project into the vaporizing-chamber
 10 W. The small pipes are used for the purpose of allowing a free circulation of the gas and oil, so as to permit the vapor to pass into the vaporizer upon the top of the oil without having to mingle therewith. Three of the pipes
 15 V are here shown, so that no matter in what position the chamber U may be attached to the end of the pipe F one of the pipes will always be on top, as shown in Figs. 4 and 5, so as to allow the gas to pass freely through
 20 this upper pipe without having to pass through the oil which will cover the opened ends of two lower ones. The vapor which passes into this chamber is superheated and the oil converted into vapor, and this vapor passes
 25 through the pipe X up to the burner, which may be located in any part of the building. As a much greater quantity of vapor can be generated at any time than is absolutely necessary, abundant vapor is generated for light-
 30 ing purposes. Three pipes, V, being used, one of them is always at the top, and hence there need be no particular care exercised in making the connection between the pipes and the vaporizer. The entire burner, as shown in Figs. 1,
 35 2, and 3, is to be placed in the fire-box of an ordinary cooking-stove or furnace, as shown in dotted lines in Fig. 2. The pipes B and O extend through the door at the end of the stove, or through openings especially made for

them. The burner may be used in any cook- 40 ing-stove or furnace.

This burner is especially adapted for burning head-light oil, and is equally well adapted for grates, stoves, and furnaces and for cook- 45 ing and heating purposes.

I do not limit myself to any particular form, shape, or construction here shown, for these may be varied without departing from the spirit of my invention.

Having thus described my invention, I 50 claim—

1. The combination of a reservoir for holding oil, a pipe extending therefrom, a generator to which this pipe is connected, a second reservoir for holding gasoline, a pipe, O, ex- 55 tending therefrom, and a pipe, G, for connecting the pipe O also with the generator, the gasoline-pipe being provided with perforations, so as to form a burner, I, and a burner-pipe, L, which is connected to the generator, 60 substantially as shown.

2. The combination of a reservoir or tank, a pipe leading therefrom, the retort to which one end of the supply-pipe is connected, a pipe, F, extending from the opposite end of 65 this retort, a vaporizing-chamber connected to this pipe and located to one side of the burners, the chamber U, formed at one end of the vaporizing-chamber, and two or more pipes extending from the inner end of the 70 chamber U into the vaporizing-chamber, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES BAINS.

Witnesses:

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E. H. TULLOH.