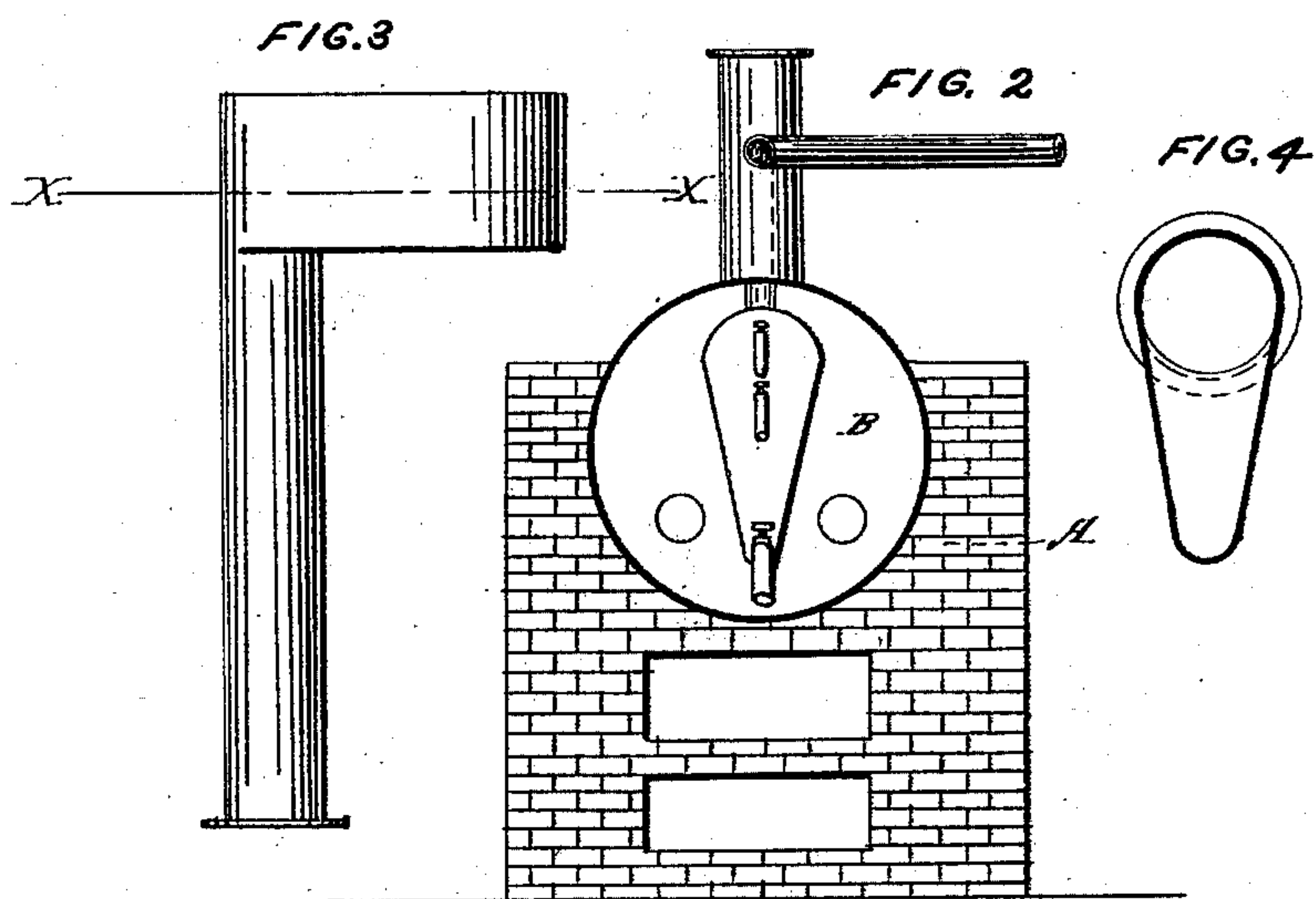
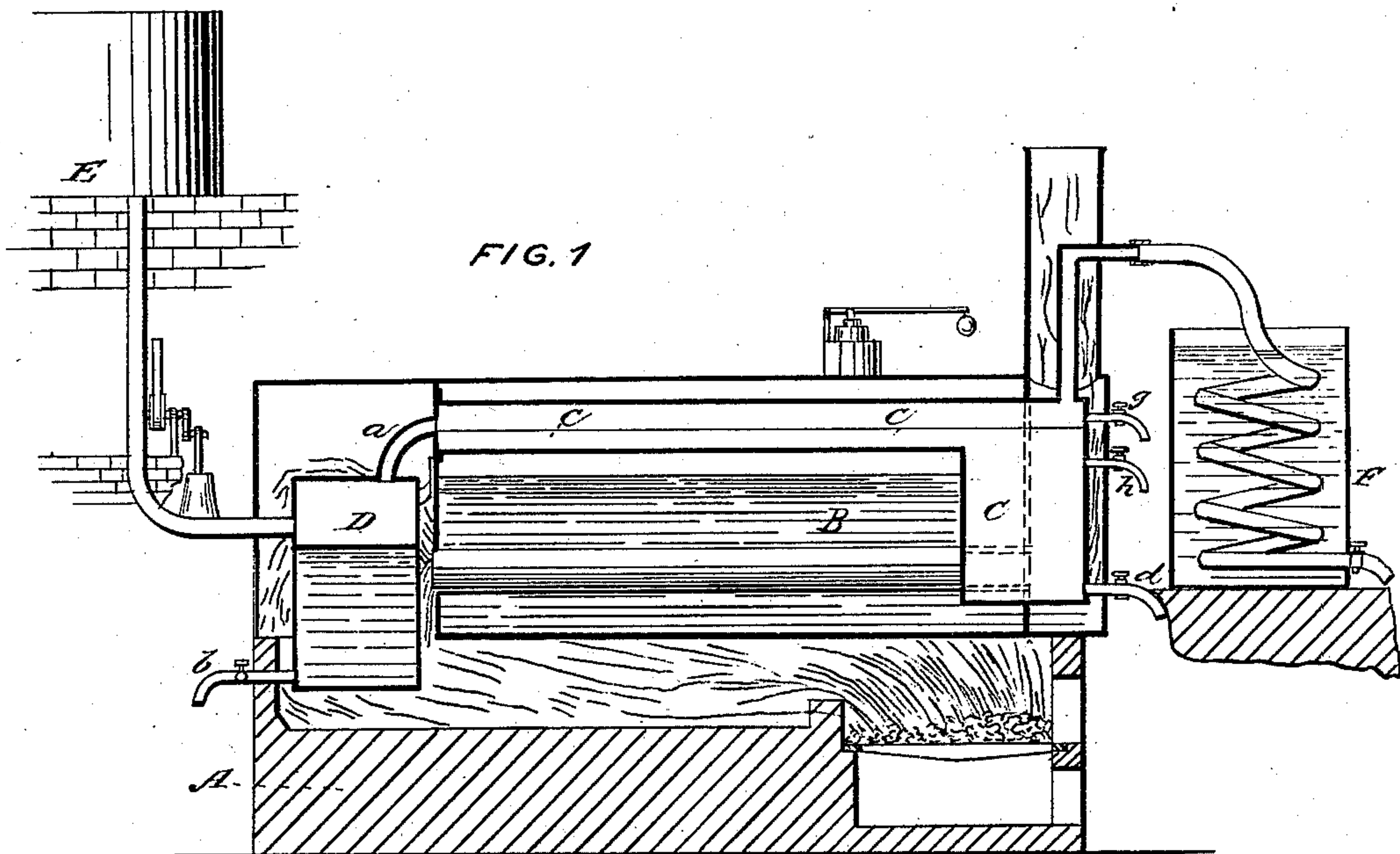


C. G. HOWELL.

Oil Still.

No. 66,841.

Patented July 16, 1867.



WITNESSES:
Theo. Inscha
Wm. Frewin

INVENTOR:
C. G. Howell
per Munn & Co.
Attorneys

United States Patent Office.

C. G. HOWELL, OF CORNING, NEW YORK.

Letters Patent No. 66,841, dated July 16, 1867.

IMPROVED APPARATUS FOR DISTILLING AND REFINING PETROLEUM.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, C. G. HOWELL, of Corning, in the county of Steuben, and State of New York, have invented a new and improved Apparatus for Distilling and Refining Petroleum and other Liquids; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention relates to the manner in which the heat is applied in the distillation of petroleum and other liquids, and the invention consists in applying the heat directly, and also by steam, and in the manner hereinafter described.

Figure 1 represents a vertical longitudinal central section of my apparatus.

Figure 2 is an end elevation of the same.

Figure 3 is a detached view of the distilling-retort.

Figure 4 is a cross-section of the retort through the line *x x* of fig. 3.

Similar letters of reference indicate like parts.

A represents the arch or mason-work, in which the steam boiler is placed. B is the steam boiler. C is the retort. D is the receiving-vessel or heater, surrounded by the heated products of combustion. E is the crude petroleum reservoir or tank. F is the condenser. The retort C is placed in the steam boiler, substantially as seen in the drawing, and so that it is surrounded by steam, and consequently it cannot be raised to any higher temperature than the steam itself. The crude petroleum is forced into the heater D by a force-pump, where it is heated, and by the heat expanded and raised up through the pipe *a* into the retort. The crude oil is also purified, in a great measure, in the heater by the action of the heat, the larger portion of the residuum settling to the bottom of the vessel, from which it is drawn off through the faucet *b*. It is designed that the crude oil shall fill the retort to the line marked *c* in the drawing. The residuum remaining in the oil is deposited in the bottom of the retort, and is drawn off through the faucet *d*. The vapor ascends from the retort through the pipe *f*, which passes into the smoke-stack, where, for a short distance, it is surrounded by the heated products of combustion, as seen in the drawing. From the smoke-stack the vapor is conducted into the condenser E, which is kept filled with cold water. *g* is the vapor-gauge, and *h* is the oil-gauge.

The steam boiler represented in this example of my invention is a common two-flue boiler, but the tubular boiler may be used with equal success. I do not confine myself to any particular kind of steam boiler, nor to the distillation of petroleum alone. The apparatus may be applied with success in the distillation and reduction of other liquids.

J represents the water-line in the boiler. K is the steam-chest, with safety-valve attached. The steam generated may be used for driving an engine, or for other purposes.

I do not confine myself to any particular form or size of retort. In adapting my method to various kinds of steam boilers, it would of course be necessary to vary the form of the retort. Nor do I confine myself to the particular arrangement of the heater in reference to the boiler and retort, or of the tank and condenser.

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

Distilling, refining, and reducing petroleum and other liquids by the direct action of heat to the heating vessel D, and by the action of steam on a retort placed in a steam boiler, substantially as shown and described.

C. G. HOWELL.

Witnesses:

J. J. WELLINGTON,

MELVIN HOOD.