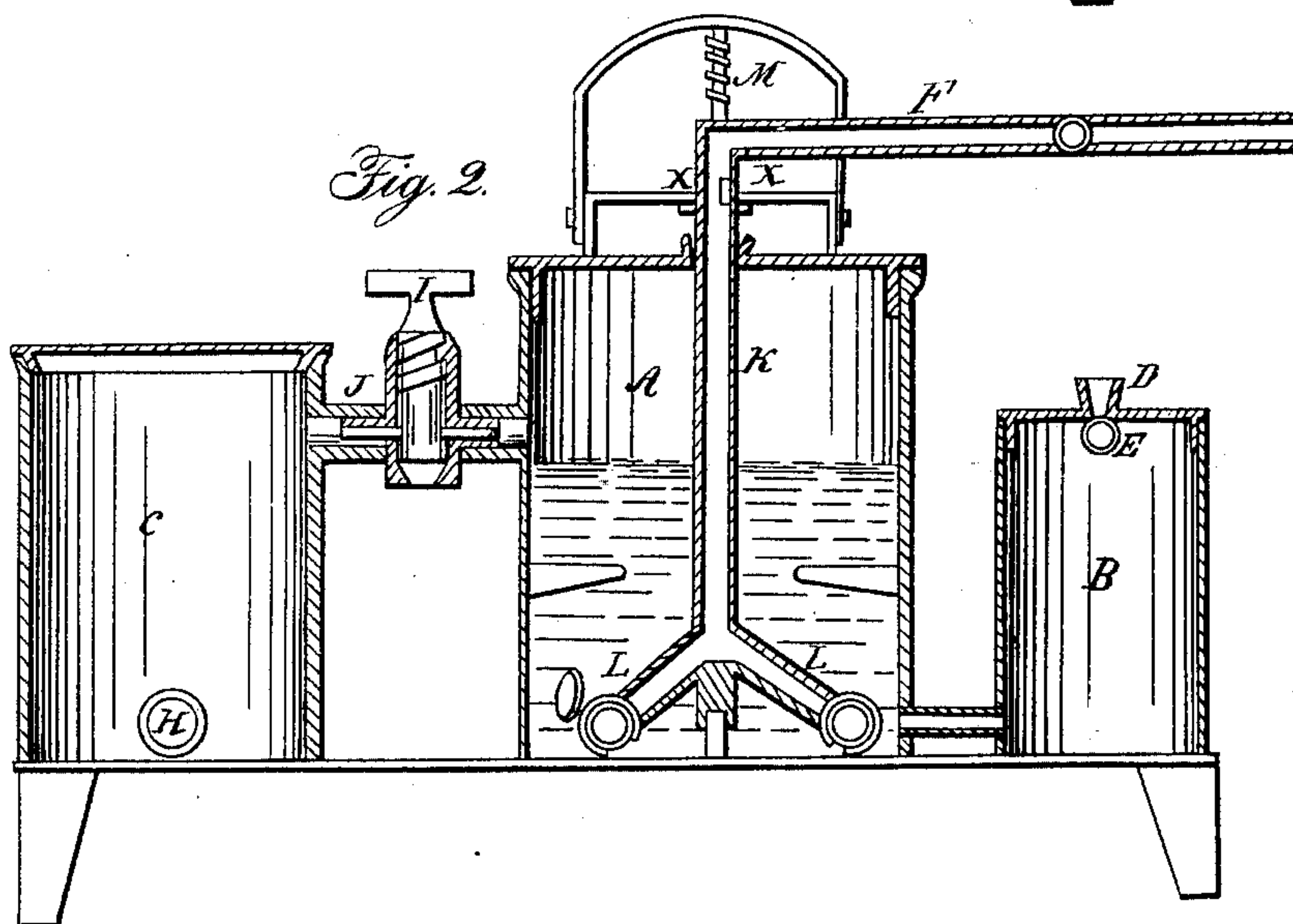
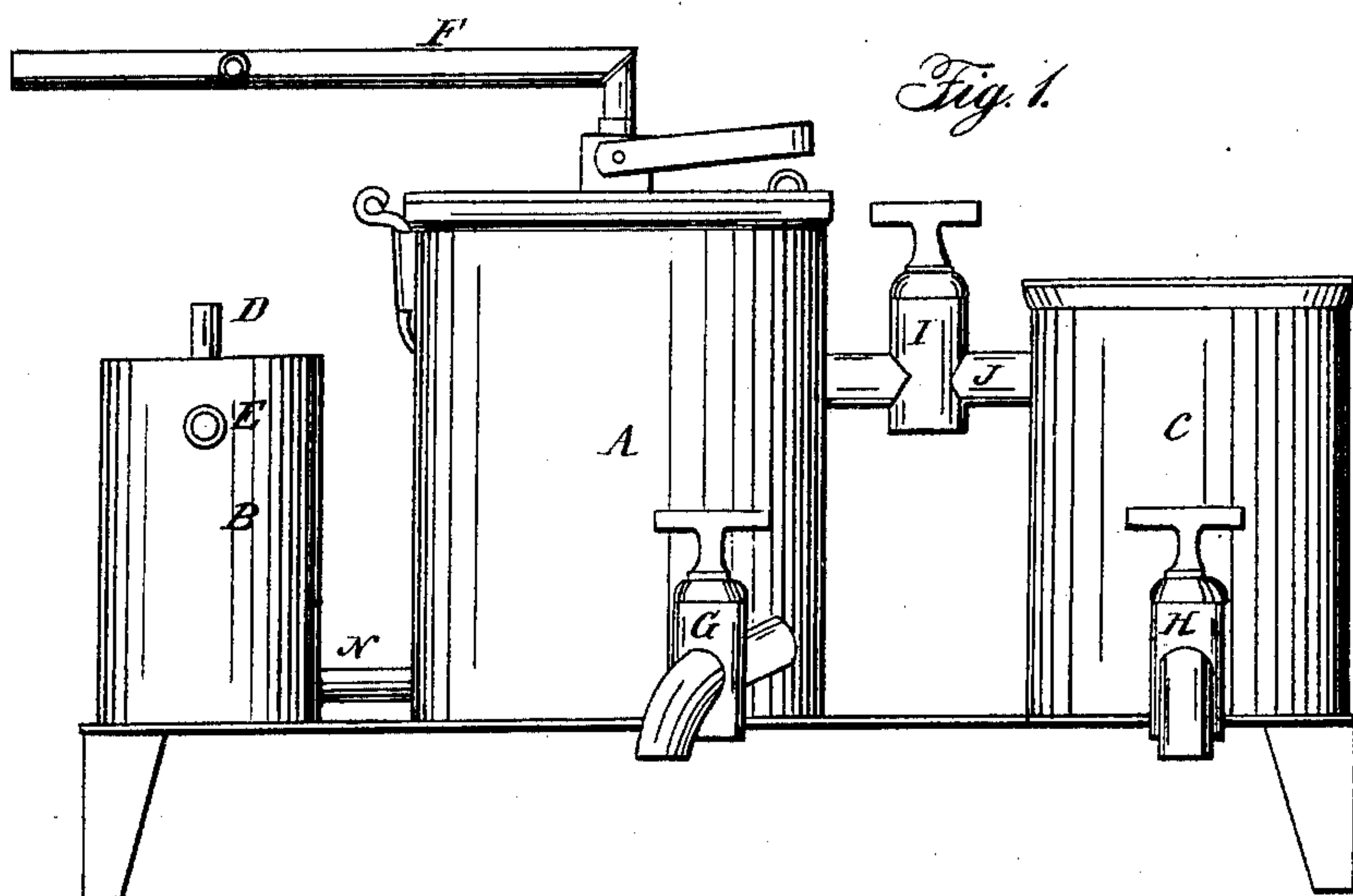


W. T. BARNES.  
Coal-Oil Condenser.

No. 24,920.

Patented Aug. 2, 1859.



**Witnesses:**

*C. M. Alexander*  
*Mrs. Radcliffe*

**Inventor:**

*William T. Barnes*

# UNITED STATES PATENT OFFICE.

WILLIAM T. BARNES, OF BUFFALO, NEW YORK.

## IMPROVEMENT IN APPARATUS FOR CONDENSING COAL-OIL.

Specification forming part of Letters Patent No. 24,920, dated August 2, 1859.

*To all whom it may concern:*

Be it known that I, WILLIAM T. BARNES, of Buffalo, in the State of New York, have invented certain new and useful Improvements in Apparatus for Condensing Coal-Oil; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the drawings, Figure 1 represents a side elevation. Fig. 2 represents a longitudinal vertical section.

A, B, and C represent in the figures three tanks or cisterns, which are connected together by pipes, as is shown, N being a pipe which connects B to A, and J being a pipe which connects A to C. Tank A is provided with a tight cover, through which passes a tube, K. This tube is provided at or near its bottom (which is near the bottom of the tank) with two or more projecting tubular arms, which communicate with tube K.

F represents a pipe, which leads from the retorts, where the gas is generated, to the pipe or tube K. Its end is set in the upper end of the tube K, and forms a tight joint with it when the said tube K is allowed to revolve.

E is a tank, which is intended to contain water, D representing a pipe through which water is admitted into tank B.

E is a pipe which conducts the water from said tank when it is as full as required. The water from tank B runs into tank A through the pipe N, and rises as high in said tank A as the exhaust-pipe E is located in tank B. When the water fills both tanks to this point, it begins to run out, and is wasted and runs away. When tank A is sufficiently filled with water, the tube K is set in motion by means of a belt, which passes around said tube, or by other means. When the tubular arms LL revolve rapidly, a suction is created by the mouths of said arms receding from the water, and thus causing a vacuum. This suction draws the gas from the retorts and discharges it in the water in the tank A, by means of which it is cooled and condensed into oil.

The nature of oil is to rise when placed in a vessel of water, and as the oil forms in this tank it rises to the top of the water, and when it reaches the pipe J it passes off through said pipe into the tank C. The oil passes off in this

manner into the tank C until it becomes full, and is then drawn off through the stop-cock H.

Any material which may pass from the retort into the tank A, whether separate from or combined with the gas, is retained in the water and deposited in the bottom of the said tank. This deposit may be thrown or driven out by the centrifugal force of the arms L L when they are set in motion, and the stop-cock G is opened to allow it to pass through the pipe at the bottom of the tank A, in which said stop-cock is secured. The suction produced by the tubular arms revolving draws the gas out from the retort more rapidly than it would otherwise come, and submerges it in the highly-agitated water in the tank, where it is cleansed, purified, and condensed into oil. As there is a constant stream of water running into and out of the tanks, the water in tank A cannot remain heated, although the hot gas is constantly being mingled with it. The cold water coming in mingles with the water as it is warmed and prevents its becoming hot.

Hot water or steam might be introduced into the tanks, if required, at any time. I may also attach a pipe to the tank A to draw or carry off any gas which may collect in said tank.

The gas from any number of retorts may be introduced into the tank A through the pipe F, and the same condensed in the manner described.

Air-holes may be made in the retorts to allow a constant current when the suction-pipes are in motion.

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

1. The employment of the tube K, the lower extremity of which is provided with tubular arms L L, the same being made to revolve, and being used in connection with a tank partially filled with water, and a conducting-pipe, F, substantially in the manner and for the purpose herein set forth.

2. The arrangement and employment of the tanks A B C, constructed and used substantially in the manner herein specified, and for the purpose set forth.

WILLIAM T. BARNES.

Witnesses:

C. M. ALEXANDER,

M. V. B. RADCLIFF.