J. H. FAIRCHILD.

Condensing Apparatus.

No. 53,528. Patented Mar. 27, 1866.

Fig. 1.

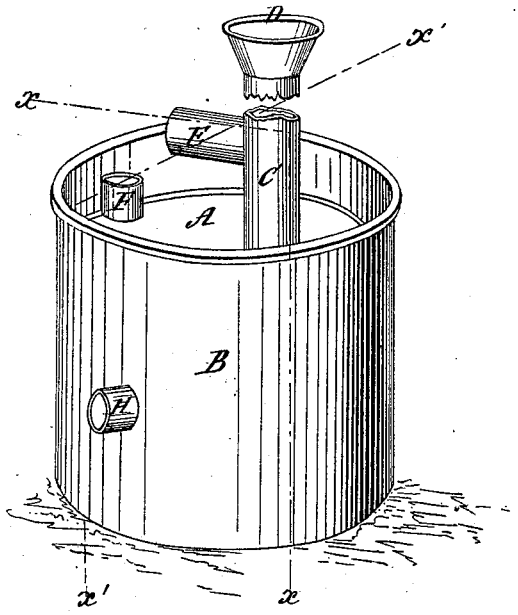


Fig. 2.

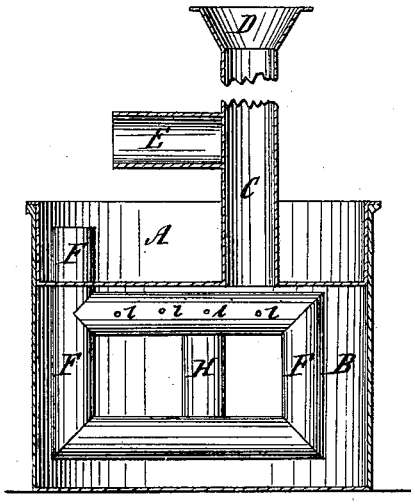
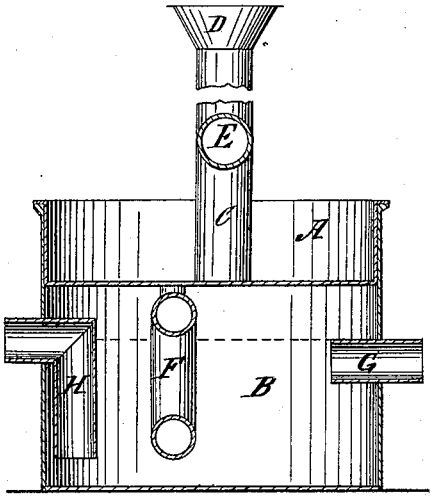


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

J. H. FAIRCHILD, OF HIGHGATE, VERMONT, ASSIGNOR TO HIMSELF AND ANDREW PARKER, OF CLEVELAND, OHIO.

IMPROVED CONDENSER.

Specification forming part of Letters Patent No. **53,528**, dated March 27, 1866.

To all whom it may concern:

Be it known that I, J. H. FAIRCHILD, of Highgate, in the county of Franklin and State of Vermont, have invented certain new and useful Improvements in a Vapor-Condenser for Oil-Works, &c.; and I do hereby declare that the following is a full and complete description of the construction and operation of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of the condenser. Fig. 2 is a transverse vertical section in the direction of the line *x x* in Fig. 1. Fig. 3 is likewise a transverse vertical section in the direction of the line *x' x'* in Fig. 1.

Like letters of reference denote like parts in the several views.

My invention relates to certain devices by means of which oil contained in the vapor generated during the distillation of coal-oil, in the process of refining it, is condensed into oil, as herein described.

The condenser consists of a basin, A, made to fit into the top of a receiver, B. Passing through the basin and extending upward is a pipe, C, terminating in a funnel-shaped mouth, D. At right angles to this pipe and connected to it is a pipe, E. Underneath the basin and extending downward into the receiver is a pipe, F, (shown in Figs. 2 and 3,) which is bent or turned at right angles and is of a rectangular form, as represented. One end projects upward through the basin. (Seen in Figs. 1 and 2.)

B, as already observed, is a receiver, in one side of which is a pipe or spout, G. Opposite this, on the other side of the receiver, passes out a right-angled pipe, H, that extends down near the bottom, as shown in Fig. 3.

The pipe G is a little lower from the top of the condenser than the pipe H, as indicated by the dotted line.

Having thus described the construction of the condenser, I now proceed to explain its operation.

The pipe E is connected to the distillery, through which the vapor passes into the pipe C, from thence down into the receiver B. At the same time a stream of cold water is turned into the pipe C, and the water, coming in contact with the vapor, as they both descend into the receiver, condenses the vapor. Through the pipe F is also passed a stream of cold water, which is done by filling the basin, from which the water passes down into the pipe. The water in this pipe finds exit through the holes *i*, in the upper section of the pipe, escaping in the form of jets or spray, for the purpose of condensing any vapor that may have passed into the receiver along with the water.

The vapor, condensed into oil by its specific gravity, floats on the water and runs off rapidly through the spout G into a tank to receive it.

The spout G is always closed to prevent the escape of vapor. It is closed either with the oil as it is running out, or there is a faucet arranged in the spout whereby it can be closed when the oil ceases to flow, for as the oil runs off the water will rise underneath it in the receiver and will run out at the spout G after the oil, if not shut off; but by turning the faucet this is prevented and the oil is allowed to accumulate on the surface of the water, when it can be again drawn off, and so on. As the pipe H is below the water-line no oil or vapor can escape in this direction, but the water runs out through this pipe.

What I claim as my improvement, and desire to secure by Letters Patent, is—

1. The basin A and perforated condensing-pipe F, in combination with the water-pipe H and vapor-pipe E, as and for the purpose set forth.

2. The receiver B, pipe H, and pipe or spout G, in combination with the pipe F and basin A, as described.

3. The employment of a current of cold water introduced through the pipe C, so as to condense the vapor passing through the pipe F into oil in the receiver B, as specified.

J. H. FAIRCHILD.

Witnesses:

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