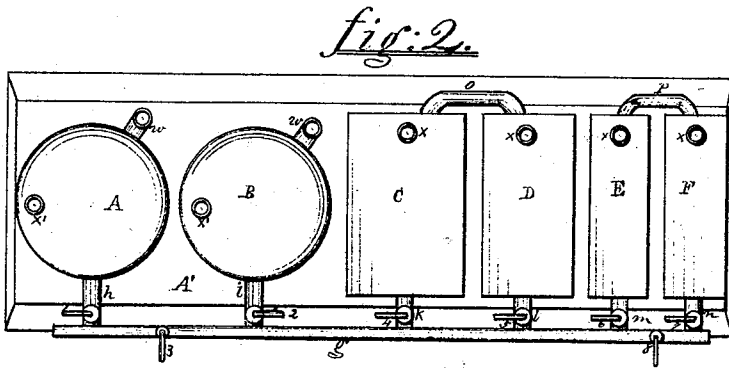
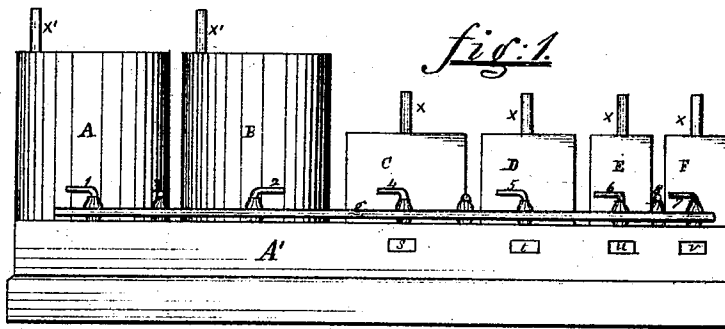


Hill & Thumm,

Oil Still.

No. 102819.

Patented May 10, 1870.



Wm. Forster
A. C. Johnston }
John S. Thompson }

Inventors
H. A. Hill & C. F. Thumm.
By their attorney A. Johnston

United States Patent Office.

SAMUEL A. HILL AND CHARLES F. THUMM, OF OIL CITY, ASSIGNORS TO THEMSELVES AND OLIVER P. SCAIFE, OF PITTSBURG, PENNSYLVANIA.

Letters Patent No. 102,819, dated May 10, 1870.

IMPROVEMENT IN APPARATUS FOR DISTILLING HYDROCARBON OILS.

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

To all whom it may concern:

Be it known that we, SAMUEL A. HILL, and CHARLES F. THUMM, of Oil City, in the county of Venango, in the State of Pennsylvania, have invented a new and useful Improvement in Apparatus for Distilling Hydrocarbon Oils; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

The nature of our invention consists in so constructing and arranging a series of stills with relation to each other that the oil will flow over the bottom of the stills in a thin and continuous sheet, with a different degree of heat applied to the bottom of each still; and

Also, in so arranging the connections between the several stills that the flow of oil through one or more of the stills may be cut off from the other stills in the same series.

To enable others skilled in the art to make and use our invention, we will proceed to describe more fully its construction and operation.

In the accompanying drawings, which form part of our specification—

Figure 1 is a side elevation of our improvement in apparatus for distilling hydrocarbon oil.

Figure 2 is a top view or plan of the same.

In the drawings—

A' represents a series of furnaces under the stills.

A and B represent two large separating and heating-stills, which are used for the purpose of separating the water from the oil, carrying off the "gasoline," and heating the oil prior to its entering the other stills.

The stills A and B are supplied with oil through the medium of pipes *w*, and are also furnished with pipes *x*, which may be connected to a suitable condenser.

Near the bottom of these stills are two pipes, *h* and *i*, which are connected to a pipe, *g*, which is connected to the stills C, D, E, and F, by means of pipes *k*, *l*, *m*, and *n*, each being provided with stop-cocks.

The back ends of stills C and D are connected together by means of a pipe, O, placed close to the bottom of the stills, and the stills E and F are, in like manner, connected by means of a pipe, P.

These stills are provided with each a pipe, *z*, for carrying off the vapor to a suitable condensing-device, which may be constructed in any of the known forms.

The furnaces *s*, *t*, *u*, and *r*, are connected to a stack or stacks.

As the construction and arrangement of the several stills, and their relation to each other, will readily be understood from the foregoing description, and by reference to the accompanying drawings, we will therefore proceed to describe the operation of our improvement.

The oil is first introduced into the stills A and B, and the water separated from it. After being heated to about 120° Fahrenheit, the valves 1 of pipe *h* and valves 3 and 2 of pipes *g* and *i* are opened, and the oil will flow from still A over the bottom of still C, and from it will flow through pipe O into still D, and will flow from it through pipes *l*, *g*, and *m*, into the still E, and from it will flow through pipe P into still F, passing thus over the bottom of each still in a thin and continuous sheet, with the heat gradually increasing from furnace *s* to furnace *r*.

The vapor evolved from the oil in still C is obtained with less heat than used for evolving vapor from the oil after it flows into still D, and the oil, after entering still E, is subjected to a greater degree of heat than when it was in still D; and, after it enters still F, it is subjected to a greater heat than when it was in still E.

By thus gradually increasing the heat while the oil is flowing in a thin sheet from one still to the other, the product of distillation will be greater and more uniform in color, and less liability of burning out the bottom of the stills.

The skillful mechanic will readily see that, by the arrangement of the pipes and stop-cocks with relation to the stills, the flow of oil may be cut off from any one of the stills in the whole series, which is of great advantage in cleaning out the stills, which cleaning can be done without stopping the operation in the other stills in the series.

Two large separating and heating-stills, A and B, are used, so that one can be used while the other is being filled, thereby keeping a supply of oil at all times for the stills C, D, E, and F.

Oil distilled in the manner herein described will require less chemicals in its subsequent treatment.

We wish it clearly understood that we do not claim, broadly, the application of a different degree of heat to each still of a series, for such device is shown in the patents granted to Peter H. Vander Weyde, patented March 6, 1866, and February 12, 1867.

Having thus described the nature, construction, and operation of our improvement,

What we claim as of our invention is—

The combination and arrangement of a series of stills, so arranged with relation to each other that the flow of hydrocarbon through one or more of the stills of the series may be cut off from the other stills of the same series, and each still of the series being furnished with separate fire-chamber, so as to apply a different degree of heat to each still, substantially as herein described and for the purpose set forth.

S. A. HILL.

CHAS. F. THUMM.

Witnesses:

JAMES J. JOHNSTON,
JAS. G. THOMPSON.