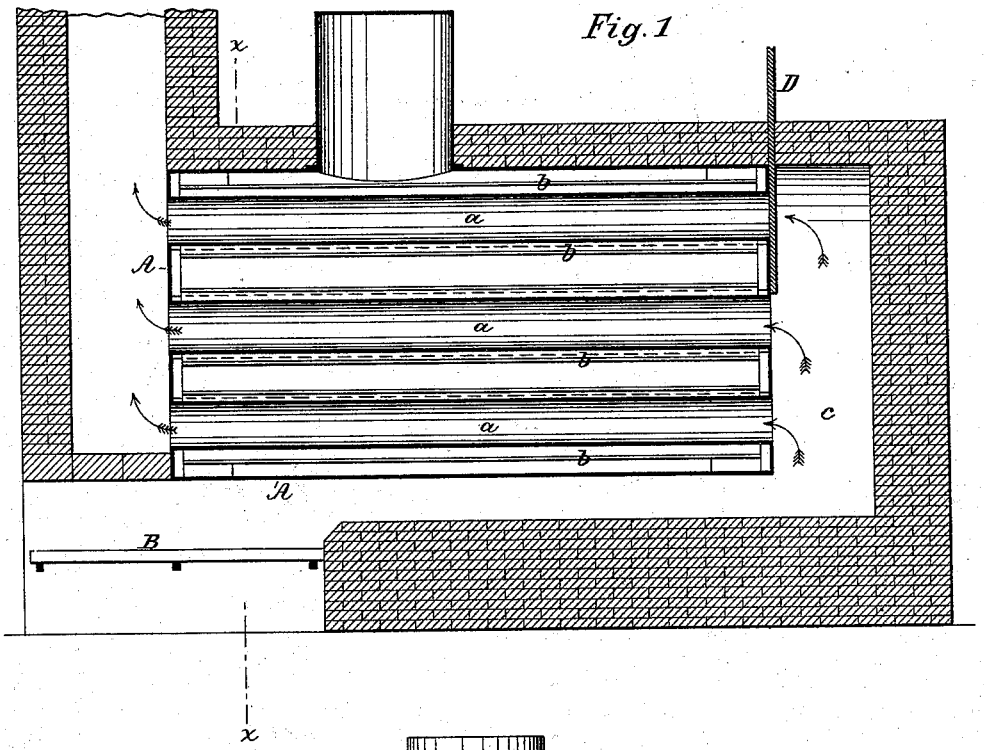
E. WESTON.
Oil-Still.

No. 219,546. Patented Sept. 9, 1879.

Fig. 1



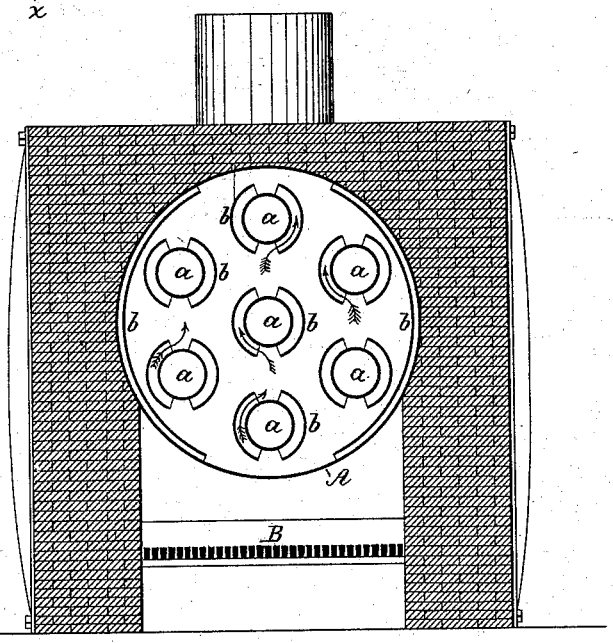


Fig. 2

Witnesses:
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UNITED STATES PATENT OFFICE.

ELIJAH WESTON, OF BUFFALO, NEW YORK.

IMPROVEMENT IN OIL-STILLS.

Specification forming part of Letters Patent No. **219,546**, dated September 9, 1879; application filed July 3, 1879.

To all whom it may concern:

Be it known that I, ELIJAH WESTON, of the city of Buffalo, county of Erie, and State of New York, have invented a new and useful Improvement in Oil-Stills; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section, and Fig. 2 a transverse vertical section on the line *x x*, Fig. 1, of a still embodying my invention.

The invention relates to stills for separating the hydrocarbon products from crude petroleum and other volatile oils by the application of heat; and the object of this invention is to promote the circulation of the oil during its volatilization.

The invention consists in arranging rigid partition-plates within the oil-space of the still adjacent to the heating-surfaces, so as to separate that portion of the oil in contact with the heating-surface from the portion next the exterior shell, said plates being open at their edges to permit a free passage of the oil, and whereby a constant circulation of the same is maintained and every particle brought in rapid and direct contact with the heating-surfaces in divided quantities.

To enable others to understand and use my invention, I will first proceed to describe the same, and subsequently to point out in the claim its novel features.

In the accompanying drawings I have shown an ordinary type of still to which my invention is applied; but I wish it to be understood that I do not confine myself to this particular form, as my said invention may be used in connection with other types of stills for such purpose without departing from the principle involved.

A represents the shell of a still, which may be set in brick-work, as shown, to form a furnace, B, and the usual connections with the uptake.

The shell A is cylindrical in form, and provided with a series of fire-tubes, *a a*, distributed at about equal distances from each other, passing longitudinally through the same, and connecting the combustion-chamber *c* and uptake.

D represents a sliding gate, arranged within the combustion-chamber *c*, as shown, to operate to close the upper tiers of fire-tubes when the quantity of oil within the still has been reduced by vaporization below the level thereof.

b b represent the partition-plates, which are generally composed of thin sheets of iron or steel, and bent to conform to the contour of the adjacent heating-surface. These plates should be located at such distance from the heating-surfaces, to permit a free circulation, and contain sufficient oil in the separated space to prevent burning and cover the heating-surfaces.

Different kinds and densities of oils will require greater or less space to effect the above conditions, which may be readily determined in practice.

The function of the partition-plates is to separate that portion of the oil next the heating-surface from the remaining and greater portion, which produces a variation in the temperature of the separated portions. The part next the heating-surface, being of a higher temperature, naturally rises, and its place is supplied from below by the outer part. This action creates a constant circulation of the oil, and causes every portion contained in the still to flow in a reduced quantity in direct contact with the heating-surfaces, so that every particle of the oil is subjected to the highest degree of heat contained in the still, which produces a rapid and perfect volatilization.

In this explanation of the operation of my invention it is not deemed necessary to illustrate or describe the usual adjuncts of these stills—such as means for receiving and removing precipitated matter and conveying the refined product therefrom—as such elements are well known and understood by those skilled in the conduct of treating oils; but,

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

A still for volatilizing oils by heat, provided with internal partition-plates adjacent to the heating-surfaces, and forming open passages for a free circulation, whereby the oil is brought in direct contact with the heating-surfaces in separated quantities, as set forth.

ELIJAH WESTON.

Witnesses:
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