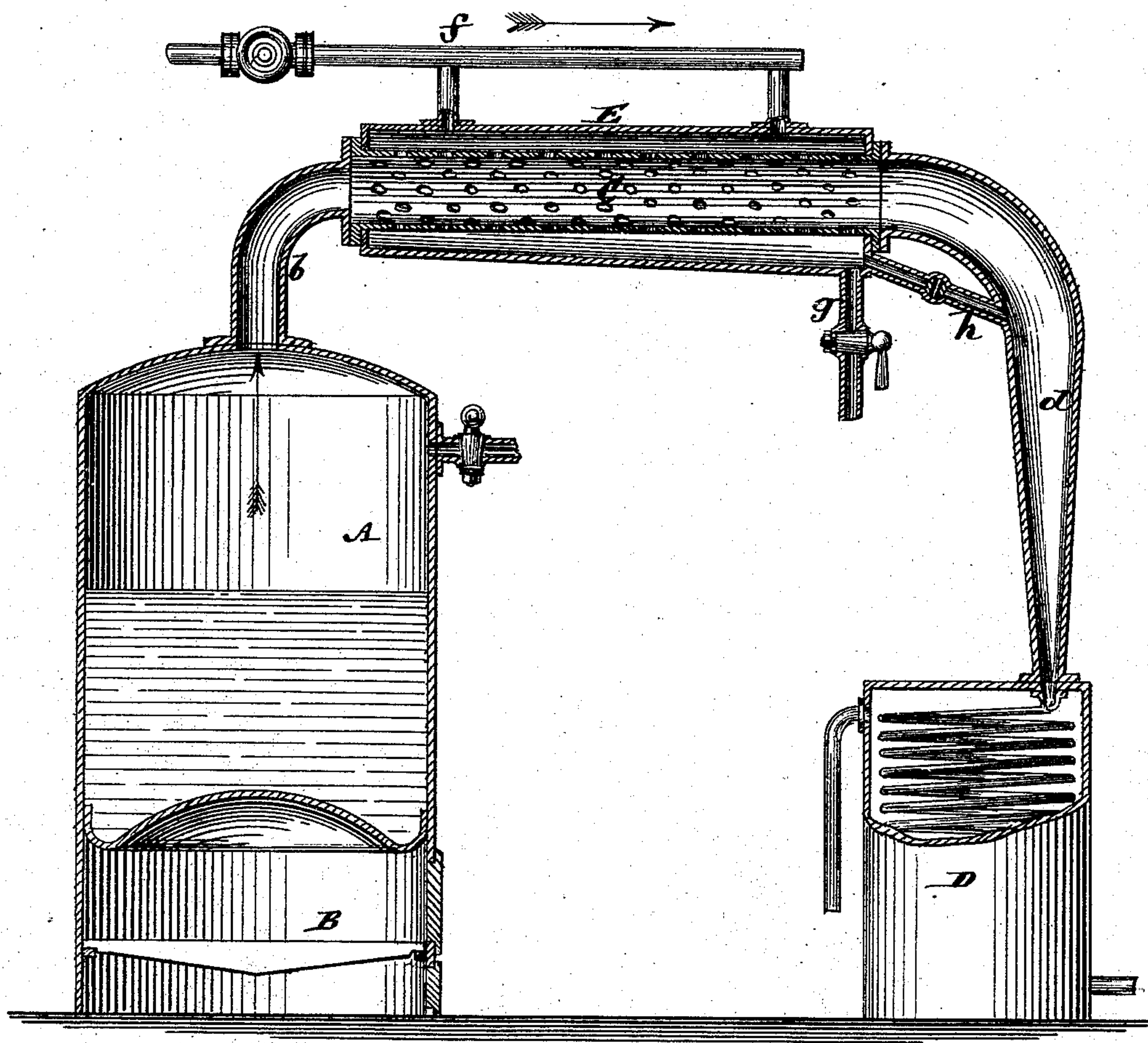


R. D. TURNER.

Apparatus for Refining Oil.

No. 156,899.

Patented Nov. 17, 1874.



Witnesses.

John Becker
Fred Harnes

Rubens D. Turner
by his Attorneys
Brom & Allen

UNITED STATES PATENT OFFICE.

REUBEN D. TURNER, OF NEW YORK, N. Y.

IMPROVEMENT IN APPARATUS FOR REFINING OILS.

Specification forming part of Letters Patent No. 156,899, dated November 17, 1874; application filed April 28, 1874.

To all whom it may concern:

Be it known that I, REUBEN D. TURNER, of the city, county, and State of New York, have invented an Improved Apparatus for the Treatment of Petroleum and other Oils, of which the following is a specification:

This invention more particularly relates to the treatment of petroleum oils for the purpose of bleaching them and depriving them of their odorous and explosive properties, and includes the exposure of the oil in an atomized condition to the direct agency or action by contact of steam, which absorbs the "flashing" principles of the oil and generally improves it. The invention consists in an apparatus or means whereby the oil to be treated is vaporized, and said vapor, as it passes to a condenser, brought in intimate contact with the vapor of water or steam, substantially as hereinafter described.

The accompanying drawing represents a sectional elevation of an apparatus in illustration of my invention.

A is an oil boiler or evaporator, having a furnace, B, and the vapors generated in which are conducted by a pipe, *b*, into a laterally-perforated mixing cylinder or chamber, C, which connects, by a dip-pipe, *d*, with the first, D, of a consecutive series of condensers, to the last of which a blower-producing suction may be applied to promote the flow of the vapors or liquid through the apparatus. E is a steam cylinder or jacket surrounding the perforated mixing-cylinder C, and supplied with steam by a pipe, *f*, from an ordinary steam-boiler or otherwise. This steam-jacket E is preferably made inclining downward at its bottom in a direction toward the condenser for the purpose of collecting or directing any water of condensation which, on

starting the apparatus, may be run off by a pipe, *g*, and, after starting, may, on closing a cock in said pipe, be run off by a branch, *h*, into the dip-pipe *d*.

The oil in the mixing-cylinder C, it will be observed, is not simply atomized, but highly heated and in a state of vapor, and is, consequently, in a most favorable condition for the direct and absorbing action of the steam upon it, said steam issuing from the jacket E through the orifices in the chamber C, and intercepting or intimately commingling with the oil-vapors as they pass to the condenser, where, or from which, in running off, the oil thus bleached, deodorized, and improved by the absorbent properties of the steam, is separated from the water of condensation for use as required for illuminating and other purposes.

The evaporation of the oil is a necessary feature in the action of this apparatus.

I am aware that a still, in which the oil is placed, has been connected with a pump which communicates with a bleaching-vessel, and said bleaching-vessel being in communication with a steam-boiler, and with a condensing-worm, by means of suitable pipes for the purpose of bleaching oil, &c.; but such is not my invention and is disclaimed.

I claim—

The combination, substantially as described, of the oil-evaporator A, the steam-jacket E, the perforated mixing-chamber C, for the vapors of the oil and steam, drip-pipe *d*, and one or more condensers, D, all being arranged for operation as herein shown.

REUBEN D. TURNER.

Witnesses:

MICHAEL RYAN,
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