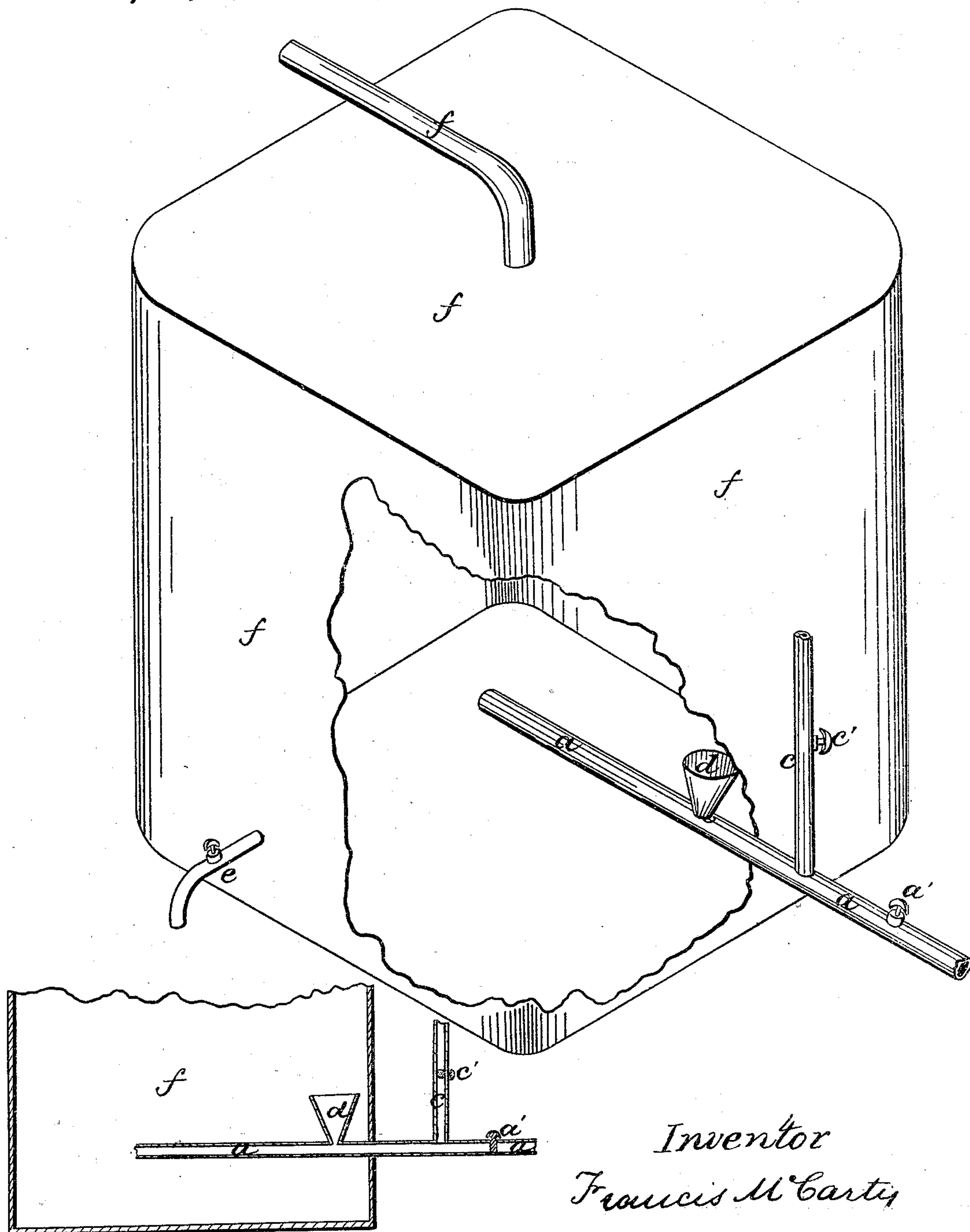


F. McCarty

Oil Still

Nº 91,953. Patented Jun. 29, 1869.



Witnesses
R. Wrenshall
T. M. Shaw

Inventor
Francis McCarty
by his attorneys
Barlow & Lundy

United States Patent Office.

FRANCIS McCARTY, OF SMITH'S FERRY, PENNSYLVANIA.

Letters Patent No. 91,953, dated June 29, 1869.

IMPROVEMENT IN THE DISTILLATION OF 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 I, FRANCIS McCARTY, of Smith's Ferry, in the county of Beaver, and State of Pennsylvania, have invented a new and useful Improvement in Distillation of Carbon-Oils; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—

Figure 1 is a perspective view, partly in section, of my improved still, and

Figure 2 is a diminished sectional view of the lower part of the still.

Like letters of reference indicate like parts in each.

My invention relates to that class of stills for distilling hydrocarbon-oils, in which the vaporizing of the distillable products is effected wholly or in part by steam, common or superheated, introduced into the still; and

The nature of it consists in causing the oil in the still to move in a continuously-returning current or flow, by the action of the steam, the oil entering the steam-pipe through a funnel at some distance from the discharging-end of such pipe, passing through the pipe along with the steam, and being discharged at the end of the pipe, and returning in continuous flow, thereby keeping up a constant and intimate intermixture of steam and oil.

My invention further consists in feeding a jet of oil and a jet of steam together through the same pipe continuously into the still, and in the construction of apparatus for carrying on the processes above specified.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and manner of use.

The oil-still *b* may be of any known or usual construction.

The steam-pipe *a* leads from any suitable steam-generator into the lower part of the still.

Before it enters the still *b*, a pipe, *c*, joins it, which latter leads from the crude-oil tank.

Each is supplied with a cock, *a' c'*, to regulate the supply of steam or oil, as the case may be, or to cut off either or both altogether.

The pipe *a* leads some distance into the still *b*, before it discharges.

At any desired point inside the still, but preferably at some little distance back of the discharging-aperture, I insert into the pipe *a*, a funnel, *d*, so as to permit through it the flow of oil from the body of oil in the still, into and along the pipe *a*, toward and out at its discharging-end.

The cocks *a' c'* being both opened when it is desired

to charge the still, the force or rush of the steam along the pipe *a* will carry with it a jet of oil, which flows in through the pipe *c*. As they pass along into the still, the ingredients, by the distillation and condensation of which illuminating-oil is made, will be vaporized wholly or in part, and pass off through the goose-neck *f* to the condenser.

The heavier oils will remain unvaporized.

As soon as the oil in the still rises above the mouth of the funnel *d*, the rush of the steam in the pipe *a* will cause a flow of oil through the funnel *d* into and along the pipe *a*, which action will go on continuously, as long as the process is continued. In this way I bring the article to be distilled and the vaporizing-agent into close contact, and completely intermix them, and so secure the most perfect and economical action of the steam on the oil. I continue the process until the still is full of oil, if so desired, and then, or sooner, as may be preferred, cut off the supply of oil by turning the cock *c'*, and continue to work the oil that is already in the still, in the manner above described, until the contents of the still are reduced to any desired degree of gravity, preferably, however, driving over and condensing the illuminating-oils, and drawing off the remainder, which is useful for lubricating and other purposes, by a cock, *e*, in the lower part of the still.

This process is particularly designed for the distillation of the heavier kinds of petroleum, which are found in some localities, and which contain little or no gasoline or benzine, or other very light oils; but it is applicable to the distillation of the lighter oils also, in which case the benzine, gasoline, &c., may be driven off, in a separate still, either before or after the oil is subjected to the process above described.

What I claim as my invention, and desire to secure by Letters Patent, in the distillation of hydrocarbon-oils, is—

1. Causing the oil in the still to move in a continuously-returning current or flow, by means of a jet of steam, and a funnel inserted in the steam-pipe back of the discharging-aperture, substantially as described.

2. Feeding a jet of oil and a jet of steam continuously into a still through a common pipe, substantially as and for the purposes set forth.

3. A funnel, *d*, inserted in a steam-pipe, *a*, inside the still, and back of the discharging-aperture, substantially as and for the purposes hereinbefore set forth.

In testimony whereof, I, the said FRANCIS McCARTY, have hereunto set my hand.

FRANCIS McCARTY.

Witnesses:

L. RICHARDSON,
A. J. PETTIT.