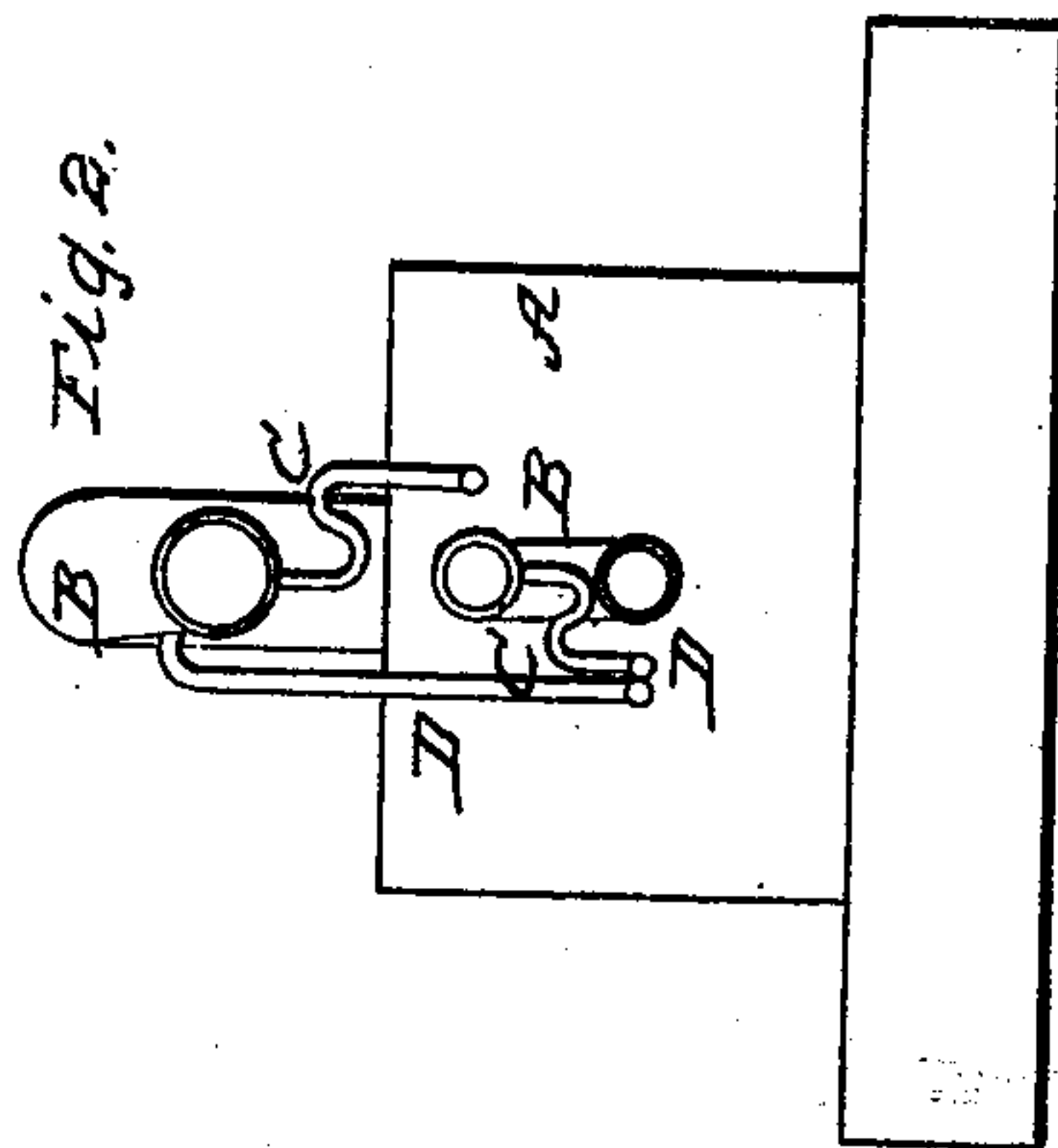
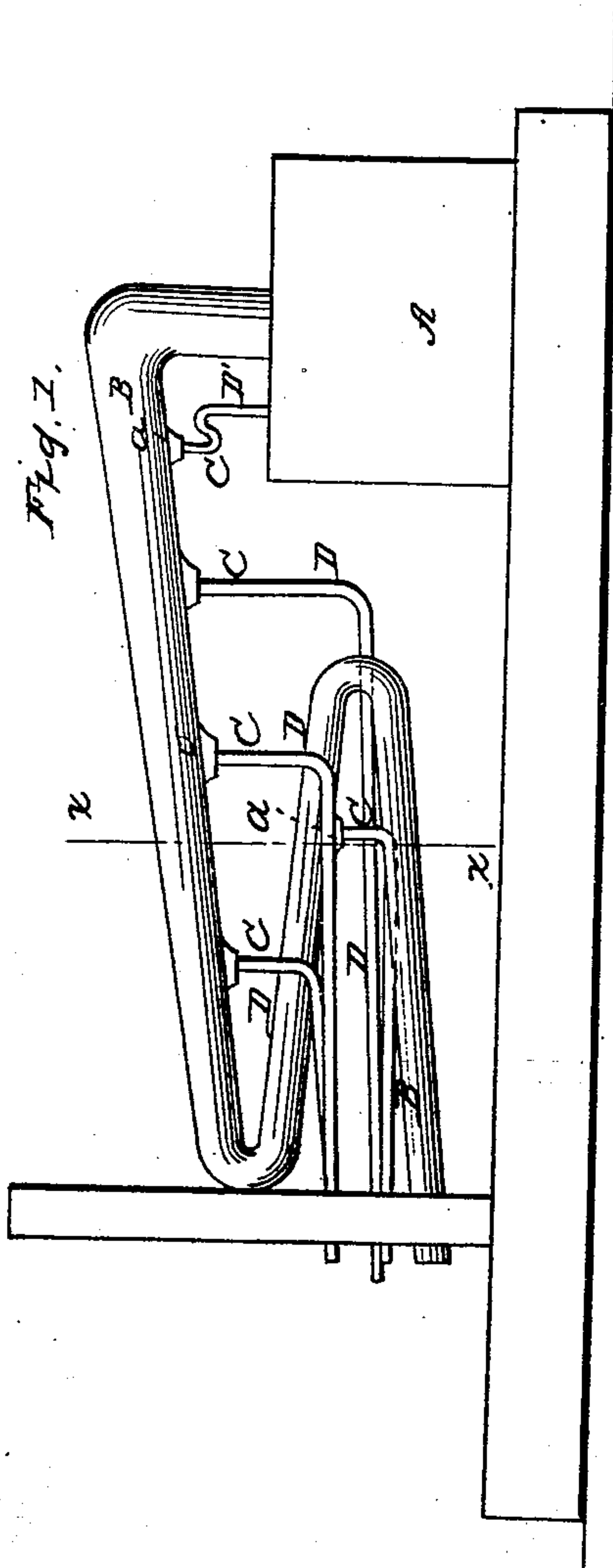


L. N. WILCOX.

Distilling Oils.

No. 49,020.

Patented July 25, 1865.



Witnesses:
Wm. Freewin
Thos. Fusch

Inventor:
L. N. Wilcox
By *Wm. H. & Co.*
E. Attys

UNITED STATES PATENT OFFICE.

L. N. WILCOX, OF PITTSBURG, PENNSYLVANIA.

IMPROVED APPARATUS FOR SEPARATING THE PRODUCTS OF DISTILLATION OF HYDROCARBONS.

Specification forming part of Letters Patent No. 49,020, dated July 25, 1865.

To all whom it may concern:

Be it known that I, L. N. WILCOX, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and Improved Method of Separating the Products of Distillation of Hydrocarbon Oils and other Substances; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 represents a side elevation of an apparatus which illustrates my invention. Fig. 2 is an elevation of a cross-section taken on the line *x* of Fig. 1.

Similar letters of reference indicate corresponding parts.

The object of this invention is twofold: first, to separate the benzole and heavy oils from the illuminating-oils while manufacturing the same from petroleum, coal, and other substances; and, second, to return the heavy oils which are condensed in the first sections or parts of the condenser to the still for redistillation. The first part thereof can be applied with advantage to the distillation of all volatile liquids—as, for instance, to whisky or alcohol—since the water distilled over will be condensed before the spirits, and may be separated by my process with great facility.

In Fig. 1 of the drawings I have represented an apparatus which serves to illustrate the principle of my invention.

A designates a still, and B a worm leading from it. They may be of any suitable form, since my invention is applicable to stills and condensers of any form.

Depressions *a* are made on the bottom surface of the worm or condenser at various points of its course, and the lowest parts of these depressions are made to receive pipes D, which lead into any suitable receiver or receivers. A trap, C, is made in each pipe D, near the worm or condenser, so as to prevent the passage of vapor into the pipes D. The effect of this construction is to cause the oils which are condensed in different parts of the worm or condenser to collect in the several depressions *a*, and thence to run into the pipes D to any proper reservoirs, which may be independent, one for

each pipe D, if it is desired to keep oils of different densities separated. The traps C in the beginnings of the pipes will prevent the escape of vapor from the worm. The products of the vapors which are condensed in the most distant parts of the condensing apparatus can by this means be kept apart from those which are produced at an earlier stage, and thus the benzole and the heavier oils can be kept separated from the illuminating-oils.

I have discovered that in the distillation of hydrocarbon oils while the benzole is still running off there is a difference of about 6° Baumé in the gravity of the oils condensed in the first and last parts of the condenser, and by the methods of distilling now in use these oils are run together in the receiver and produce an oil of a more or less inflammable character. The construction here shown enables me to separate the benzole and inflammable oils from the illuminating-oils in the act of removing them from the condenser.

The second feature of my invention—to wit, the returning of the heavy oils condensed in the first part of the condenser back to the still for redistillation—is also illustrated in the drawings. These oils contain a large amount of useful illuminating oils, which may be obtained by redistillation. In order to collect these heavy oils before they are mixed with the oils condensed farther on in the worm I make a depression, *a'*, in the first part of the condenser, and connect the bottom of the depression with a pipe, D', which is also provided with a trap, C', to prevent the entrance of vapor. This pipe D' is conducted into the still, and thus the heavy oils are carried back for redistillation. More than one depression *a'* and pipe D' may be used for this purpose, if found expedient.

I claim as new and desire to secure by Letters Patent—

Separating benzole from illuminating-oils in distilling hydrocarbon oils and other substances by means of separate pipes D, arranged with traps C leading off from different parts of the condenser, substantially as and for the purpose above described.

L. N. WILCOX.

Witnesses:

W. H. D. TOTTEN,
C. H. ISRAELL.