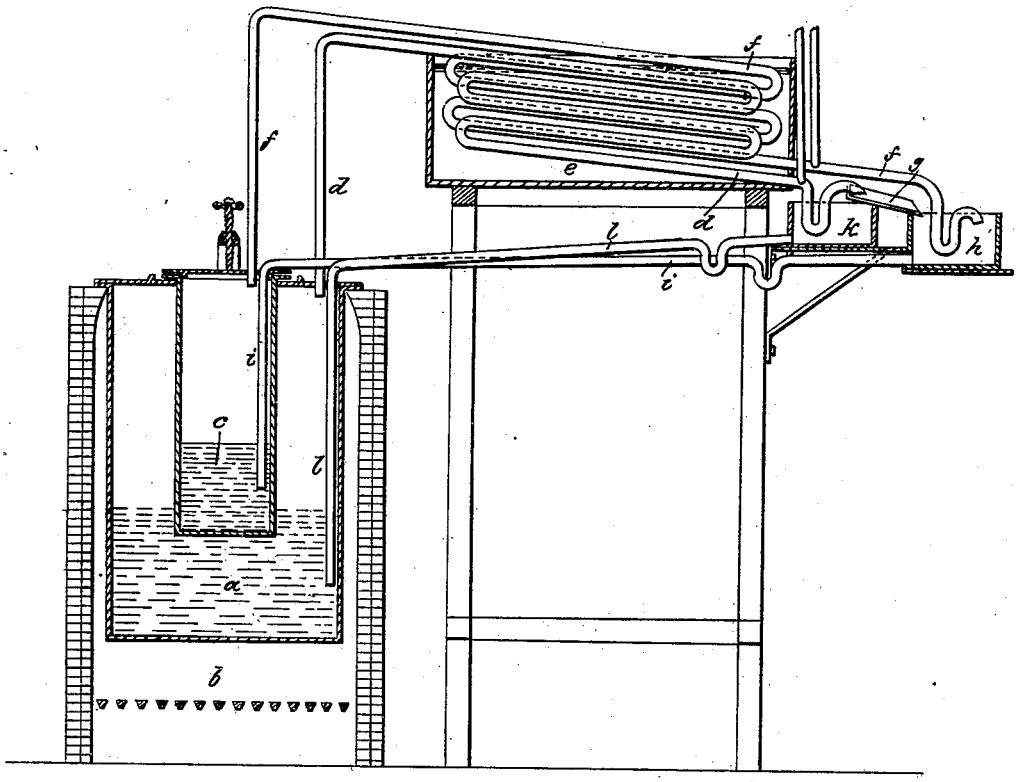
A. MILLOCHAU.

Apparatus for Distilling Petroleum.

No. 46,923. Patented March 21, 1865.



Witnesses:

Samuel W. Serrell

Chas. L. Smith

Inventor:

A. Millochau

UNITED STATES PATENT OFFICE.

ADOLPH MILLOCHAU, OF NEW YORK, N. Y.

IMPROVED APPARATUS FOR DISTILLING PETROLEUM, &c.

Specification forming part of Letters Patent No. **46,923**, dated March 21, 1865.

To all whom it may concern:

Be it known that I, ADOLPH MILLOCHAU, of the city and State of New York, have invented, made, and applied to use a certain new and useful Improvement in the Distillation of Petroleum and other Oily Substances; and I do hereby declare the following to be a full, clear, and exact description of the said invention, reference being had to the annexed drawing, making part of this specification, in which I have represented a vertical section of the apparatus employed by me.

My invention relates to a double distillation in a double still for combining and utilizing the heavy and light products of the distillation of petroleum or similar oils and producing an oil of a medium gravity adapted to burning.

In the drawing, *a* is a still heated by fire in a furnace, *b*. *c* is a second still, introduced within and heated by the still *a*. I have represented these stills in the form of concentric cylinders, the inner one passing through the cover of the outer one, as they are easily made in this form. They may, however, be fitted in any other convenient manner, so that the inner still shall be heated by the outer one and the vapors be conveyed away, and the products of condensation returned, as hereinafter specified.

d is a pipe conveying the vapors from the still *a* through the condenser *e*, and *f* is a pipe from the still *c*, also passing through the condenser *e*.

The mode of using my apparatus and performing the distilling operation is as follows: I introduce in the still *a* a suitable amount of crude petroleum and proceed to its distillation, having first introduced in the still *c* the tar-residuum or heavy oil remaining from a previous or ordinary distillation. I find that about two per cent. (2%) of gas and water will be driven off, which I allow to escape from the end of the still-worm *d*. When the light oil, benzine, or naphtha comes over, I receive the same from the spout *g* into the vessel *h*, and pass it through the pipe *i* into the small still *c*, and this I continue until a burning-oil of about 65° Baumé passes over from the still *a*, and this burning-oil I convey from the end of *d* into any suitable receptacle until the whole of the oil adapted to burning purposes is distilled from *a*, as the oil which may come over of a gravity of 40° and less is not adapted to burning. The oil that is distilled after the burning-oil ceases to flow is returned by the spout *g* and vessel *h* to the smaller still *c* through the pipe *i* for a second charge to the still *c*. While the distillation before named is progressing from the still *a*, the heat thereof causes evaporation in the still *c*. The benzine and other light oils that have been evaporated from the still *a* and supplied to the still *c* combine with the heavy oils with which the still was charged and pass through the condenser-worm *f*, and are again returned to the still *c* through *h* and *i* until the oil passing away becomes of the gravity (60° Baumé) required for commencing the distillation of burning-oil. This product is then conveyed to a suitable receptacle, and this distillation of burning-oil may be continued while the heavy oil distilled from *a* passes back through *h* and *i* to the small still *c*, the burning-oil from the worm *f* being conveyed away by a spout instead of passing into the receptacle *h*. I have shown a receptacle, *k*, and pipe *l*, by which the distillation from the still *a* can be returned into itself, and this pipe *l* also allows me to introduce benzine or naphtha in a liquid state into the still *a*, to combine with the tar-residuum in said still near the end of the distillation and form a heavy oil, that is passed back into the still *c* to be used with the next charge of petroleum to the still *a;* or in some cases a burning-oil will continue to pass away from the still *a* if naphtha or benzine is introduced with the tar-residuum in the last portions of the process.

This still may be used in the following manner, if desired: Introduce crude oil into the larger still, distill the same, and return the product into itself until a quality of oil suitable for burning is produced; then turn the said products of condensation from the large still into the smaller or inner still and let the operation proceed, drawing away the burning-oil distilled from the smaller still. There will at the end of the operation be but little residuum in the large still, and the heavy oil

that is left in the small still may be run into the large still with the fresh charge of crude oil.

What I claim, and desire to secure by Letters Patent, is—

The distillation of heavy and light oils jointly to produce a burning-oil by means of a second still within the main still for petroleum and similar oils, substantially as specified.

In witness whereof I have hereunto set my signature this 26th day of January, 1865.

A. MILLOCHAU.

Witnesses:

LEMUEL W. SERRELL,

CHAS. H. SMITH.