2 Sheets—Sheet 1.

G. MILES.

Oil-Still.

No. 205,407. **Patented June 25, 1878.**

Fig. 1.

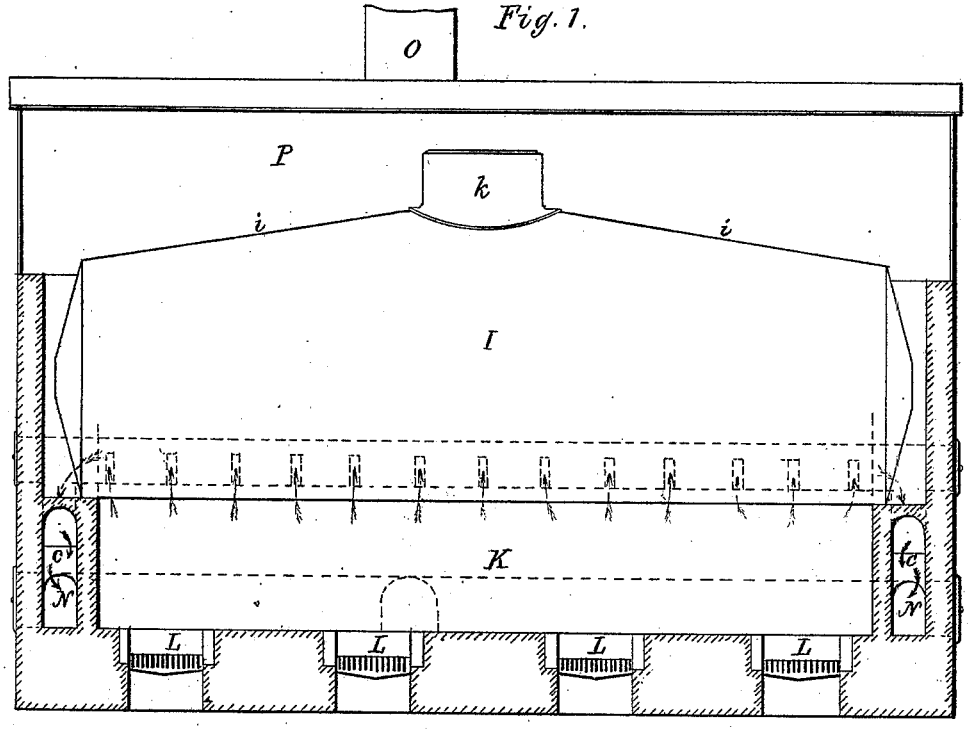
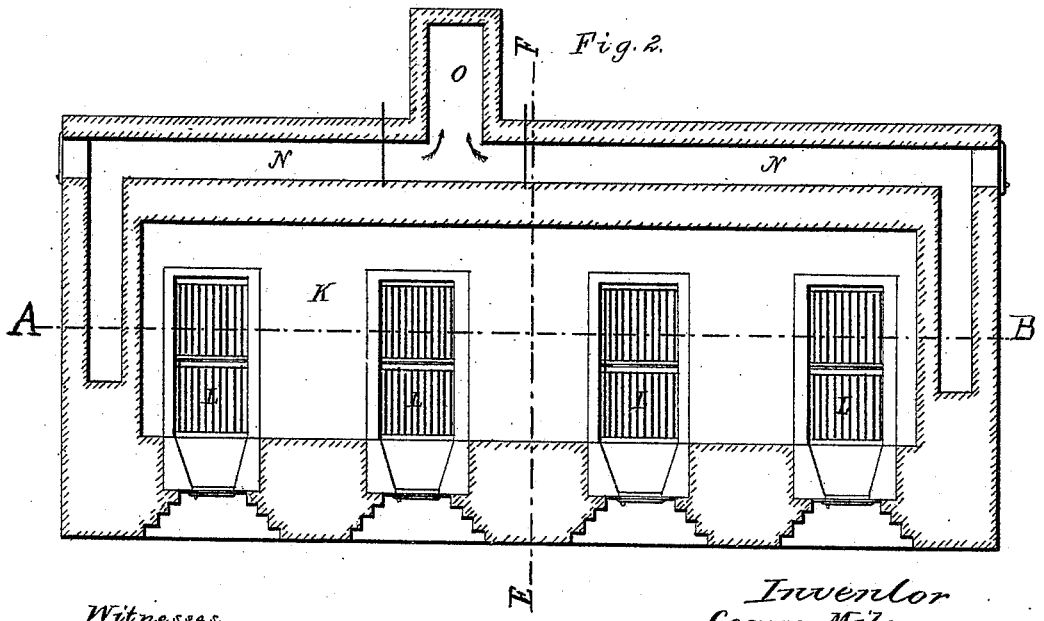


Fig. 2.



Witnesses.
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John R. Brown

Inventor
George Miles
by his attorney.
R. H. Eddy

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Oil-Still.

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Fig. 3.

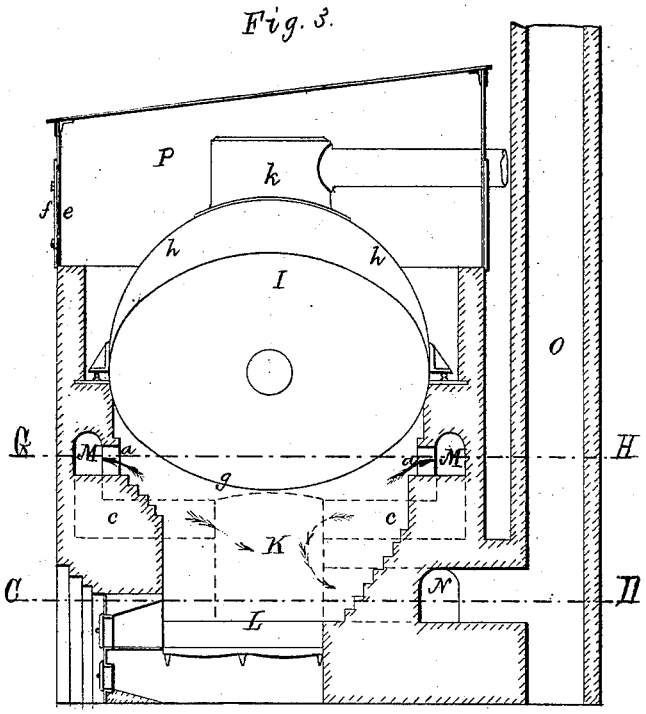
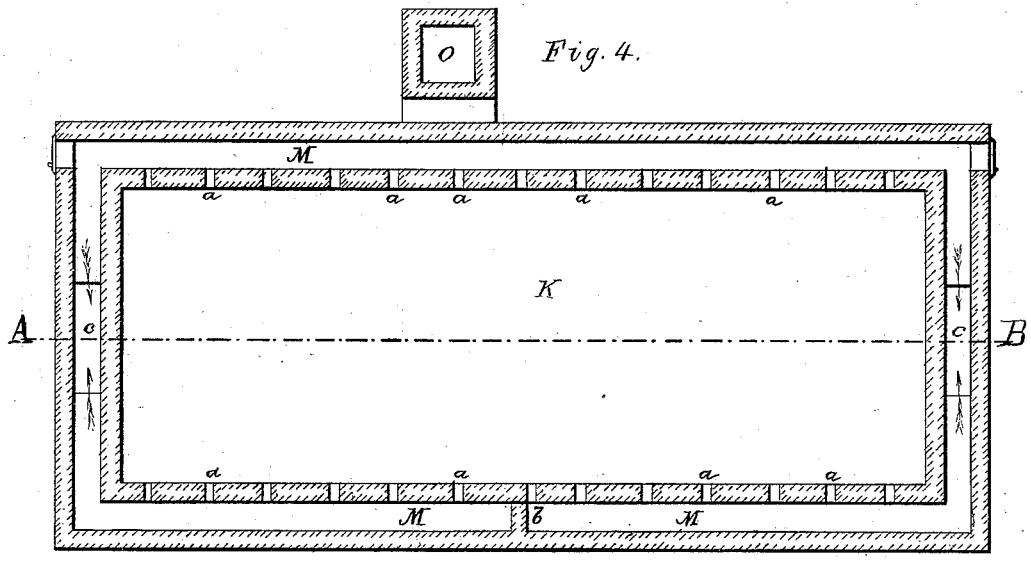


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE MILES, OF GRANTVILLE, MASSACHUSETTS.

IMPROVEMENT IN OIL-STILLS.

Specification forming part of Letters Patent No. **205,407**, dated June 25, 1878; application filed February 23, 1878.

To all whom it may concern:

Be it known that I, GEORGE MILES, of Grantville, of the county of Norfolk and State of Massachusetts, have invented a new and useful Improvement in Oil-Stills; and do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a longitudinal sectional elevation of a still and its furnace provided with my invention, the plane of section being on the dotted lines A B of Figs. 2 and 4. Fig. 2 is a horizontal section of the smoke-chamber and back flue of the furnace, it being taken in line C D of Fig. 3. Fig. 3 is a transverse section of the still and furnace. Fig. 4 is a horizontal section of the still and furnace, taken on line G H of Fig. 3.

One object of my invention is to disseminate the smoke and volatile products of combustion equally over the bottom of the still; another object being to prevent the vapors arising in or being discharged from the still from attaining too high a temperature, the still in question being specially adapted to the distillation of petroleum or coal oils.

In carrying out my invention, I combine with the still and a smoke-chamber extending underneath it, and provided with a series of fire-places, arranged as represented, an encompassing flue, and a series of inducts and educts thereto, and also a discharge-flue leading to the chimney. I have also combined with the still and its furnace a chamber arranged over the still, and provided with one or more air inlets and valves, or shutters thereto, such being for regulating the temperature of the vapors in or discharged by the still.

Furthermore, I make the bottom of the horizontal still semi-elliptical in transverse section, whereby I obtain a greater amount of heating-surface than would be the case were the section semicircular and of the same area.

I also construct the crown of the horizontal still not only curved in transverse section, but tapering or inclining upward from each end to the middle, as set forth, whereby I am enabled to greatly strengthen the still and prevent it from sagging when supported only at or near its ends, as shown in Fig. 3, and subjected to heat and pressure.

In the drawings, I denotes the still, and K the smoke-chamber beneath it, L L L L being the fire-places, arranged at equal distances apart at the lower part of such chamber.

Instead of having but one flue to lead from one end of such chamber, as usual, I have extending around the upper part of such chamber a flue, M, provided with a series of small inducts or passages, *a a a*, leading into it from the chamber. Extending across the flue at the middle of it, as shown, is a partition, *b*. At the middles of the end portions of such flue are diving-flues or educts *c c*, leading into another or eduction flue, N, arranged as shown in Figs. 1, 2, and 3, and opening at or near its middle into the chimney *o*.

From the above it will be seen that the smoke and volatile products of combustion from the furnaces will be led from the chamber K through the passages *a* into the flue M, from which they will escape by the diving-flues *c* into the eduction-passage N, and thence into the chimney, thereby causing their heat to be equally distributed against the bottom of the still.

Furthermore, there is over the crown of the still a hood or chamber, P, having to one or each of its sides one or more openings, *e*, each being provided with a valve or shutter, *f*. By means of the opening and shutter, or openings or shutters, cool air can be let into the chamber or hood, as may be necessary, to regulate the temperature of the vapors in the still or the educt thereof.

The bottom of the still is semi-elliptical in transverse section, as shown at *g* in Fig. 3, each end of the still being elliptical and concavo-convex, as represented. Furthermore, the crown of the still is arched in transverse section, as shown at *h* in Fig. 3, and slopes or inclines upward from each end to the middle or head *k*, in manner as seen at *i i* in Fig. 1.

I am aware that it is not new to have to a circular oil-still and fire-place a series of diving-flues leading out of the top of the fire-place, and extending down vertically and opening into a circular escape-flue leading to a chimney, such being as shown in the United States Patent No. 33,905.

In carrying out my improvement I do not have a series of vertical flues leading directly

out of the fire-chamber; but I have a continuous horizontal flue going practically entirely around the still, and provided with but two eduction-flues and a series of inlets, and, with such, I use another horizontal flue, going only about half-way around the fire-place. I thus save the necessity of having a large number of diving-flues and the expense of constructing such and keeping them clear, my arrangement of flues being specially designed for an elongated still and a fire-chamber under such, having a series of grates or fire-places, L, as set forth. Therefore,

I claim as of my invention as follows, viz:

1. The flues M and N, the series of inducts *a*, and educts *c*, arranged and combined, as set forth, with the still I and the smoke-chamber K, having a series of fire-places, L, as represented.

2. In combination with the still I, the chamber P, provided with one or more openings, and shutters or valves, *f*, thereto, and arranged to extend over the entire still and furnace, as shown and described.

3. The horizontal still, combined with fire-places and flues, as described, and having its bottom semi-elliptical in transverse section, its ends concavo-convex, and its crown curved transversely and sloped from its ends upward to its middle, all substantially as set forth.

GEORGE MILES.

Witnesses:

R. H. EDDY,

JOHN R. SNOW.