(No Model.)

3 Sheets—Sheet 1.

J. B. DUBLER.

OIL STILL.

No. 283,471. Patented Aug. 21, 1883.

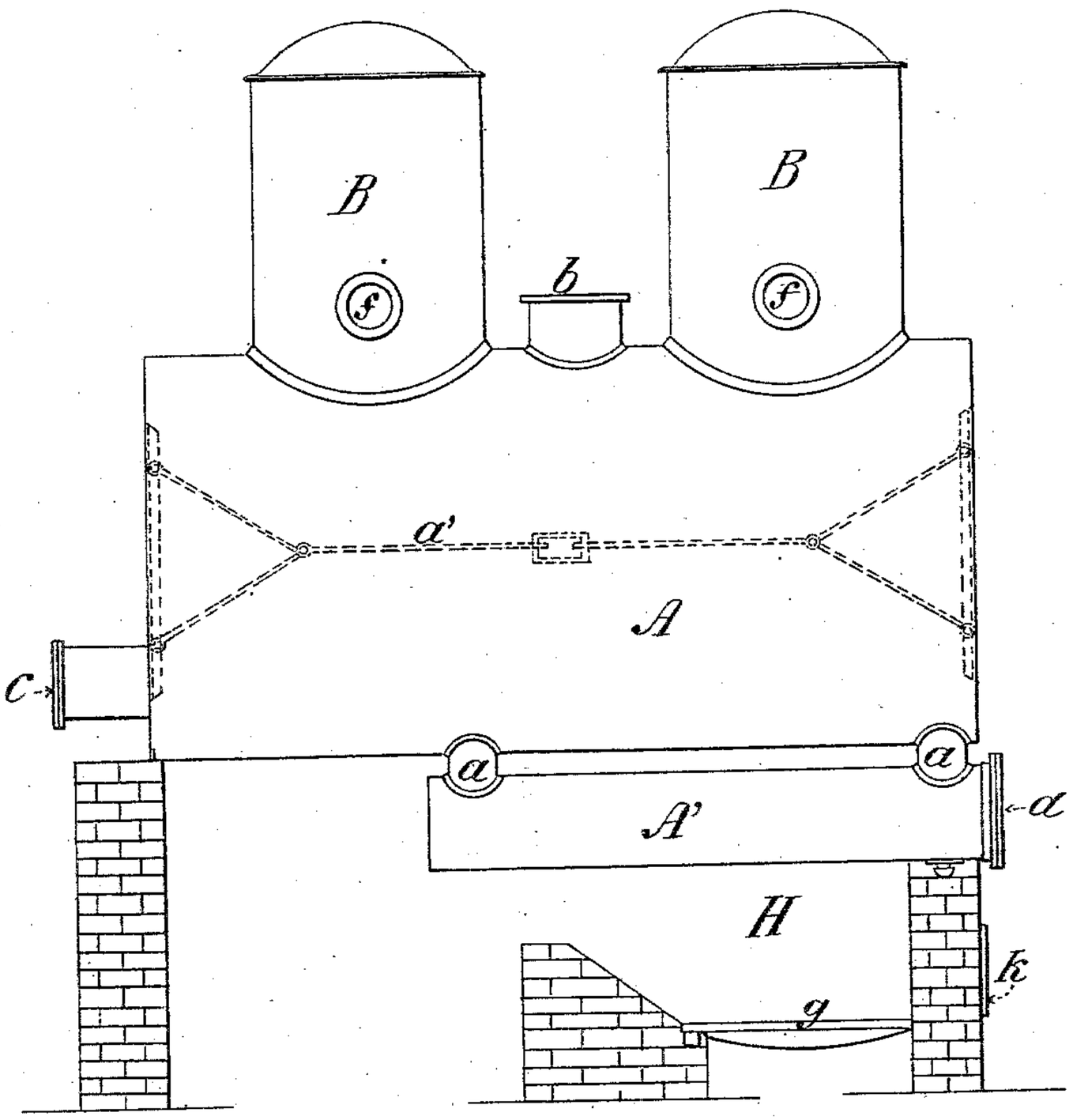

Figure 1

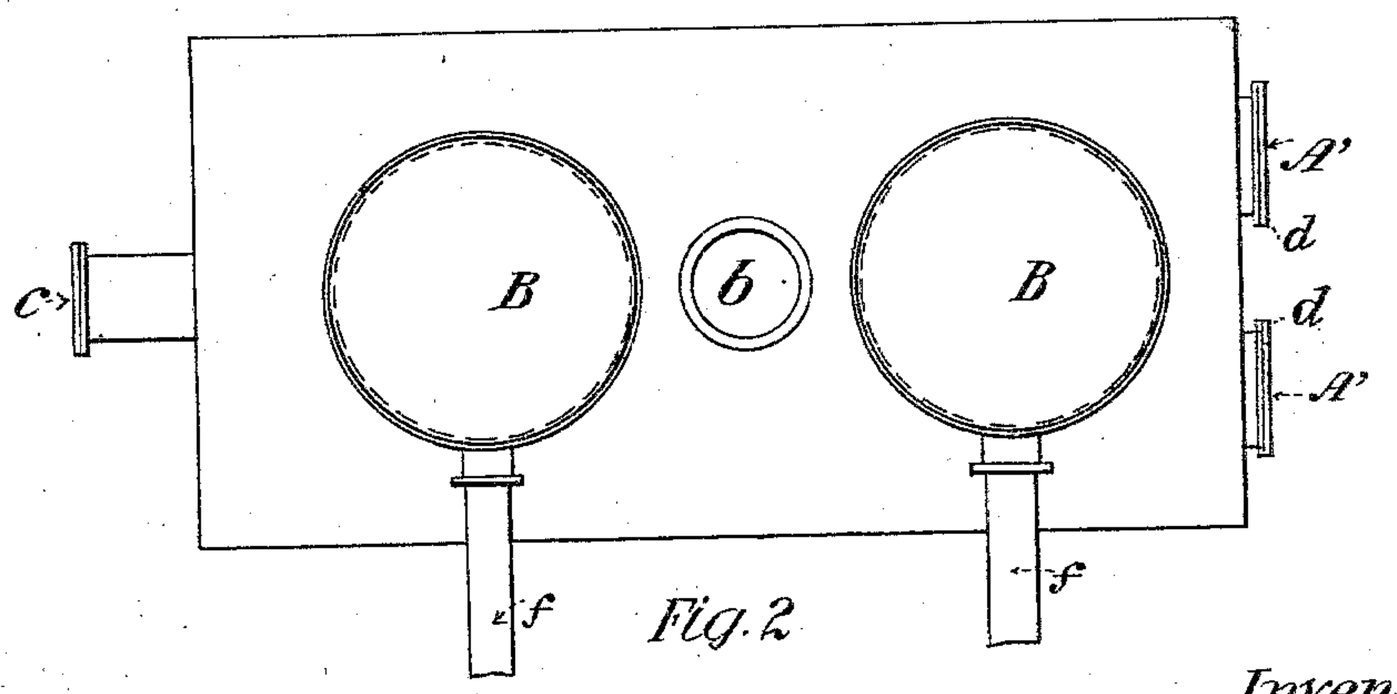

Fig. 2

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Inventor
John B. Dubler
by his attorney
Thomas D. Nowlds

(No Model.)

3 Sheets—Sheet 2.

J. B. DUBLER.

OIL STILL.

No. 283,471.

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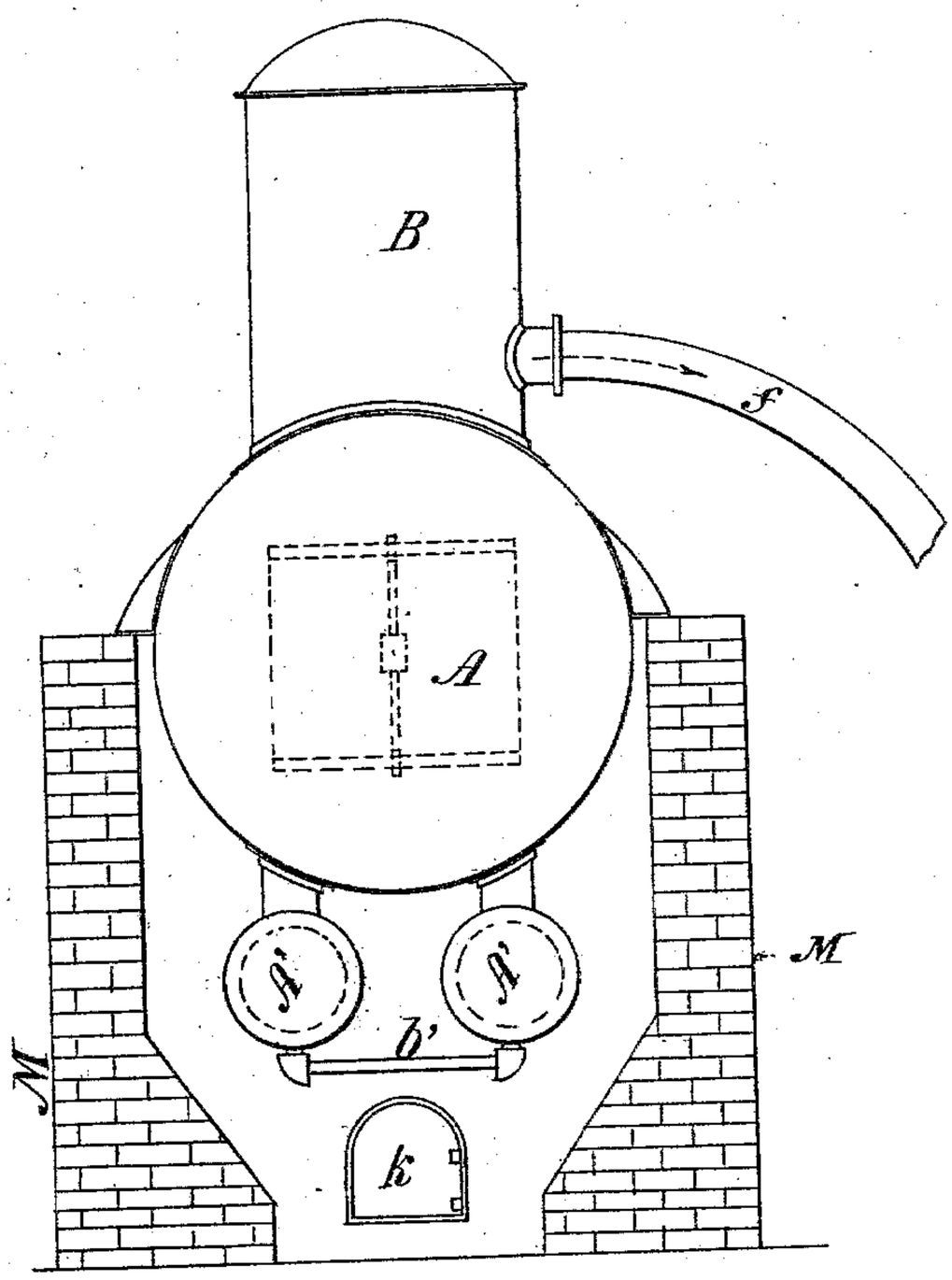

Figure 3

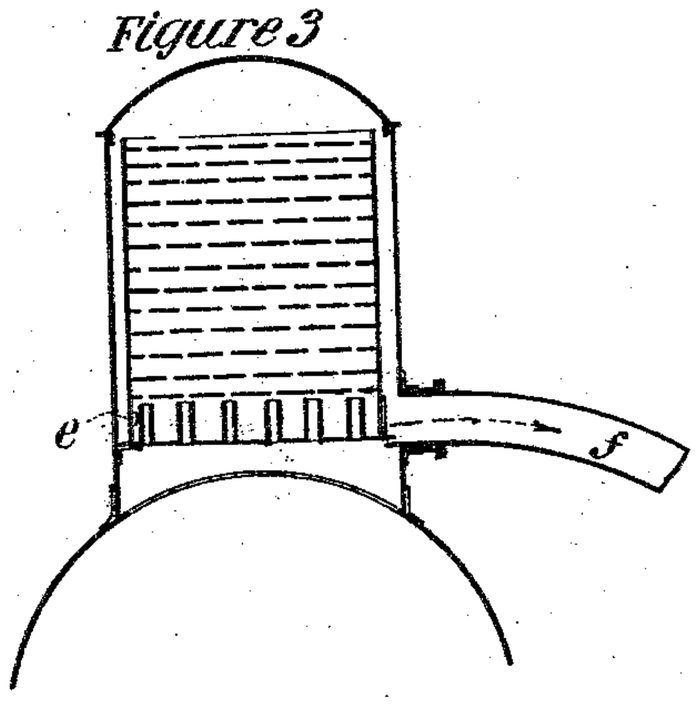

Fig. 4

Witnesses
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(No Model.)

3 Sheets—Sheet 3.

J. B. DUBLER.

OIL STILL.

No. 283,471. Patented Aug. 21, 1883.

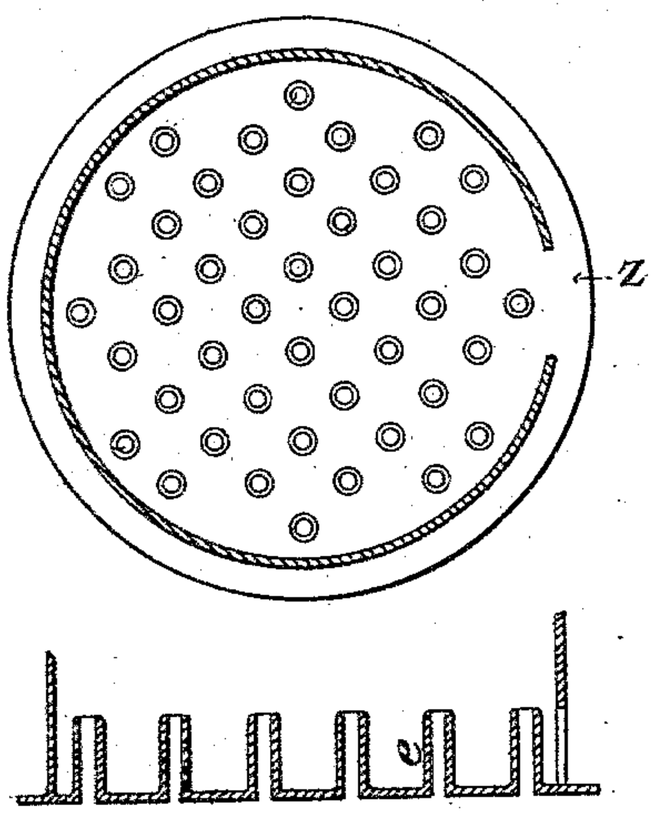

Fig 5

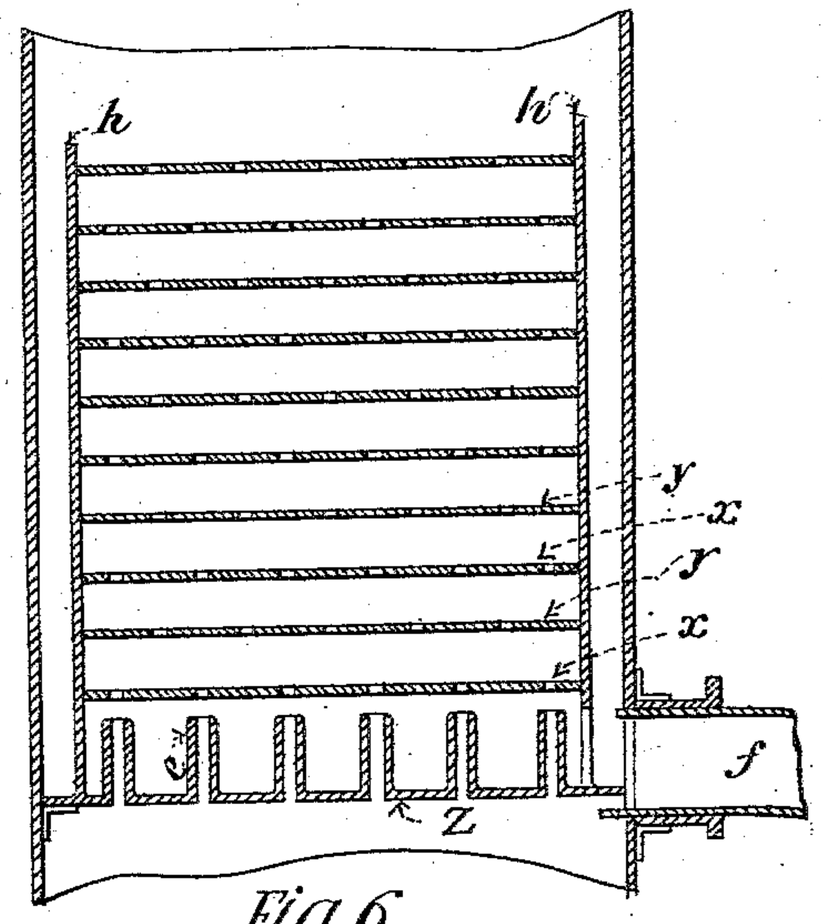

Fig 6

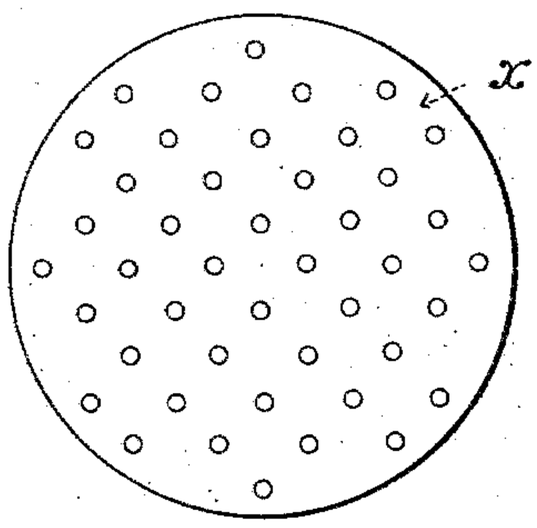

Fig 7

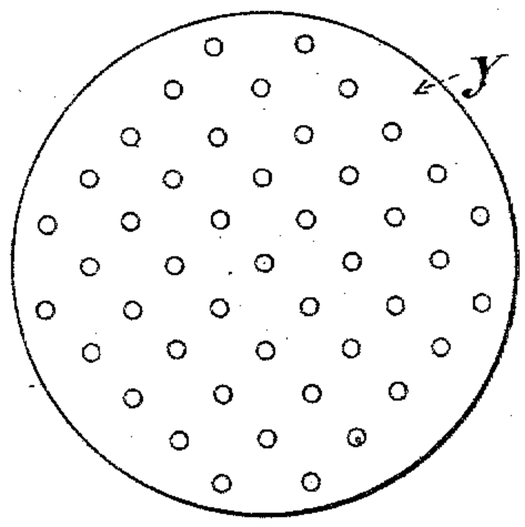

Fig 8

Witnesses
Frank J. Lambert
Geo. E. Curtis

Inventor
John B. Dubler
by his attorney
Thomas D. Nowlds

UNITED STATES PATENT OFFICE.

JOHN B. DUBLER, OF PHILADELPHIA, PENNSYLVANIA.

OIL-STILL.

SPECIFICATION forming part of Letters Patent No. 283,471, dated August 21, 1883.

Application filed May 29, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. DUBLER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Oil-Stills, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to stills for refining petroleum-oils; and the improvement consists in the manner of constructing the same, as will be hereinafter described, and more particularly pointed out in the claims.

The objects of my invention are twofold: first, to provide a still in which the oil can be economically and quickly brought to a boiling-point and at the same time avoid, in a great measure, the extreme wear and tear caused by rapidly boiling the oil in one single large receptacle exposed directly to the flames of the furnace; secondly, to facilitate the passing off and condensation of the vapors as they arise from the boiling oil. The first of these objects I accomplish by attaching to and underneath the main still or boiler two smaller auxiliary stills or boilers in such a manner that they will be directly in the flames of the furnace, and be thus, with their contents, quickly heated, when the oil will rise and pass from the small boilers into the main still, the cooler oil in the main still descending to take the place thus made vacant. By this means a continual circulation is kept up and the whole contents of all the boilers quickly brought to the desired temperature. To facilitate the passing off and condensation of the vapors, I place in the domes commonly used on the top of oil-stills a number of perforated plates, the bottom one of which is provided with nipples extending some distance above its surface, thus preventing the vapor or condensed oil from dropping again into the still.

In the accompanying drawings, Figure 1 shows a side elevation of my improved still; Fig. 2, a plan of same; Fig. 3, an end elevation; Fig. 4, a section through one of the domes; Fig. 5, a plan and section of the perforated plate containing the nipples; Fig. 6, an enlarged section through one of the domes, showing the position of the perforated plates and the connecting-pipe leading to the condenser. Figs. 7 and 8 are plans of the perforated plates *x y*.

A represents the main boiler or still; A′ A′, the two small auxiliary boilers.

a a are pipes connecting the auxiliary boilers to the main still A.

b′ is a pipe connecting the two auxiliary boilers together.

b is a man-hole on the top of the main boiler A. This man-hole is used for introducing the oil, and also when cleaning out the still.

c is a man-hole at the bottom of one end of the boiler A. This hole is used for cleaning out the still. *d d* are man-holes for cleaning out the auxiliary boilers A′ A′.

B B are cylindrical domes of the kind commonly used on the top of the ordinary oil-still.

f f are pipes leading from the domes to the condenser.

x y z are circular perforated plates secured in the domes B B.

e e are nipples, about six inches long, screwed into the plate *z*.

h h are supports for the perforated plates *x y*. The bottoms of these supports *h h* and the plate *z* are riveted to the sides of the domes B B, and are thus held securely in position. The plates *x y* are placed in such a position that the solid part of each plate comes directly over the perforations in the plate immediately below. (See Figs. 4 and 6.) By this means a greater resistance is made to the vapor passing upward, and it is more quickly condensed and made to pass off through the pipes *f f*.

H represents the fire-chamber of the furnace; *g*, a grate-bar therein; *k*, the door of the furnace. M M is the brick-work surrounding the furnace and supporting the still; *a′*, a brace inside of the still A.

The boilers A A′ A′ being supplied with the proper quantity of crude oil and the fires lighted, the flames strike immediately on the auxiliary boilers A′ A′, thus quickly heating the oil contained therein, which will immediately rise and pass upward into the main still A, and at the same time the cooler oil contained in the boiler A will descend and take the place of the oil passing upward. It will readily be seen that by this arrangement a continuous circulation of oil is kept up, and the whole

contents of both main and auxiliary vessels quickly and economically brought to a boiling-point. When the oil has been thus heated to the proper temperature, the vapors will pass off and up into the domes B B through the nipples *e e*, when the heavier portion of such vapors will be condensed and pass off through the pipes *f f*. The lighter vapors, however, pass upward through the various openings in the perforated plates until they are somewhat cooled, and by the resistance caused by said plates wholly or partially condensed, and in turn are forced through the pipes *f f* to the condenser. The nipples *e e* being about six inches above the outlets formed by the pipes *f f*, none of the condensed vapor can fall back into the still.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent, is—

1. In an oil-still, a boiler, as A, provided with the supplemental boilers A′ A′, extended down into the fire-chamber and connected to main boiler, as described, and with a dome or domes, B, provided with the nipple-plate *z*, the support *h*, and the resistance-plates *x y*, arranged therein, with a pipe, as *f*, leading from said boiler and dome, as set forth.

2. In an oil-still, the combination, with the boiler A, of the dome B, the support *h*, arranged inside of the dome, as shown, whereby the vapor is forced to descend between the support *h* and the wall of the dome, and the resistance-plates *x y z*, secured to the support, substantially as herein set forth.

3. In an oil-still, the combination, with the boiler A, of the dome or domes B, having the interior supports, *h*, affording a passage for vapor downward between support *h* and exterior of dome-wall, the plates *x y z*, and the nipple-plates *z*, and of the exit pipe or pipes *f*, communicating with the interior of the boiler directly and with the space between the dome and supports *h*, substantially as herein set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN B. DUBLER.

Witnesses:
THOMAS D. MOWLDS,
FREDK. J. LAMBERT.