

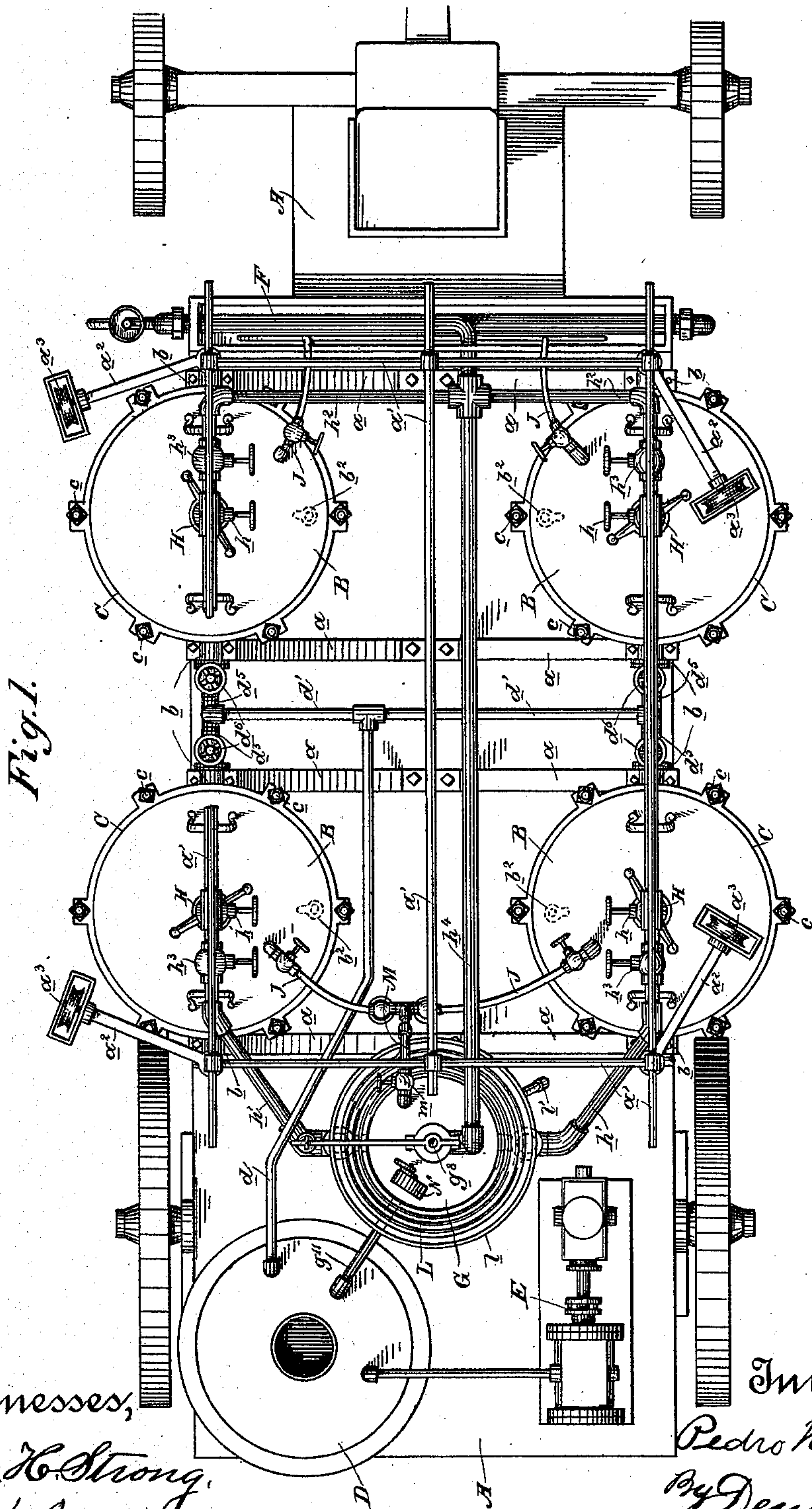
(No Model.)

2 Sheets—Sheet 1.


P. NAPOLES.
DISTILLING APPARATUS.

No. 412,407.

Patented Oct. 8, 1889.



Witnesses,
Geo. H. Strong,
J. H. Hourse

 Inventor,
Pedro Napoles
By Dewey & Co.
Atty.

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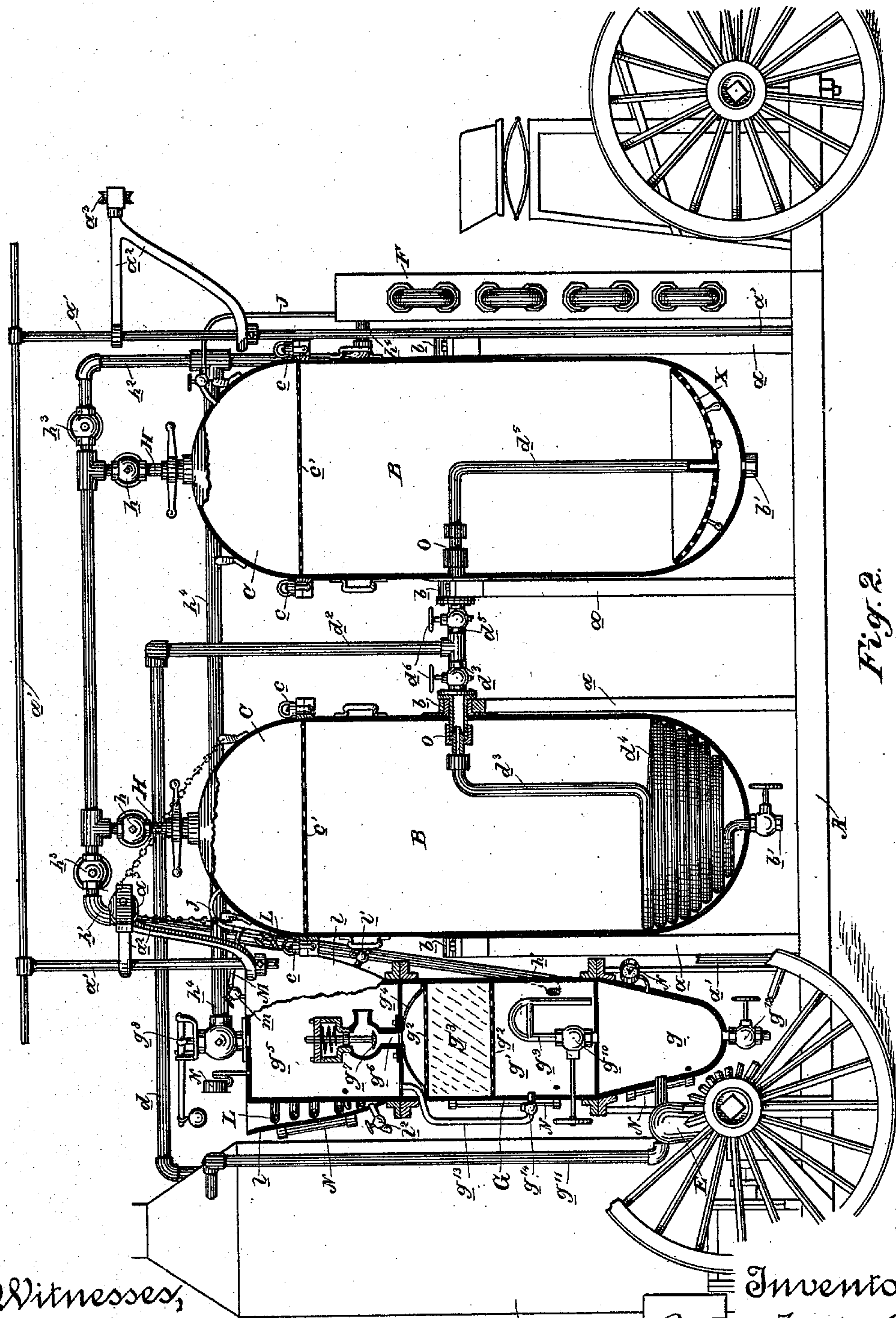


Fig. 2.

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UNITED STATES PATENT OFFICE.

PEDRO NAPOLES, OF NAPA, CALIFORNIA.

DISTILLING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 412,407, dated October 8, 1889.

Application filed March 6, 1889. Serial No. 302,151. (No model.)

To all whom it may concern:

Be it known that I, PEDRO NAPOLES, of Napa, county of Napa, State of California, have invented an Improvement in Distilling Apparatus; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the class of distilling apparatus; and my invention consists in the constructions and combinations of devices which I shall hereinafter fully describe and claim.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a plan of my apparatus. Fig. 2 is a vertical section of same, taken through the boilers and the rectifier, the remaining parts being in elevation.

Though the apparatus may be mounted in any suitable manner, I have here shown it as mounted upon a wheeled truck A, so as to render it easily portable. From this truck rise standards a , which support the four boilers B. These are arranged, as shown in the plan, Fig. 1, in the shape of a quadrilateral figure, the two toward the front of the truck representing one set and the other two the second set. These boilers are each mounted in the standards a by means of side trunnions b , so that the boilers are adapted to be tilted on their trunnions as centers, whereby their contents may be readily discharged. The boilers have valve-controlled bottom outlets b' .

Rising from the truck A is a frame-work represented by a' and consisting of vertical pieces and horizontal top pieces. Secured near the bottom of each boiler is the ring b^2 , and into this ring is to be hooked a tackle, (not necessary herein to show,) said tackle being also connected with the horizontal center piece of the frame-work a' , whereby each boiler may be readily tilted, its lower portion swinging in while its upper end swings out. Each boiler is provided with a cover or lid C, said lid fitting down upon the top of the boiler and being firmly secured thereto by means of swinging bolts c . Each cover has a perforated bottom c' , which separates it from the body of the boiler. Supported by the frame-work a' are brackets a^2 , carrying in their ends a pulley a^3 , from which a cord

or chain extends downwardly and is connected with handles on the covers or lids. This chain supports the cover or lid and allows the boiler to be tilted from under it when its contents are to be discharged. Upon the rear end of the truck is mounted the steam-boiler D and alongside of this boiler is the pump E. At the forward end of the truck is located the refrigerator or condenser F, and again at the rear end of the truck is mounted the rectifier G.

From the steam-boiler extends the horizontal steam-pipe d to about a central transverse plane between the boilers, where said pipe has horizontal branches d' extending out between the boilers on each side, and these branches turn downwardly into vertical pipes d^2 , which terminate at the middle of the trunnions b of the boilers. Coupled to the lower ends of these pipes are the pipes d^3 , which extend inwardly through the trunnions to the rear set of boilers and thence downwardly in said boilers, forming in the base thereof the steam-coil d^4 . Coupled also with the downwardly-extending pipes d^2 are the pipes d^5 , extending through the trunnions b of the forward set of the boilers and down into the bottom of said boilers and through a perforated false bottom X therein. Controlling-cocks d^6 are let into the pipes d^3 and d^5 , so as to regulate the discharge of steam to any or all of the boilers, according to the use to which they are being then put. It will now be seen that steam may pass from the steam-boiler through the horizontal pipe d , thence through the horizontal branches d' , thence downwardly, and may be directed by means of the controlling-cocks d^6 either into one or both of the boilers of the rear set or one or both of the boilers of the forward set, or into any or all of them, as may be desired.

Extending from the top of each boiler B is a pipe H, controlled by a cock h , and the tops of these pipes are all coupled by pipes h' and pipes h^2 , the former of which lead off to the rectifier G and the latter of which lead off directly to the condenser F, said pipes being controlled by cocks h^3 , which enable the operator to direct the vapor either to the rectifier or to the condenser, as may be desired. A pipe h^4 connects the top of the rectifier with the condenser.

The rectifier G consists of a steam-chest g , above which is a cylinder g' , and in this cylinder are two perforated diaphragms g^2 , between which is a body of charcoal g^3 , the upper diaphragm being held down on the charcoal by means of the spring g^4 . Above this cylinder g' is another cylinder g^5 , which communicates with the lower cylinder by means of a port g^6 , having a spring-controlled valve g^7 , and with the top of the upper cylinder g^5 the pipe h^4 , connecting the rectifier with the condenser, communicates and is controlled by the balanced valve g^8 . The steam-chest g communicates with the superimposed cylinder g' by means of a siphon g^9 , which is controlled by a cock g^{10} , the handle of which extends to the outside. With this steam-chest also communicates a pipe g^{11} , leading from the steam-boiler D. A valve-controlled outlet g^{12} is placed at the bottom of the steam-chest, so that the water of condensation may be drawn off.

The operation of the apparatus so far as described is as follows: I may place wine in all of the boilers, or I may place pomace in all of the boilers. I may place wine in one set and pomace in the other set, as I may desire. When using pomace in any of the boilers, I place within its bottom the perforated false bottom X, heretofore mentioned. When wine is used, I place the steam-coil d^4 in the boilers. Suppose, for the purpose of description, I place wine in the rear set of boilers. The steam is led from the steam-boiler D through the pipes described into said boilers, and this steam, through the coil d^4 in the bottom of said boilers, heats up the wine to the necessary temperature. The vapor passes up through the perforated bottoms c' of the lids or covers C, and thence through the pipes H, and if I do not desire to pass it to the rectifier G, I can by means of the controlling-cocks pass it directly to the condenser; or in case I desire to pass it to the rectifier I can by manipulating the cocks pass it through the pipes into the cylinder g' of the rectifier. In this cylinder the steam from the steam-chest g , passing through the siphon g^9 , vaporizes whatever alcohol may have been condensed and presses the alcoholic vapor up through the perforated diaphragms g^2 and intervening body of charcoal g^3 and passes it up into the next cylinder g^5 , through the valve-controlled port g^6 , and thence through the top of the cylinder past the balance-valve g^8 and across by the pipe h^4 to the condenser. The water of condensation in the first cylinder is drawn off by means of the siphon g^9 into the steam-chest g below, and is then drawn off, when necessary, through its bottom outlet. The condensation from the upper cylinder may be returned to the lower cylinder by means of the connecting-pipe g^{13} , controlled by the cock g^{14} . When the operation is completed, and while the boilers are being cleaned out, the other set of boilers, having been charged, may now proceed with the operation,

so that the distilling process is a continuous one.

Now, in order to analyze the vapor at any time, I have the pipes J extending from the tops of the boilers either directly to the main condenser F, as from the forward set of boilers, or to a supplementary condenser from the rear set of boilers. This supplementary condenser consists of a coil of pipe L, fitting around the upper cylinder g^5 of the rectifier and having a valved outlet l' , said coil being surrounded by a cooling-vessel l , which has a valve-controlled outlet l^2 . The analyzing-pipe L may also be connected by the pipe M with the upper cylinder g^5 of the rectifier, said pipe being controlled by a cock m , so that the vapor after being rectified may be carried into the analyzing-pipe, or the vapor before reaching the rectifier may be carried through the analyzing-pipe in order to be tested.

Various gages represented generally by N are located on the several parts and need no further description.

The pump E is connected with the boilers or with any of the connections thereof, so as to perform whatever service may be necessary and to exhaust the air from the top of the boilers when required.

As the boilers are adapted to tilt upon their trunnions b , the steam-pipes d^3 and d^5 have to be led into them through said trunnions, and by reference to Fig. 2 it will be seen that there must be a rotary coupling in the pipes whereby the portion of said pipe within the boilers may turn with the tilting boilers while the portion outside remain stationary. This is accomplished in any suitable manner by means of coupling heads and joints, (represented generally by O,) the particular construction of which need not be described, reference being made to it simply to show an operative device.

It is obvious that instead of four boilers I may have as many as may be desired and may divide them into sets by proper connective pipes.

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

1. In a distilling apparatus, the combination of a series of boilers, the independent steam-boiler, the rectifier and the condenser, pipes connecting the steam-boiler with the boilers of the series, and controlling-cocks in said pipes whereby the steam may be directed in any or all of the boilers of the series, pipes connecting the boilers of the series with the rectifier and condenser, and cocks controlling said pipes whereby the vapor may be directed from any or all of the boilers into the rectifier or into the condenser, and a pipe connecting the rectifier with the condenser, substantially as described.

2. In a distilling apparatus, the series of swinging boilers having pivotal trunnions, the steam-boiler, the rectifier, and the con-

denser, in combination with the horizontal steam-pipe d from the boiler, the horizontal branches d' of said pipe, the vertical pipes d^2 , extending downwardly between the boilers 5 from the branch pipes, the coupling-pipes d^3 d^5 , extending from the vertical pipes into the boilers through their trunnions, the controlling-cocks d^6 in the pipes d^3 d^5 , the pipes H from the tops of the boilers, the controlling-cocks h in said pipes, the pipes h' , connecting 10 the pipes H with the rectifier, the pipes h^2 , connecting said pipes H with the condensers, the cocks h^3 , controlling-pipes h' h^2 , and the pipe h^4 , connecting the top of the rectifier 15 with the condenser, all arranged and adapted to operate substantially as described.

3. In a distilling apparatus and in combination with its distilling-boiler, the rectifier G, consisting of the chest g , to which steam is 20 admitted, the cylinder g' above, connected with the distilling-boiler and having perforated diaphragms with intervening charcoal, the valve-controlled siphon connecting the

cylinder with the chest below, the cylinder g^5 above, having the valve-controlled outlet, and 25 the valve-controlled passage connecting said cylinder with the lower cylinder g' , substantially as described.

4. In a distilling apparatus, the boilers having side trunnions pivotally mounted, whereby said boilers may be tilted, in combination 30 with the removable covers or lids of said boilers having side handles, the fixed frame-work a' above the boilers, the brackets a^2 of the frame-work, the pulleys a^3 in the ends of the 35 brackets, and the chains connected with the handles of the covers or lids and passing over the pulleys, whereby the covers or lids are supported when the boilers are tilted from 40 under them, substantially as described.

In witness whereof I have hereunto set my hand.

PEDRO NAPOLES.

Witnesses:

S. H. NOURSE,
H. C. LEE.