I. M. LEE.

STILL.

APPLICATION FILED JAN. 14, 1909.

962,965.

Patented June 28, 1910.

2 SHEETS—SHEET 1.

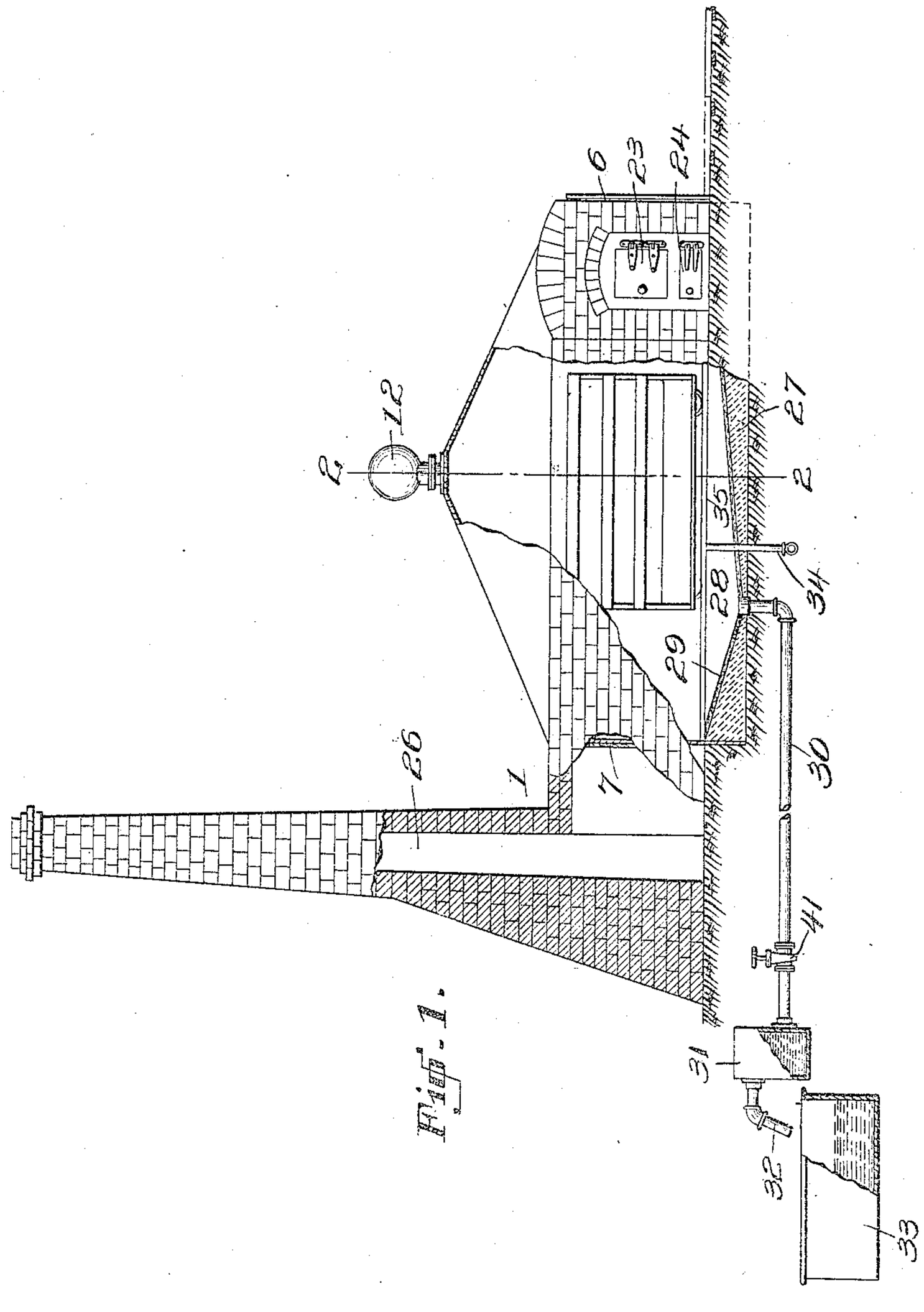

FIG. 1.

Witnesses
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Inventor
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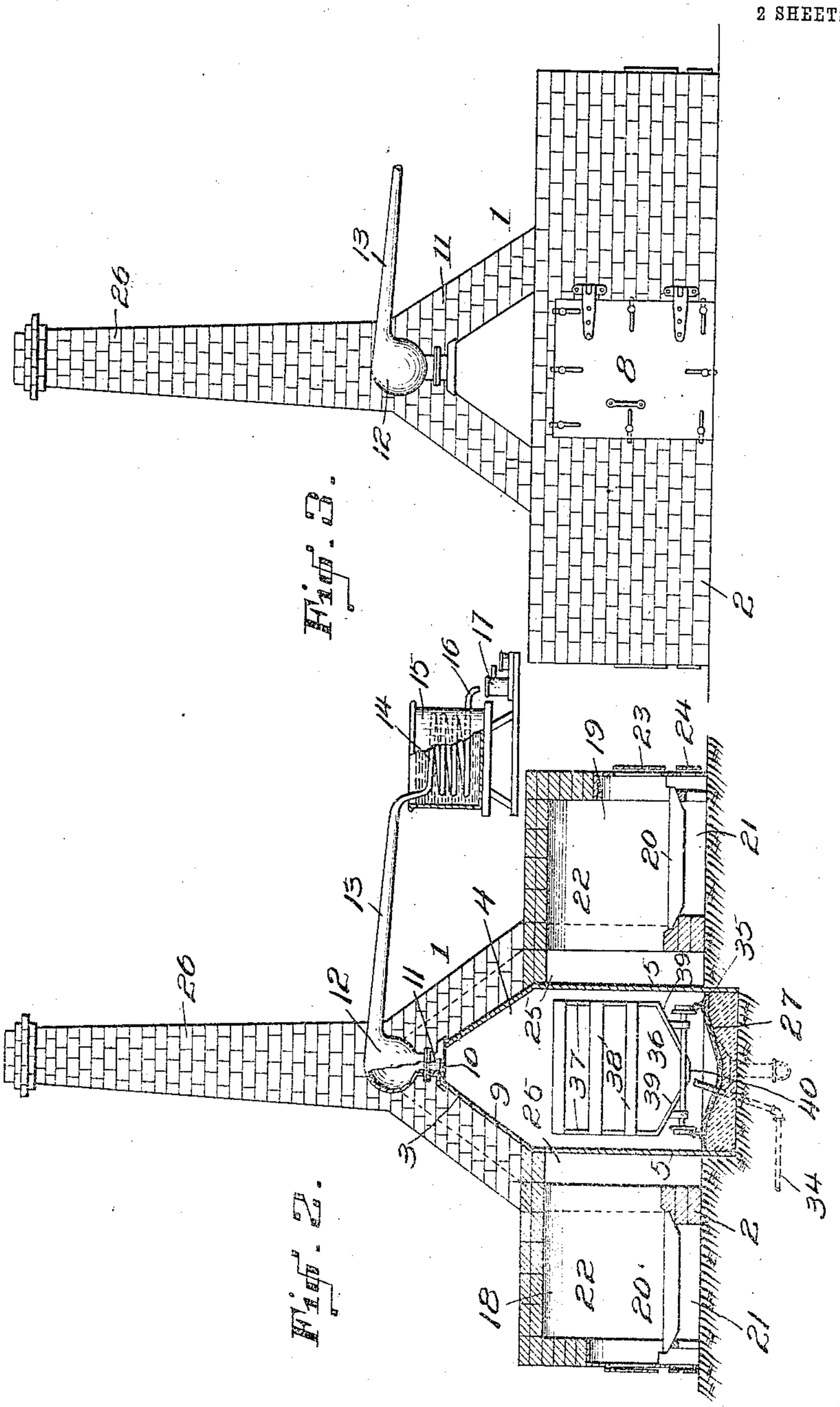

Fig. 2.

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UNITED STATES PATENT OFFICE.

ISHAM MARTIN LEE, OF NEAR WAYCROSS, GEORGIA.

STILL.

962,965. Specification of Letters Patent. Patented June 28, 1910.

Application filed January 14, 1909. Serial No. 472,305.

To all whom it may concern:

Be it known that I, ISHAM MARTIN LEE, a citizen of the United States, residing near Waycross, in the county of Pierce and State of Georgia, have invented new and useful Improvements in Stills, of which the following is a specification.

This invention relates to stills of that class adapted for use in the distillation of wood, and the objects of the same are to produce a structure of this character in which a long retort may be used with two oppositely disposed combustion chambers which can be stoked independently, the retort having thin metal walls supported at their upper edges by the brick work and embedded at their lower edges in earth outside of a cement bottom so that they will not buckle, and to provide upright flues along their entire length so as to impart the highest degree of heat to the retort. These objects are carried out by the structure disclosed, and shown in the drawings wherein:—

Figure 1 is a side view of the still with parts broken away, and partly in section to more clearly illustrate the position and arrangement of parts. Fig. 2 is a section taken on the line 2—2 of Fig. 1. Fig. 3 is a front end view. Fig. 4 is a detail horizontal section taken through a portion of the still.

In the drawings, the numeral 1 designates a still comprising a structure 2 of masonry or brickwork, preferably the latter, having a centrally disposed longitudinal passage 3 in which is located a retort 4, the latter comprising thin side walls 5 and front and rear walls 6 and 7 all preferably of metal, the front wall being provided with a suitable door 8 which may be closed steam tight and the lower edges of all other walls being embedded in the ground while their upper edges are supported by the brick work as best seen in Fig. 1. The retort is provided with upwardly and inwardly converging top walls 9 and in the apex is a passage 10 over which is disposed the neck 11 of a dome 12 from which an eduction tube 13 leads to a condensing receptacle 15, and the coil 14 is adapted to deliver out the nozzle 16 into a vat 17.

The still is provided at its opposite sides at the front end of the passage 3 with oppositely disposed combustion chambers 18 and 19, each having suitable grate bars 20, ash pits 21, fire boxes 22, and doors 23 and 24 at their outer ends opening away from each other at the sides of the structure whereby the furnaces can be stoked independently of each other. Across the rear ends of the furnaces are upright flues 25 between the brick work and the thin metal side walls 5 of the retort, these flues extending to the rear along said sides, past the rear end of the retort, and communicating with an upright stack or chimney 26. Thus it will be seen that the products of combustion from the two chambers 18 and 19 will deliver into the front end of these flues, wherein they will pass to the rear along the same and in direct contact with the side walls of the retort so as to impart the highest degree of heat to the same which is possible with a structure of minimum complication and simplicity, the smoke finally passing out the chimney.

The retort is provided with a cement bottom 27 molded within the walls 5, 6 and 7 but level with the surface of the earth, and this bottom is preferably covered with asbestos 29 and formed with a concavity 28 leading to a discharge pipe 30, the latter in turn leading through a trap 31 having a nozzle 32 which discharges into a receptacle 33.

34 designates a pipe preferably employed for admitting steam into the retort, preferably through the bottom 27, and its inner end is disposed between tracks 35 located within the passage 3 and longitudinally thereof. On said tracks is mounted a wheeled truck 36 comprising a body having slatted sides 37 and ends 38. The bottom of this body preferably has its sides inclined downwardly and inwardly as shown at 39 to an opening 40 which stands over the bottom 27 of the retort when the truck is in place; and the discharge pipe 30 has a valve 41 for obvious use. Although not so illustrated, the tracks 35 may be extended out through the door 8 at the free end of the structure, whereby the truck can be moved out of the retort and replaced by another.

In the operation of this improved still, wood is properly piled on the truck which is moved into the retort, and the door 8 closed. Fires are built in the two combustion chambers 18 and 19 and steam is ad-

mitted through the pipe 34. The wood is therefore charred by dry heat, and this process can be the more effectively carried out as the two combustion chambers are capable of being stoked independently since their doors open at opposite directions and at remote points. The products of combustion pass out of the fire boxes directly against the thin side walls 5 of the retort, and flow thence to the rear along said sides through the flues 25, and the smoke finally passes out of the chimney. Yet the fact that the lower edges of the walls are embedded in the ground and braced by the cement bottom 27, while their upper edges are held in the masonry or brick work, prevents them from buckling under the changing temperature while permitting them to yield slightly in and out as the temperature rises and falls. After the wood on the truck has become thoroughly charred, this truck is removed and unloaded and reloaded, or another truck already loaded is run into its place. While a load is thus being treated, the tar, gum, pitch, oil, creosote and other heavier products drop out of the opening 40 onto the bottom 27 and pass out of the discharge 30; while the lighter products such as turpentine, spirits etc. will be carried upwardly with the steam through the dome 12 to the condenser 14, and may be drawn off through the nozzle 16 at will.

What I claim as new is:—

A still of the class described, consisting of a structure of masonry or brickwork including two oppositely disposed combustion chambers having doors facing away from each other, and a central longitudinal passage between their adjacent ends and leading to a remote stack or chimney; a retort disposed in said passage and having thin metal upright walls embedded into the ground at their lower edges, the front wall closed by a door, the rear wall closed forward of said stack, and the side walls spaced from the sides of said brick work passage to form upright flues leading from the combustion chambers to the stack, a top for said retort converging to a dome, a cement bottom for the retort set within the embedded edges of its walls and having a concavity communicating with a discharge; and a truck adapted to be run into said retort through its door, for the purposes set forth.

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

ISHAM MARTIN LEE.

Witnesses:

W. L. Fisher,

John T. Myers.