

G. LÁCZAY.
DISTILLING APPARATUS.
APPLICATION FILED FEB. 4, 1910.

957,613.

Patented May 10, 1910.

3 SHEETS—SHEET 1.

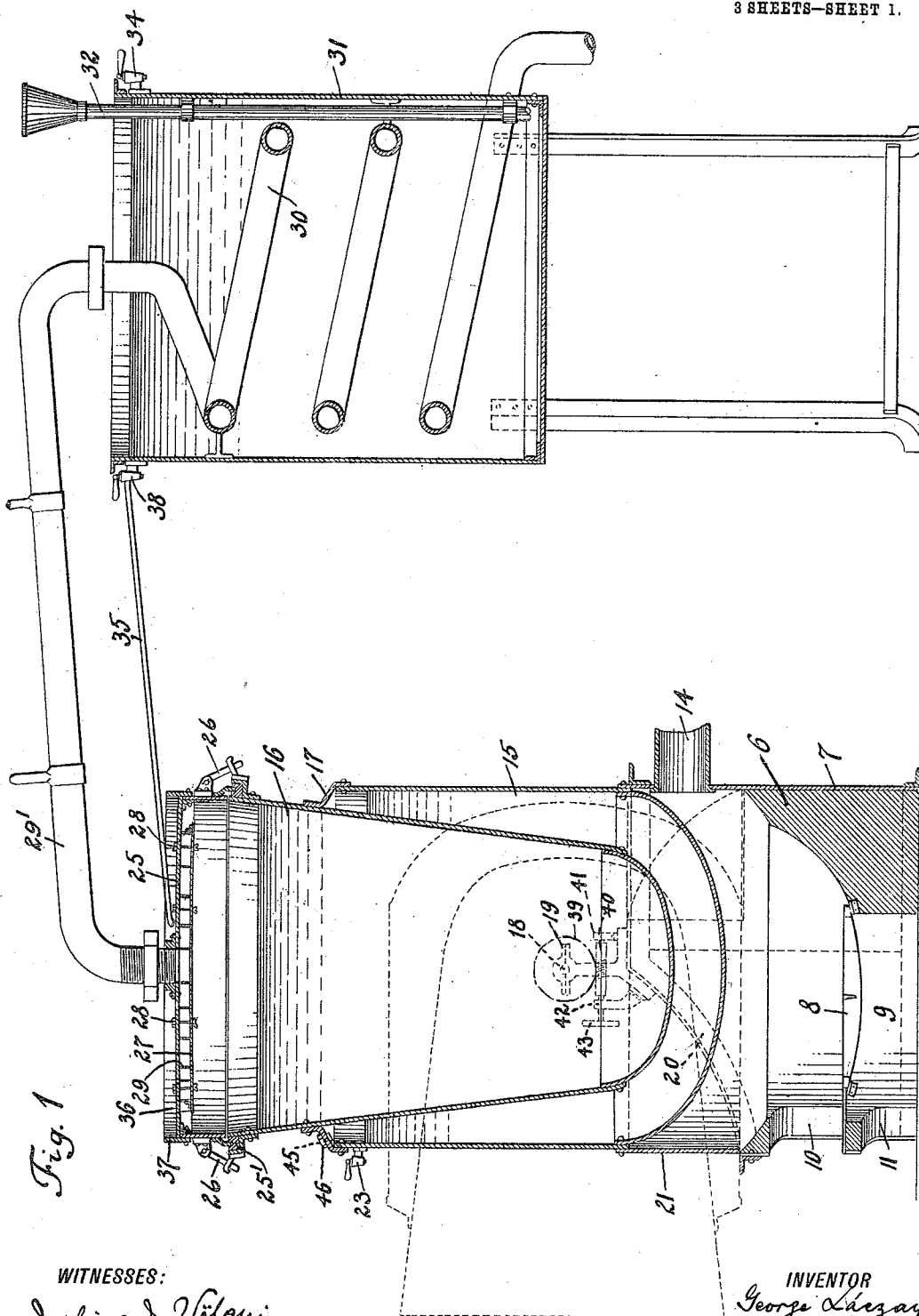


Fig. 1

WITNESSES:

Julius J. Volgyi
S. Bernbaum

INVENTOR

George Laczay

BY

Sigmund Herzog
his ATTORNEY

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3 SHEETS—SHEET 2.

Fig. 2

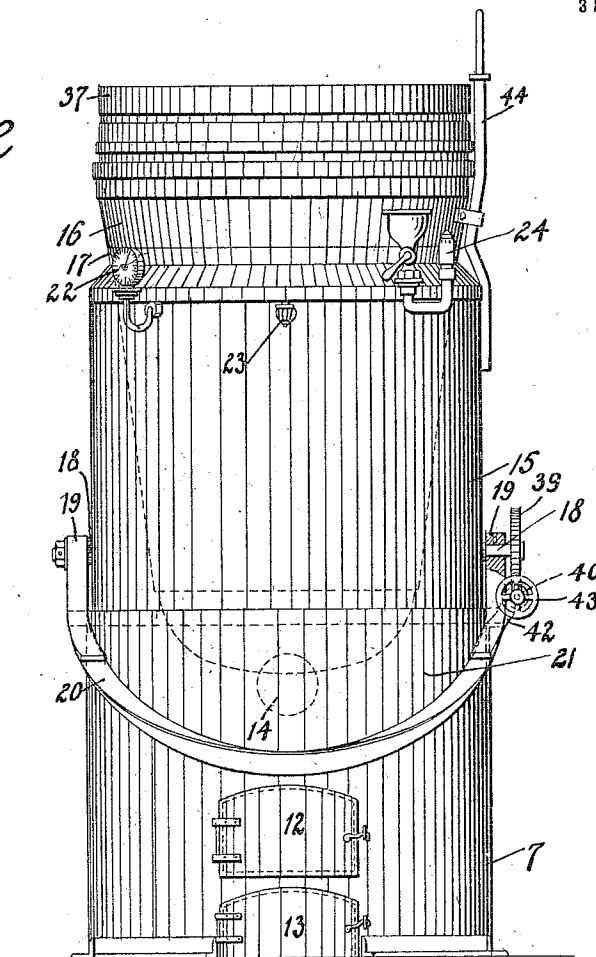
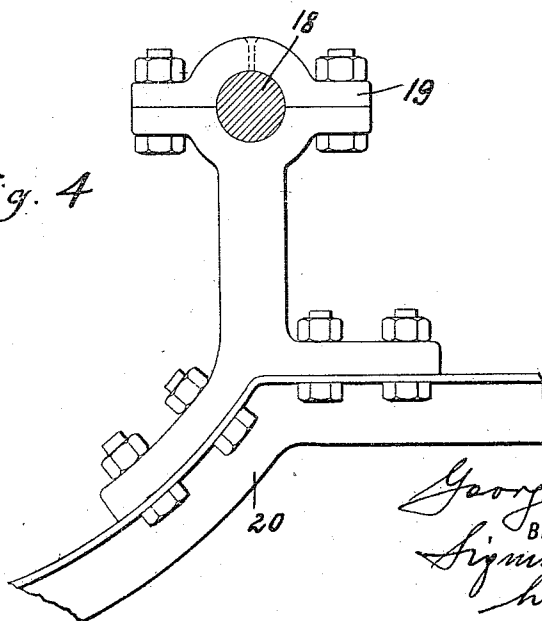


Fig. 4



WITNESSES:

Julius J. Volgyi
S. Bernbaum

INVENTOR

George Laczay
BY
Sigmund Herzog
his ATTORNEY

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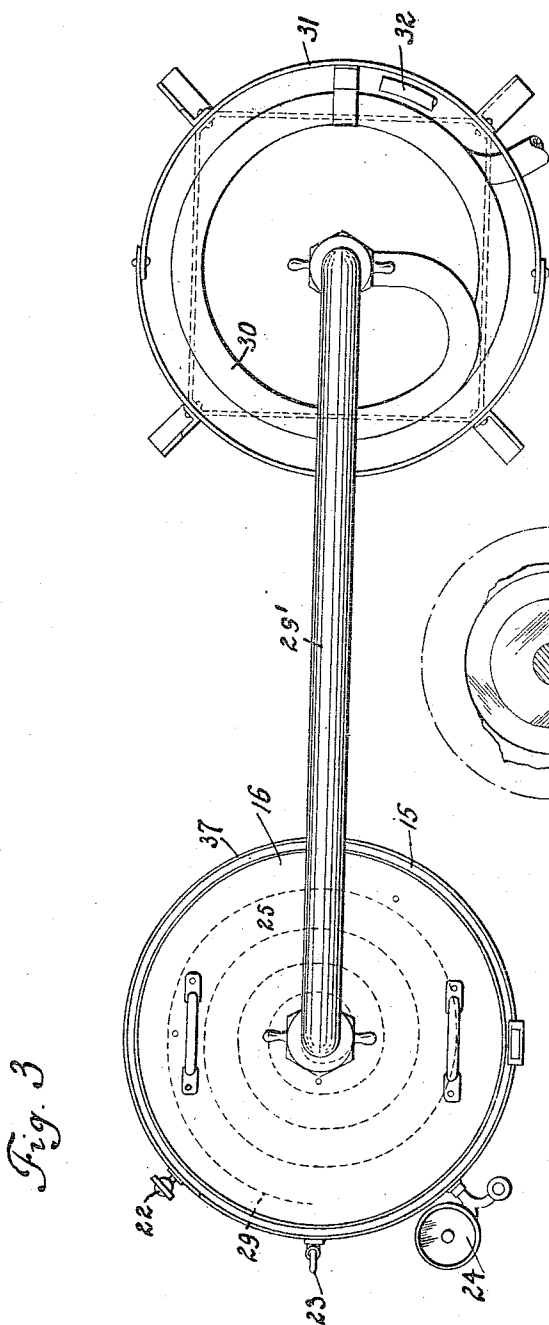


Fig. 3

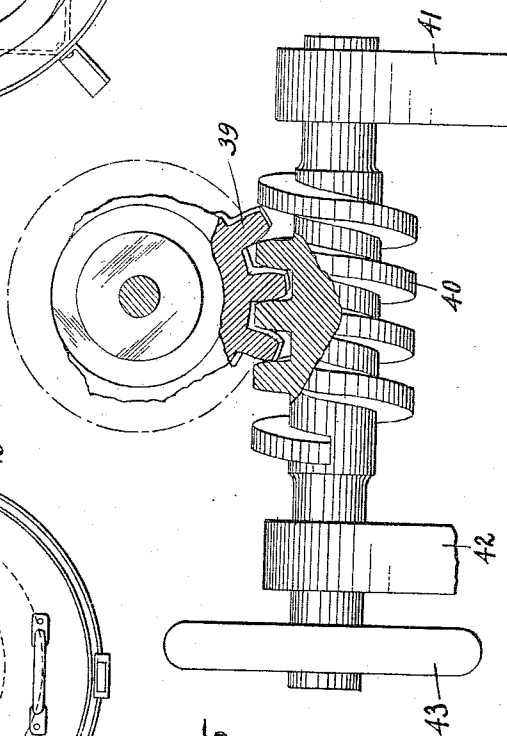


Fig. 5

WITNESSES:

Julius J. Volgyi
S. Birnbaum

George Laczay INVENTOR
BY
Sigmund Herzog
his ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE LÁ CZAY, OF NEW YORK, N. Y.

DISTILLING APPARATUS.

957,613.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed February 4, 1910. Serial No. 542,098.

To all whom it may concern:

Be it known that I, GEORGE LÁ CZAY, a subject of the King of Hungary, and a resident of the city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Distilling Apparatus, of which the following is a specification.

The present invention relates to an apparatus for obtaining alcoholic liquors by the distillation of suitably prepared fruit, grain, vegetables or other matters.

One of the objects of the invention is to provide a device which permits the mash to be heated with promptness, and to be vaporized and condensed, performing these three functions with great economy of time and fuel.

Another object of the invention is to combine in one apparatus the distilling device and the dephlegmator in such a manner that the condensed liquid is permitted to flow back into the still.

Another object of the invention is to provide an alcohol still with a simple and efficient means whereby the same may be tilted over to be charged with fresh material, and then swung into the vertical as the heat is applied.

With these and other objects in view, which will appear as the nature of the invention is better understood, the same consists of the novel construction, arrangement and combination of the parts hereinafter described, illustrated in the accompanying drawings and particularly pointed out in the appended claims, it being understood that changes in the size, form and arrangement of the several parts may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings, Figure 1 is a transverse vertical section through an apparatus constructed in accordance with this invention, Fig. 2 a side elevation of the still and the furnace; Fig. 3 a plan view of the device; and Figs. 4 and 5 front elevations of details of construction.

Reference being had to the drawings, the numeral 6 designates the furnace, which is made of such size and capacity as to meet the uses it is intended to fulfil. More particularly, the furnace comprises a, preferably, cylindrical member 7, provided with a grate 8 and ash pit 9, to both of which access may be had through the openings 10

and 11, respectively, covered by the doors 12 and 13. The discharge flue of the furnace is designated by the numeral 14.

The still consists of a closed water-tank 15 and a kettle 16. The water-tank 15 is provided upon its upper end with a flange 17, which supports the kettle 16; the latter being secured to the former by means of rivets or other well known devices. The water tank 15 is of a diameter which corresponds to that of the furnace 6, and is provided upon diametrically opposite points with trunnions 18, 18, journaled in bearings 19, 19, resting upon a support 20, which is attached to the furnace. Obviously by means of this arrangement the water-tank and kettle are adapted to be tilted over from their vertical positions to that shown in dotted lines in Fig. 1. The front portion of the water tank is provided with a wall 21, supporting the same in its vertical position, and forming at the same time a continuation of the furnace wall, allowing thus the products of combustion to be employed to the greatest possible extent and to be discharged into the flue 14. A steam gage 22, a water-cock 23 and a safety-valve 24 are arranged at the upper end of the water-tank 15 for well known purposes. The receptacle 16 is provided upon its upper end with a cover 25, which is secured to the vessel by means of clamps 26, 26 of the well known construction; packing material 25' being provided between said cover and vessel to make the same air- and steam-tight. At a suitable distance below said cover is located a diaphragm 27, held upon said cover by means of screws 28, 28, or their equivalents. Between this diaphragm and the cover is arranged a spiral band 29, forming with said diaphragm and said cover a passage which starts at the periphery of the vessel and leads to a gooseneck 29', connecting the vessel 16 with a worm 30, which is located in the condenser or cooling tank 31, and whence the condensed liquor escapes to be delivered to any suitable receiver. The water is conducted into the cooling tank through a pipe 32 terminating near to the bottom thereof, and carried away through a pipe, controlled by a water-cock 34, which is arranged near to the upper end of the tank. A pipe 35 connects the cooling tank with a shallow receptacle 36, formed by the cover 25 and a flange 37, attached thereto. The connection 35 is controlled by a stop-cock 38.

The still may be tilted over by means of a worm and worm-gear mechanism. The worm-gear 39 is fixedly attached to one of the trunnions 18 and meshes with a worm 40, which is mounted in bearings 41 and 42, attached to the bearing 19, hereinbefore mentioned. A hand-wheel 43 facilitates the rotation of the worm, and a lever 44, attached to the still, allows the weight to be taken off the worm and worm-gear mechanism.

The operation of the device is as follows: The water-tank 15 is filled with water through an orifice 45, closed by a screw plug 46, up to the level of the water-cock 23. The cover 25 is then taken off the receptacle 16, and the apparatus tilted over by means of the worm and worm-gear connection into a position, whereby the mash, or other material, to be treated to produce alcohol vapors can be suitably placed into the kettle. The still is then brought into its vertical position, the cover secured thereto by means of clamps 26, 26, and fuel supplied to the furnace. The fire can then be started. The products of combustion, rising and contacting with the water tank 15, speedily produce ebullition of the water therein which surrounds the body of the kettle 16, causing thereby the material in the latter to throw off vapor, which ascends and passes through the spiral passage to the goose neck 29', and thence into worm 30, where the vapor is condensed in a well known manner and then passed into a receiver. In order to increase the strength of the alcohol, or in other words, to increase the percentage of absolute alcohol in the liquor, water is conducted through the pipe 35 into the receptacle 36, whereby the vapor rising from the kettle 16 is cooled. The spiral passage distributes the vapor over a large area and brings thus the same in contact with the cooling water for a comparatively long time, producing thus an efficient cooling. The steam, or in other words the vapor of the water, is thus condensed and flows back into the kettle, while the easily vaporized alcohol passes in vapor form into the goose neck. It will be observed that by means of this arrangement the percentage of absolute alcohol in the liquid is very high, and obtained by heating the mash only once.

What I claim is:

1. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water-tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, and means for cooling said passage.

2. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, and a connection leading from said condenser to said cover and being adapted to conduct water therefrom onto said cover, for the purpose specified.

3. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, means for cooling said passage, and means for tilting over said water tank and kettle.

4. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, means for cooling said passage, and a worm and worm-gear mechanism for tilting over said water tank and kettle.

5. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, a connection leading from said condenser to said cover and being adapted to conduct water therefrom onto said cover, and means for tilting over said water tank and kettle.

6. In a distilling apparatus, the combination with a furnace and condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm supported by said cover, a spiral band arranged between said cover and diaphragm to form a passage leading from the

peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, a connection leading from said condenser to said cover and being adapted to conduct water therefrom onto said cover, and a worm and worm gear mechanism for tilting over said water tank and kettle.

7. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm dividing said kettle into two compartments, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, and means for cooling said passage.

8. In a distilling apparatus, the combination with a furnace and a condenser, of a water tank upon said furnace, a kettle supported by and arranged in said water tank and being provided with a cover, a diaphragm dividing said kettle into two compartments, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of

said kettle to the center thereof, a still pipe connecting the inner end of said passage with said condenser, and a connection leading from said condenser to said cover and being adapted to conduct water therefrom onto said cover, for the purpose specified.

9. An alcohol still comprising a kettle provided with a cover, a diaphragm dividing said kettle into two compartments, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, and a still pipe leading from said passage.

10. An alcohol still comprising a kettle provided with a cover, a diaphragm supported by said cover and dividing said kettle into two compartments, a spiral band arranged between said cover and diaphragm to form a passage leading from the peripheral portion of said kettle to the center thereof, and a still pipe leading from said passage.

Signed at New York, in the county of New York, and State of New York, this 2nd day of February, A. D. 1910.

GEORGE LÁ CZAY.

Witnesses:

JULIUS J. VÖLGYI,
JOHN S. KOTTHY.