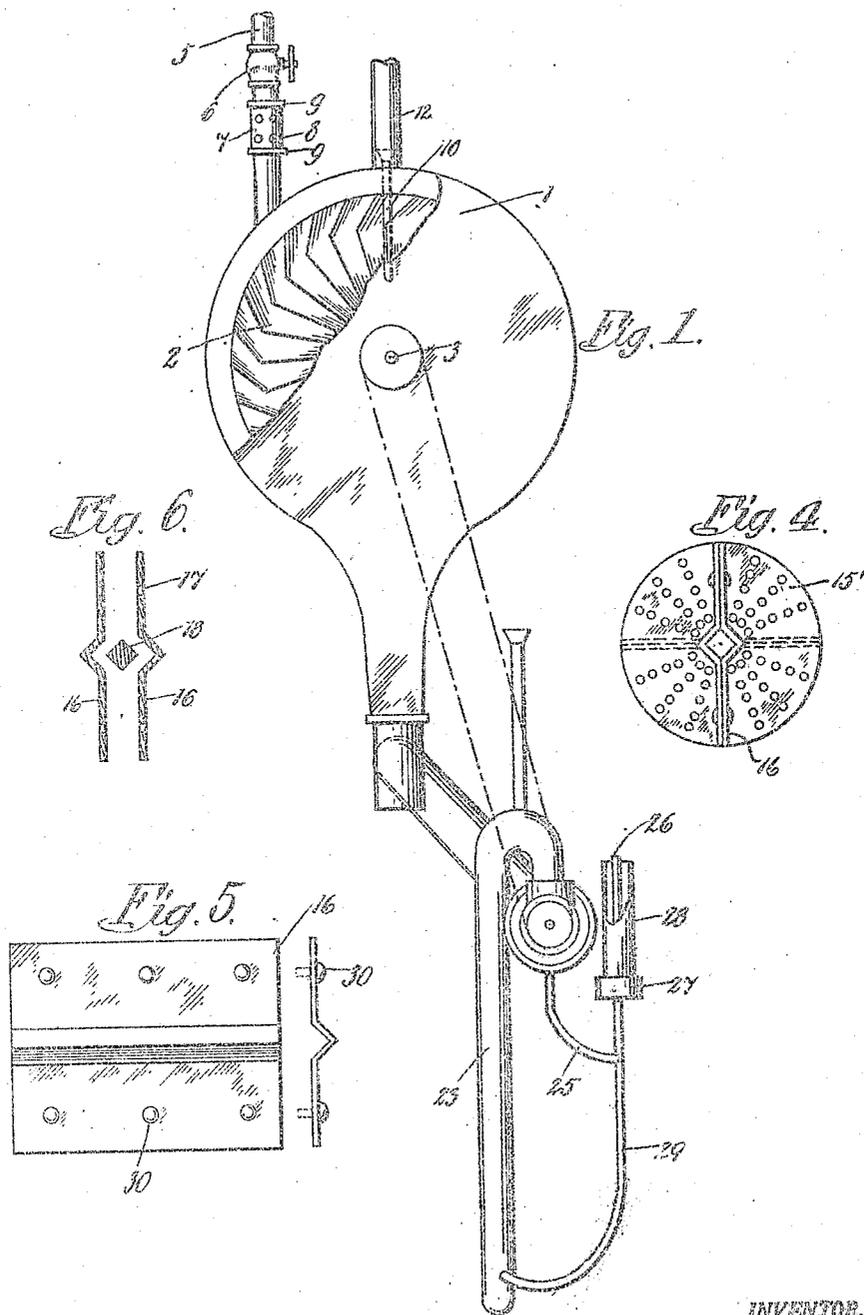


A. M. GARCIA Y GARCIA.
 APPARATUS FOR DILUTING LIQUIDS.
 APPLICATION FILED DEC. 21, 1916.

Patented Jan. 29, 1918.
 2 SHEETS—SHEET 1.

1,254,792.



WITNESSES:

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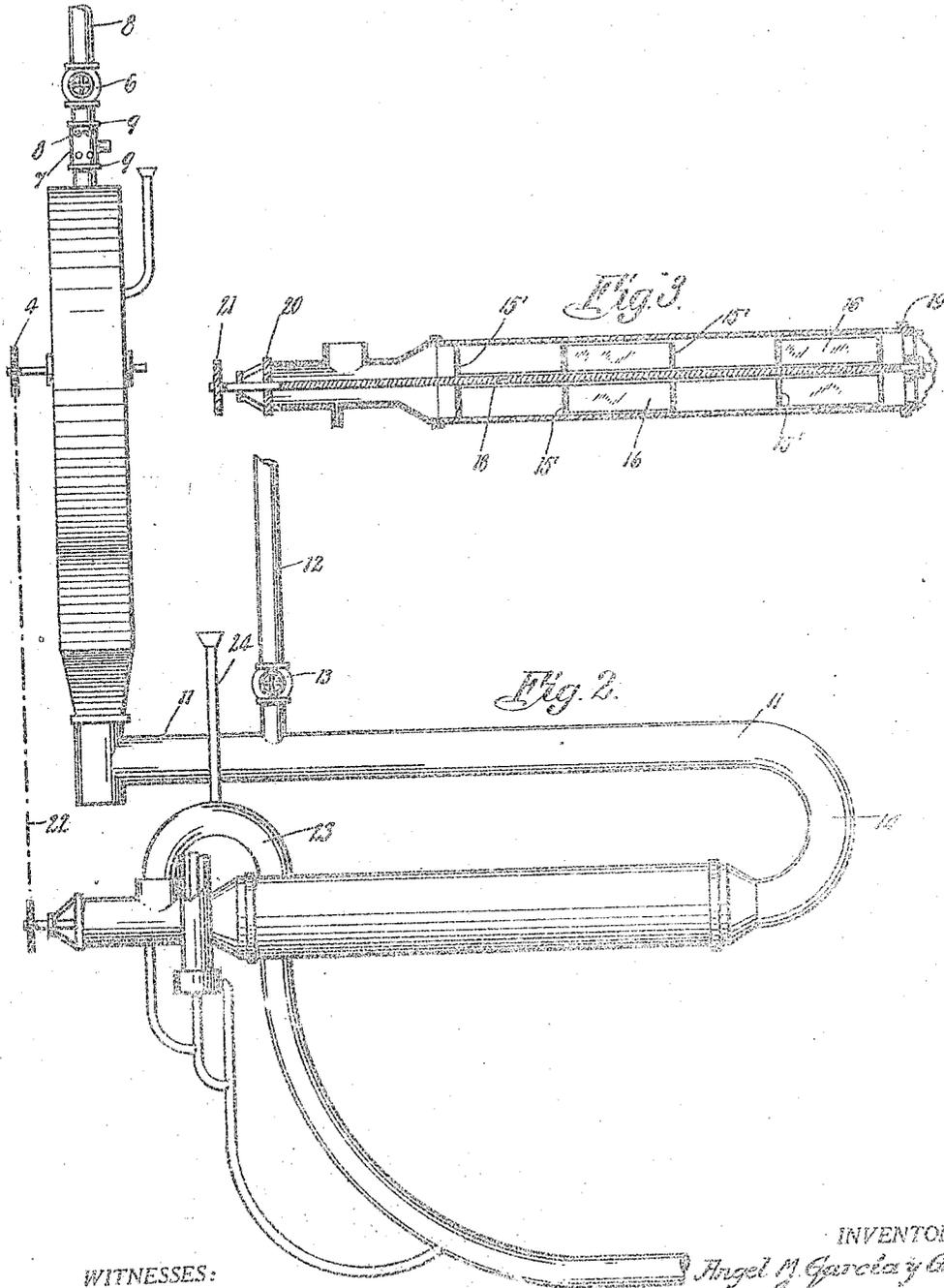
BY

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ANGEL M. GARCÍA Y GARCÍA, OF HABANA, CUBA.

APPARATUS FOR DILUTING LIQUIDS.

1,254,792.

Specification of Letters Patent.

Patented Jan. 29, 1918.

Application filed December 21, 1916. Serial No. 138,220.

To all whom it may concern:

Be it known that I, ANGEL M. GARCÍA Y GARCÍA, a citizen of the Republic of Cuba, and a resident of Habana, Cuba, have invented new and useful Improvements in Apparatus for Diluting Liquids, of which the following is a specification.

This invention relates to an apparatus for diluting honey or other liquids, as, for instance, alcohol and water.

An object of the invention is to provide a water motor for driving a mixing device whereby the two liquids, water and honey, or other fluids, are to be thoroughly mixed. The fluid which serves as source of power for the motor is utilized after its discharge from the motor to form one of the ingredients of the solution.

Another object of the invention is to provide in combination with a mixing device, a test device in which the consistency of the mixture may be ascertained at any time during the mixing operation by testing the specific gravity of the mixture.

With these and other objects in view I have illustrated an embodiment of the invention in the accompanying drawing, wherein—

Figure 1 is a front elevation, partly in section, of the complete device;

Fig. 2 is a side elevation of the same;

Fig. 3 is a sectional view of the mixing chamber;

Fig. 4 is a front elevation of one of the straining plates within said mixing chamber associated with a pair of agitators;

Fig. 5 is a side and end view of one of the agitator plates, and

Fig. 6 is an end view of a pair of agitator plates and a sectional view of the shaft on which said plates are mounted.

The water motor 1 comprises a casing in which a paddle wheel having blades 2 is mounted, and which rotates about a horizontal axis. The shaft 3, of the motor wheel, extends in transverse direction through the casing 1 and carries at the projecting end a sprocket 4. The fluid serving as a source of power for this motor is introduced through the vertical pipe 5 so as to strike on the paddles or vanes 2 near the

outer edge of the same and to cause rotation of all of the wheel and of the shaft 3.

The fluid supply may be regulated by the valve 6 in the pipe 5, while the speed of the motor independently of the fluid supply may be regulated by a sleeve 7 rotatably mounted on the outside of the pipe 5 between flanges 9 and having a plurality of apertures 8, which in a certain position of the regulating sleeve register with similarly arranged apertures in the pipe 5.

Another pipe 10, terminating in the casing 1 and extending vertically therefrom, serves as a vent for discharging the air which may be taken along with the driving fluid into the casing.

The lower end of the casing communicates with a pipe 11, into which another ingredient of the mixture is introduced by means of the pipe 12 projecting upwardly from the tubing 11 and containing a regulating valve 13. The pipe 11 is in communication with the mixing chamber 15 through a curved portion 14 at the end of the pipe 11, and the mixing chamber serves as a support for bearings 19 and 20, in which a horizontal shaft 18 is rotatably mounted. The shaft 18 carries a number of straining plates 15' and agitators 16 as shown in Figs. 4 to 6. That portion of the shaft on which the straining plates and agitators are mounted has square cross section, as shown in Fig. 6, and the straining plates 15' has a central square aperture through which the shaft 18 is passed and whereby they are held against rotation on said shaft. These straining plates have a plurality of small apertures for the passage of the mixed fluids therethrough, the small apertures being preferably arranged in concentric circles on the plates as shown in Fig. 4.

The agitators comprise each a pair of plates 16 having a central longitudinal rib or projection, the inner surface of this rib being in engagement with the shaft, this portion of the agitator being V-shape in cross-section.

The two plates of each pair are rigidly held against each other by a plurality of bolts 30 extending through holes 17 suitably spaced on the plate of each agitator. The

agitators, which are separated from each other by straining plates 15', are offset 90 degrees with respect to each other, as may be seen from Fig. 3. That end of the shaft 18 which projects from the closing member and bearing 20 on the mixing chamber 15 carries a sprocket wheel 21 connected with the sprocket wheel 4 on the shaft 3 of the motor by means of a chain 22, so that in the rotation of the motor rotation is also imparted to the straining plates and agitators.

A pipe 23, communicating with the front end of the mixing chamber near the bearing 20, serves for conveying the mixture to storage vessels (not shown in the drawing). The highest portion of this pipe may also be provided with a vent pipe 24, as shown in Fig. 2.

A hydrometer or some other similar device for ascertaining the specific gravity of the mixture is indicated at 28, and the mixture is conveyed to this testing device by means of a thin pipe or tubing 25 extending downwardly from the end of the mixing chamber in opposition to the discharge pipe 23. The tubing 25 terminates in a small tubing 26, which projects upwardly through the testing cup 28, and is open at its end whereby this testing device is continuously filled with liquid of the consistency produced by the stirring and mixing device in the chamber 15. The overflow from the testing device is discharged into a cup-shaped enlargement 27 near the bottom of the cup 28, and a tubing 29 connects this enlargement with the discharge pipe 23, as shown in Fig. 2. A suitable volumeter (not shown in the drawing) may be immersed into the liquid in the vessel 28, and the position of this instrument will indicate at any time the specific gravity of the same with respect to water or some other standard fluid selected.

The operation of the device is about as follows:

The pipe 5 is brought into communication with the source of water, and the pipe 12 is connected with a receptacle in which the undiluted liquid (honey, alcohol, and the like) is stored. When the valve 6 is opened to admit the water into the motor, rotation will be imparted to the plates 2. This rotation will be transmitted by means of the chain 22 to the agitating device within the mixing chamber 15, and after a suitable speed has been attained, the valve 13 is opened and the other ingredient to be diluted will be admitted to the tubing 11 and will be forced together with the water coming from the motor into the mixing chamber 15. By the passage of the mixture successively through the various strainers and owing to the violent agitation of the mixture by means of the plates 16 on shaft 18 the two liquids

will be thoroughly intermingled so that all parts of the same have uniform consistency. The proportion of the ingredients in the mixture may be adjusted by adjusting the valves 6 and 13 in supply tubes 5 and 12 respectively.

I claim:

1. A device for mixing liquids, comprising a fluid driven motor, a mixing chamber, means for conveying the ingredients of the mixture separately into the mixing chamber, and means for conveying the discharge from the fluid motor into said mixing chamber.

2. An apparatus for mixing liquids, including a water motor, a mixing chamber, stirring devices in said mixing chamber driven by said water motor, means for conveying the discharge water from the motor into the mixing chamber, and a conduit for supplying another ingredient of the mixture to the mixing chamber.

3. In a mixing apparatus, the combination of a water motor, a mixing chamber, a pipe communicating with said water motor and said mixing chamber, stirring and straining devices within said mixing chamber, a driving connection between said motor and said stirring and straining devices, and a supply conduit terminating in the pipe between the motor and said mixing chamber.

4. In an apparatus for mixing liquids, the combination of a water motor, a mixing chamber, stirring and straining devices in the mixing chamber, means for conveying the discharge water from the motor into said mixing chamber, a pipe for supplying another ingredient to said last named means, a discharge pipe from the mixing chamber, and a hydrometer inserted between the said mixing chamber and said last named discharge pipe.

5. In a mixing apparatus for liquids, the combination of a water motor, a mixing chamber, stirring and straining devices within the mixing chamber, a driving connection between the motor and said stirring and straining devices, a pipe connecting said mixing chamber with the water motor to receive the discharge from the motor, a supply conduit for another ingredient terminating in said pipe, a discharge pipe from the mixing chamber, a test vessel, a tubing connecting said vessel with the mixing chamber, and a pipe for returning the overflow from said test vessel into the discharge pipe of the mixing chamber.

6. In a mixing apparatus for liquids, the combination of a water motor, a mixing chamber, a shaft rotatably mounted in said mixing chamber, a driving connection between said shaft and said motor, a plurality of straining plates rigidly mounted on said shaft, and agitators each comprising a pair

of companion plates inserted between each two strainers in said mixing chamber.

7. In a mixing apparatus for liquids, a mixing chamber, a shaft rotatably mounted in said mixing chamber, a plurality of straining plates rigidly mounted on said shaft and in spaced relation thereon, and agitators each comprising a pair of com-

panion plates inserted between each two straining plates in said mixing chamber. 10

In testimony whereof I affix my signature.

ANGEL M. GARCÍA GARCÍA.

Witnesses:

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JUAN J. REMO.