W. H. WAGGONER.

APPARATUS FOR BLEACHING CANE JUICE.

APPLICATION FILED FEB. 19, 1915.

1,152,458.

Patented Sept. 7, 1915

2 SHEETS—SHEET 1.

Fig. 1.

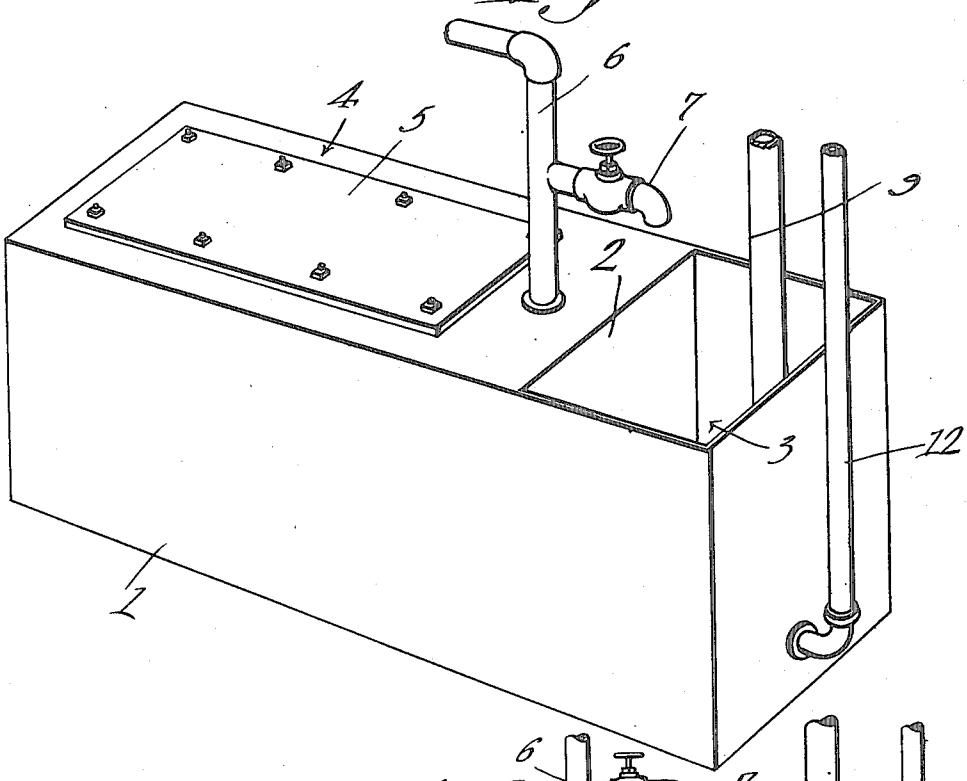
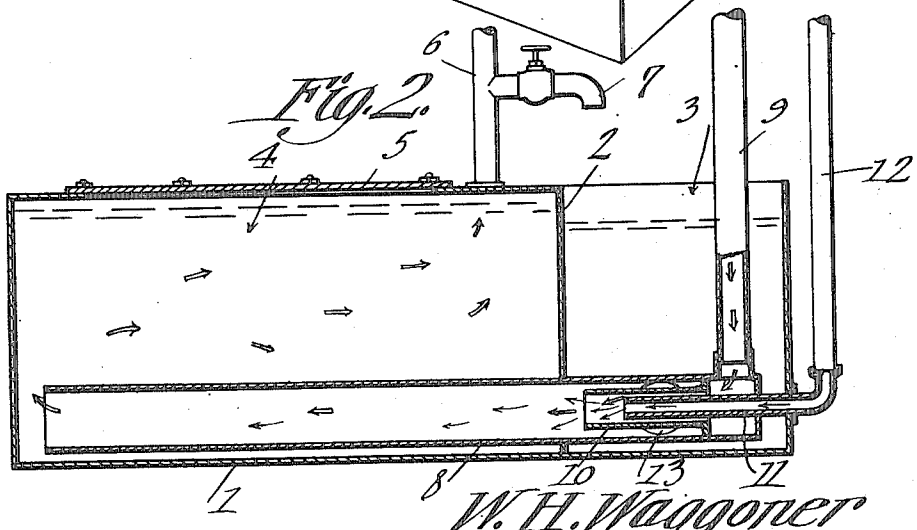


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

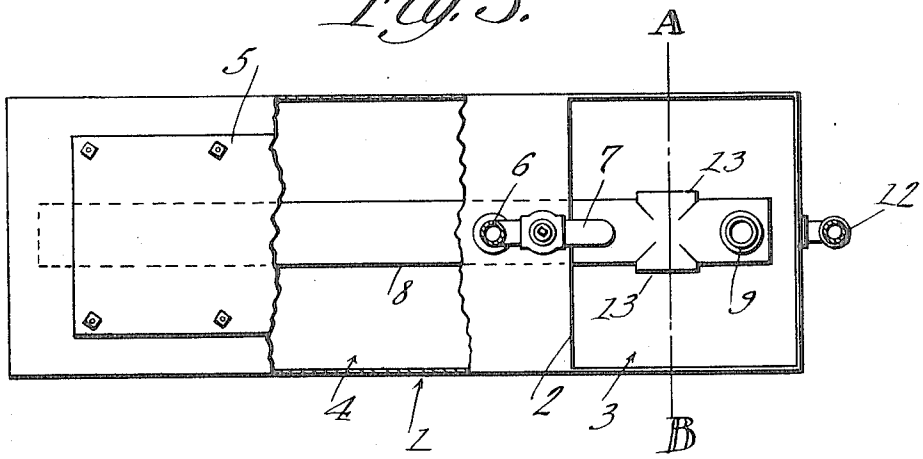
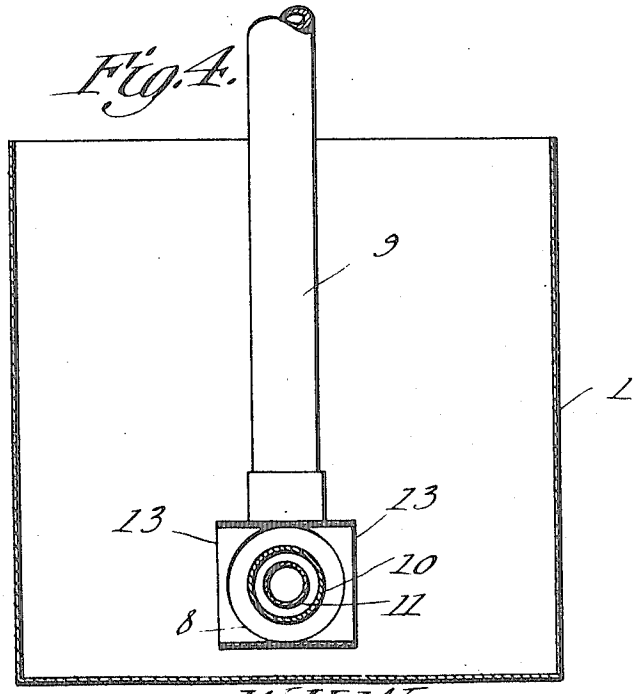


Fig. 4.



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR BLEACHING CANE-JUICE.

1,152,458. Specification of Letters Patent. Patented Sept. 7, 1915.

Application filed February 19, 1915. Serial No. 9,355.

To all whom it may concern:

Be it known that I, WILLIAM H. WAGGONER, a citizen of the United States, residing at Jeanerette, in the parish of Iberia and State of Louisiana, have invented a new and useful Apparatus for Bleaching Cane-Juice, of which the following is a specification.

This invention relates to apparatus especially designed for use in bleaching juices such as the juices of sugar cane, beets, maple, etc., one of its objects being to provide an apparatus which confines the sulfur fumes used for cleaning purposes so that they will not escape into the surrounding atmosphere at any time during the bleaching process or at any point within the bleaching apparatus.

A further object is to provide means whereby a thorough commingling of the fumes and juice is effected so that a high efficiency is maintained.

Another object is to provide means whereby the juice, after leaving the apparatus, can be immediately returned thereto should it require further bleaching.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings: Figure 1 is a perspective view of the apparatus. Fig. 2 is a central vertical longitudinal section therethrough. Fig. 3 is a plan view of the apparatus, the top of the housing being broken away and the various feed and outlet pipes being in section. Fig. 4 is an enlarged vertical transverse section on line A—B Fig. 3.

Referring to the figures by characters of reference 1 designates a tank preferably rectangular and which is divided by a transverse partition 2 into separate compartments 3 and 4 respectively, the compartment 3 constituting a receiver while the compartment 4 constitutes the bleaching chamber. Compartment 3 is open at the top, whereas compartment 4 is closed in any suitable manner, as by a removable top plate 5 which can be secured in closed position in any preferred manner. An outlet pipe 6 extends from the top of the bleaching chamber 4 to the liming apparatus not shown, and this outlet pipe may be provided with a faucet 7 or the like designed to discharge into the supply chamber 3. Said faucet, however, is normally closed.

Extending through the bottom portion of the partition 2 and close to the bottoms of the chambers 3 and 4 is a tube 8 having one end open and close to one end wall of the compartment 4, while its other end is closed and in communication with a pipe 9 designed to direct sulfur fumes into the tube 8 from a suitable generator. Arranged within the tube 8 is a nozzle 10 adapted to discharge toward the open end of the tube 8 and this nozzle is in constant communication with the pipe 9. Discharging into the nozzle is a small pipe 11 in communication with a supply pipe 12 whereby steam or other suitable fluid under pressure is discharged into the nozzle.

In using the apparatus, the sap or juice to be bleached is placed within the compartment 3 and flows through one or more ports 13 into the flue 8 at points adjacent nozzle 10. The steam or other fluid under pressure discharged into the nozzle from the pipe 11 creates a suction through said pipe and downwardly through the pipe 9 so as thus to draw into the tube 8 the sulfur fumes which are discharged into pipe 9 from the generator not shown. The force of the steam or other fluid discharged into the nozzle serves to blow the juice longitudinally within the tube 8, sucking it through the port or ports 13 and discharging it from the open end of the tube 8 into the chamber 4. During this agitation of the juice the sulfur fumes which are at the same time discharged into the tube 8, become thoroughly commingled with the juice and operate to bleach it so that, as the juice is discharged into the pipe 6 it will, if the apparatus is properly operating, be properly bleached. A sample of the juice can be withdrawn through the faucet 7 and back into the chamber 3 whenever it is desired to ascertain whether or not the juice has been properly bleached. If the bleaching has not been sufficient, the juice can be caused to flow through the faucet into chamber 3 and then rebleached.

It will be seen that by means of appara-

tus such as described, a thorough commingling of the juice and the sulfur fumes can be effected without releasing any of the fumes into the surrounding atmosphere.

While the apparatus is especially designed for bleaching uses, as heretofore pointed out, it will also be found useful as a means for mixing two or more liquids by feeding them to the compartment 3 after which any kind of fluid in the form of gas, vapor or liquid, can be injected into the liquid as heretofore described, thus operating to draw the liquid into the tube 8 and to force them into the compartment 4.

What is claimed is:—

1. Apparatus for bleaching cane juice, comprising a receptacle sub-divided into an open receiving compartment and a closed compartment, a tube for establishing communication between the two compartments, means for directing a bleaching medium or the like into said tube, a nozzle within the tube, and means for directing a fluid under pressure into the nozzle thereby to suck the said medium into the nozzle and discharge it into the contents of the tube and eject the contents of the tube into the closed compartment, an outlet pipe extending from the closed compartment, and valved means for directing fluid from the outlet pipe back into the open compartment.

2. Apparatus for bleaching cane juice including a casing sub-divided into a closed compartment and an open receiving compartment, a tube constituting means for maintaining communication between the two compartments, an outlet pipe extending from the closed compartment, means for directing fluid from the outlet pipe and back into the receiving compartment, and means for directing gas or the like forcibly into the contents of the tube thereby to create a forced movement of the juice from the receiving chamber and into the closed chamber.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

WILLIAM H. WAGGONER.

Witnesses:

DUMAS MARNI,

GEORGE GUILERTICE.