J. M. LESCALE.

Apparatus for Bleaching Cane-Juice.

No. 161,527. Patented March 30, 1875.

Fig 1

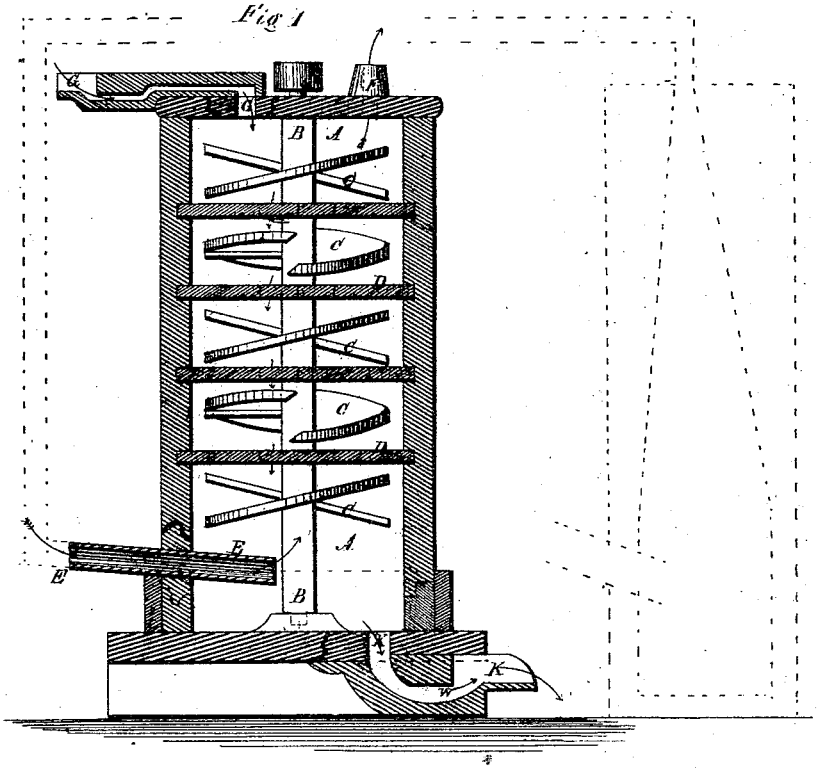
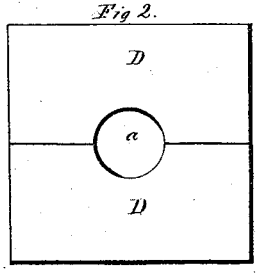


Fig 2.



WITNESSES.

J. Wm. Garnett

F. F. Lehmann

INVENTOR.

John M. Lescale.

by F. A. Lehmann

Atty.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JOHN M. LESCALE, OF PAINCOURTVILLE, LOUISIANA.

IMPROVEMENT IN APPARATUS FOR BLEACHING CANE-JUICE.

Specification forming part of Letters Patent No. **161,527**, dated March 30, 1875; application filed December 10, 1874.

To all whom it may concern:

Be it known that I, J. M. LESCALE, of Paincourtville, in the parish of Assumption and State of Louisiana, have invented certain new and useful Improvements in Bleaching Cane-Juice; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in bleaching cane-juice; and consists in the manner of subjecting cane-juice in an air-tight chamber to the action of sulphurous-acid gas, as will be more fully described hereafter.

The accompanying drawing represents my invention.

A represents an air-tight chamber of suitable dimensions, in the center of which, journaled at top and bottom, is the shaft B, provided with sets of wings C, each one of which extends spirally around the shaft in the spaces between the shelves D. The juice is poured upon the upper set of wings through the pipe G, and is by them dispersed in every direction, and falls upon and is collected by the shelves D beneath, from which it will run or drip down through holes *a* in the shelves D, and fall upon the next set underneath, to again be dispersed by centrifugal force, and to be collected again, and so on successively until it reaches the bottom, where it is drawn off by pipe K. The pipes G and K are provided with sealing-chambers, so as not to admit the outside air while filled with cane-juice. The sulphurous-acid gas is introduced into the lower part of the chamber A through a pipe, E, and carried upward by the motion of the wings, so that the spray to which the juice is reduced comes in the most intimate contact with this bleaching agent, which is allowed afterward to escape at the top through pipe F, and is constantly replenished from below. I generate sulphurous-acid gas by burning sulphur in a furnace, and as it is introduced in large quantities at the bottom of the chamber, the cane-juice is last exposed to the freshest supply before it is drawn off through pipe K, and thereby perfectly bleached should any coloring matter have remained.

I am aware of the fact that it is not new to bleach cane-juice by means of sulphurous acid in a tank in which revolving drums reduce the liquid to a spray by centrifugal action. I therefore disclaim the use of sulphurous acid as constituting my invention, and also the broad idea of a centrifugal dispersing apparatus. Notwithstanding the fact, however, that water dissolves fifty times its volume of sulphurous acid, the consistency of the juice is such that it requires to be brought in the most intimate association with the gas to perfectly bleach the same, and it is to accomplish this end that my apparatus is constructed. Sulphurous acid, moreover, being about two and one-half times heavier than air, it is a sluggish heavy gas, and in being generated it moves so slowly and heavily to the bleaching apparatus that the latter cannot be well supplied with a sufficient quantity of the gas, in proportion to the amount of juice used, unless some artificial means are made to assist the natural passage of the gas. To meet this difficulty the wings are placed upon the shaft in a spiral manner, so that when the shaft is revolved at the rate of three hundred revolutions a minute a strong draft is created, which brings the gas from the generator and carries it upward in the tank through the falling spray in the manner which produces the best possible results.

In cases where a generation of too much acidity is to be apprehended, as when the cane has been greatly injured by frost or any other cause, a small quantity of lime-water is introduced into the juice before it enters the apparatus for bleaching, and by this means the development of acidity is arrested.

Having thus described my invention, I claim—

The bleaching apparatus consisting of the outer casing A, shelves D, having central openings *a*, the revolving shaft B, and the spirally-arranged wings C, attached to the shaft and alternating with the shelves, all combined and arranged substantially as and for the purpose described.

In testimony that I claim the foregoing, I have hereunto set my hand this 27th day of November, 1874.

JOHN M. LESCALE.

Witnesses:

N. C. GUEDNY,

J. C. THIAC.