

United States Patent Office.

JUAN POEY, OF HAVANA, ISLAND OF CUBA.

Letters Patent No. 102,969, dated May 10, 1870.

IMPROVEMENT IN THE MANUFACTURE OF SUGAR.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:-

Be it known that I, JUAN POEY, of the city of Havana, in the Island of Cuba, have invented a new and useful Improvement in the Manufacture of Sugar; and I do hereby declare that the following is a full and exact description thereof.

This invention relates to a new process in the manufacture of sugar from sugar-cane and employing in its chemical elaboration carbonic acid.

Carbonic acid has been successfully used in processes of making sugar from the juice of beet, and numerous attempts have been made during many years, by different persons and in different countries, to adapt carbonic acid to or utilize it in the treatment of the juice of sugar-cane, but, so far as my knowledge extends, all such attempts have proved unsuccessful.

Edward Beanes, Esq., about six years ago, made numerous experiments to that effect, giving them up at last in despair, considering it impossible to obtain such result, on account, he said, of the abundance of acetic acid that predominates in the juice of sugar-cane after it has passed through the mills, and which, in his opinion, does not occur in the juice of beet.

I myself, in the year 1864, made a number of experiments on a large scale and with as little success as Mr. Beanes.

About the same time, M. Maigrot, a distinguished chemist, made, on my sugar plantation, a series of experiments, the result of which was a complete failure.

Before and after the year 1864, Messrs. Perrier and Pozzos, conjointly with the house of Cay & Co., practiced, in Paris, numberless experiments upon cane procured from Spain and Algiers. The results were all unsuccessful.

Not being able to account for such constant failures, they attributed it to the quality of the cane. Under that impression, they sent to the island of Guadaloupe a person fully competent in every respect for their purpose, and though he used his utmost abilities to satisfy the aspirations of his employers, his endeavors were all in vain.

The idea of applying carbonic acid on the cane-juice when warm never occurred to his mind. He omitted the necessary precaution to prevent the forming of the tri-basic saccharates of lime, and the result proved as unsatisfactory as those obtained previously, and of all subsequent attempts until now.

The invention I claim consists in warming the juice of the cane, throwing into it a jet of carbonic acid, whilst introducing at the same time carbonate of lime, preventing, by this simultaneous introduction of lime and carbonic acid, the formation of tri-basic

saccharates of lime, which are very difficult to reduce.

The proportions of carbonate of lime and carbonic acid vary according to circumstances, as cane grown in certain lands, and at certain seasons, requires different proportions, easily ascertained by practical men.

My invention consisting merely in the application of chemical ingredients, it is unnecessary to accompany drawings or models of any apparatus, as the same may be applied to the clarification of the juice of cane-sugar as are in use at present in all manufactures of beet-sugar.

The advantage of my invention is the successful application to the manufacture of cane-sugar of such a harmless and powerful agent as carbonic acid, greatly simplifying, by its means, the complicated manipulations now in use to obtain first quality sugar from the cane.

Economy of labor and increase of produce have made, for many years, the application of this process a great desideratum to be obtained.

I have gained this desirable object, for, by means of a process entirely new in its application, the single and double carbonization (in French "*carbonatation*") of the saccharine juices, deemed until now impossible, have become at last a positive reality.

The chemical agent, the carbonic acid, is of course the same as employed in the clarification of the juice of the beet, but inefficacious, as it had always proved to be prior to my invention, (when applied to the juice of sugar-cane,) it can, by my process, be employed with the same advantages as attend its use in processes of treating the juice of beet.

The great benefit that might have been derived from the use of carbonic acid in the clarification of cane sugar has always been universally acknowledged, but of what importance could that fact be to sugar planters as long as its application to sugar-cane was thought impossible, and if, notwithstanding the length of time that had elapsed since the first discovery of Rousseau, no one had been able to put it in practice, until my recent discovery.

To enable those skilled to fully comprehend and practice my invention, I need only explain that I first introduced into the cane-juice, while heated to a temperature of about 80° to 90° (centigrade,) a jet of carbonic acid, effecting a complete saturation.

I continue this operation, adding at the same time to the juice a quantity of lime-water, about double what would be necessary for the saturation of the acids originally contained in the piece, and finish the carbonization as soon as the juice shall have become neuter. I then increase the temperature of the material and

keep it at a boiling point for some minutes, in order to coagulate the substances that otherwise might remain in combination with the juice and to eliminate the carbonic acid that has combined with the lime, when the usual repose decantation of the juice and filtration follow.

The attendant should observe the material every day, and when, from the great density of the juice, tri-basic saccharates of lime are formed, water must be added to the juice to counteract this difficulty.

Having so explained my new process that one skilled in the manufacture of sugar will readily comprehend it,

What I claim as new, in the manufacture of cane sugar, is—

The employment, in connection with carbonate of lime, of carbonic acid, to effect the clarification of the juice while the latter is heated, substantially as hereinbefore set forth.

In testimony whereof, I have hereunto set my hand this 18th day of March, 1870.

JUAN POEY.

Witnesses:

JOS. S. SPRINGER,
JOS. RAPHEL.