UNITED STATES PATENT OFFICE.

EDWARD C. BARTHELEMY, OF NEW ORLEANS, LOUISIANA.

PROCESS OF MANUFACTURING SUGAR.

SPECIFICATION forming part of Letters Patent No. 487,439, dated December 6, 1892.

Application filed April 13, 1891. Serial No. 388,694. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD CRAIG BARTHELEMY, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Processes of Manufacturing Sugar; and I do 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 appertains to make and use the same.

This invention relates to certain improvements in the process of manufacturing sugar; and it has for its objects to increase the yield of the sugar, improve the quality thereof, and reduce the quantity of molasses, as more fully hereinafter set forth and specifically claimed.

In the ordinary process of manufacturing sugar several grades are obtained, known to sugar-makers as "first sugars," or the sugars obtained from masse-cuite boiled entirely with semi-sirup or reduced cane-juice; "second sugars," obtained entirely from the molasses from the first sugars, and "third sugars," made entirely from the molasses from the second sugars. The "masse-cuite" above mentioned is the technical name given by sugar-makers to the sugar and molasses as it comes from the vacuum-pan before centrifugence or separation.

In carrying out my process each strike of first sugars is boiled to a finish with semi-sirup or reduced or thickened cane-juice, and when said strike is finished it is let out of the vacuum-pan, reserving, however, a sufficient quantity to form a nucleus to build up another strike entirely with molasses. The molasses is separated from said strike in a centrifugal manner, leaving the first sugars, as usual. This molasses is then prepared in the blow-up in the following manner: Very hot water is added to the molasses until it is reduced to 30° or 32° Baumé, (warm,) and then milk of lime is added until the solution is perfectly neutral, which is determined by means of litmus-paper in the usual manner. This solution of lime is to counteract the acid which would interfere with granulation, and if the molasses should show signs of gumming it should be limed to alkalinity to destroy the gum. The proper degree of alkalinity may be determined by means of tumeric paper, as usual. A small charge of this prepared molasses is drawn into the vacuum-pan with the nucleus retained from the strike previously discarded. The whole is allowed to thicken well, and small charges are let into the vacuum-pan from time to time until the strike is finished. Then heat the contents of the pan to from 155° to 156° Baumé. Then boil down to a cooking-proof, and at this point add water sufficient to dilute the molasses and bring it to a proper state to pass freely through the meshes of the centrifugal machine. The sugar resulting will be of light-yellow color and of fine quality. The molasses resulting from this last step is then boiled until of such consistency that it may be drawn out into a string, when it is drawn from the vacuum-pan and cooled, and after a few days this forms a soft sugar, which to be fit for use must be separated from its accompanying molasses. To do this, the string-sugar must be worked back to grained seconds, which is done by mixing with a portion of the first sugars and the molasses therefrom from ten to twenty per cent. of the string-sugar and dissolving the whole with the aid of hot water. The solution is then evaporated to a strike and centrifugaled, as usual, thus abstracting all of the granulating sugars from the sugar-producing plants and separating the same from the non-granulating sugars or molasses.

Having described my invention, what I claim is—

The process herein described of manufacturing sugar, consisting in boiling each strike of first sugars to a finish with semi-sirup or reduced cane-juice, then letting the same out of the vacuum-pan with the exception of a portion designed to form a nucleus for another strike, then thickening or reducing the consistency of the molasses resulting from the first strike, then liming the same to produce neutrality or alkalinity, then adding the prepared molasses to the nucleus of sugar left from the first strike in an evaporating-pan, evaporating to the finish of a second strike, then adding water sufficient to dilute the molasses and bring it to a proper consistency to pass freely through the meshes of a centrifugal device, then boiling the molasses re-

sulting from this last step until it is of such consistency that it may be drawn into a string, then adding to the string-sugar a portion of the first sugars and molasses therefrom, evaporating the same to a strike, and finally centrifuging to separate the sugar from the molasses, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD C. BARTHELEMY.

Witnesses:
G. REBENTISCH,
PERCY D. PARKS.