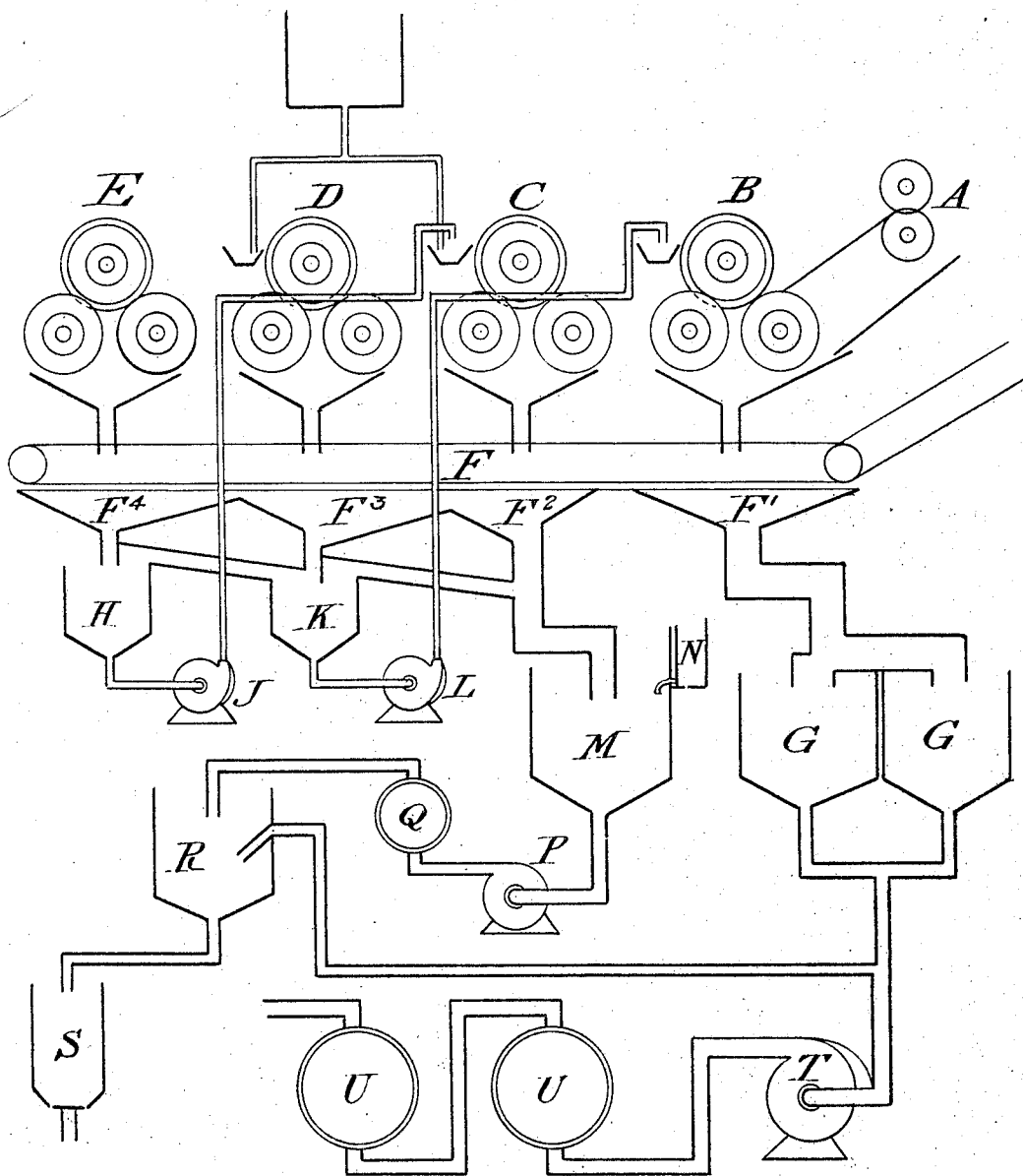


H. S. TRUSCOTT.
METHOD OF HANDLING SUGAR CANE JUICES.
APPLICATION FILED MAR. 22, 1915.

1,177,832.

Patented Apr. 4, 1916.



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UNITED STATES PATENT OFFICE.

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METHOD OF HANDLING SUGAR-CANE JUICES.

1,177,832.

Specification of Letters Patent.

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Application filed March 22, 1915. Serial No. 16,163.

To all whom it may concern:

Be it known that I, HAROLD SAGE TRUSCOTT, a subject of the King of Great Britain, residing at Makaweli, in the county of Kauai, Territory of Hawaii, have invented certain new and useful Improvements in Methods of Handling Sugar-Cane Juices; 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 appertains to make and use the same.

This invention relates to an improved process or method of handling the juices expressed by sugar-cane milling plants.

Most of the modern sugar-cane milling plants, which give a high extraction of the sucrose in the cane, have four three-roller mills in tandem and a two-roller crusher for preparing the cane for the first mill, maceration being applied to the crushed cane or bagasse between the several mills. The juices expressed by the crusher and first mill usually constitute from 70% to 80% of the total juices expressed by the milling plant, and the purity of these first expressed juices is usually from 88 to 91. The purity of the juices expressed by the other mills in the train is much lower, so that when mixed with the juices expressed by the crusher and the first mill, the resulting total mixed juice is lowered in purity to usually from 85 to 88.

The present invention contemplates a method of handling these juices, eliminating impurities from the diluted juices expressed by the mills previous to mixing them with the juices from the crusher and the first mill, thereby raising the purity of the total mixed juice. By removing impurities from the diluted juices and then mixing the resulting purified juice with the juices first expressed, the clarification and boiling houses are freed from contamination of the impurities thus removed, and a higher recovery of sugar is obtained.

The invention consists in the novel method and the arrangement of apparatus for the handling of the various juices expressed by a sugar-cane milling plant, as will hereinafter more fully appear.

Reference is to be had to the accompanying drawing, forming a part of this specification, which illustrates diagrammatically my improved process.

A represents the crusher rolls which pre-

pare the cane fed to the first three-roller mill B.

C, D and E represents the second, third and fourth three-roller mills respectively, which with the crusher and the first mill are arranged in tandem in the usual manner.

F represents the filter or juice strainer employed to screen the juices and separate the particles in suspension in the juices, the screenings being returned to the mill in the usual manner.

The juices expressed by the first mill and the crusher are strained in the forward section F¹ of the juice strainer F and passed to the tanks G and are limed. The juice from the fourth mill E is strained in the rear section F⁴ of the juice strainer F and passes into a receiving well H, from which the pump J lifts the juice to be applied for maceration of the bagasse from the second mill C. The juice expressed by the third mill D is strained in the section F³ of the juice strainer F, and passes into the receiving well K, from which the pump L lifts the juice to be applied for macerating the bagasse from the first mill B. The juice from the second mill C is strained in the section F² of the juice strainer F and is passed preferably into a continuous liming tank M, which is supplied with milk of lime from the tank N. Any excess of juice from the fourth mill E over that pumped by the pump J accumulates in the well H and can overflow into the well K. Juices accumulating in the well K can overflow directly into the continuous liming tank M. The diluted juices from the mills C, D and E are thus limed in the tank M, and are then pumped by the pump P through the juice heater Q and into the continuous settling tank R. The clarified juice from the continuous settling tank R is mixed with the juices from the crusher A and the first mill B, preferably after the latter juices have been limed in the tanks G. This may be done by means of the pump T which serves to pump the juices from the tanks G and R and to force the mixture of juices through the heaters U, and then to the usual clarifiers, etc., not shown. The settlings from the continuous settling tank R are passed into the scum tank S, and then pumped through the mud or filter presses in the usual manner.

It will now be noted that the diluted

juices, from the mills C, D and E, are segregated from the juices first expressed by the crusher A and the first mill B, and that they are strained, limed, heated and settled, thus eliminating impurities therefrom before these juices are added to and mixed with the strained and limed juices first expressed. The purity of the total mixed juice is raised thereby. The method permits of a better control of the dilution and the maceration, the losses by inversion are reduced, the fouling of the evaporators, pans, etc., is diminished, and a higher efficiency is obtained.

I claim:

1. The method of handling sugar-cane juices comprising, the elimination of impurities from the diluted juices of low purity previous to the mixing of these juices with the first expressed juices of high purity, for the purpose described.

2. The method of handling sugar-cane juices comprising, the segregation of the diluted low purity juices from the first expressed juices of high purity, the treatment

of these diluted juices to eliminate impurities therefrom, and the mixing of the purified diluted juice with the first expressed juice, substantially as and for the purpose described.

3. The method of handling sugar-cane juices comprising, straining the juices expressed by each mill separately, the juice from the second mill and the juices in excess of that used for maceration from the third and fourth mills being limed and heated and the impurities allowed to settle, then mixing the juice thus purified with that from the first mill, preferably after the latter has been limed, and then clarifying the total mixed juice in the usual manner, for the purpose and substantially as described.

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

HAROLD SAGE TRUSCOTT.

Witnesses:

GREGOR T. GREIG,

G. W. CUNNINGHAM.