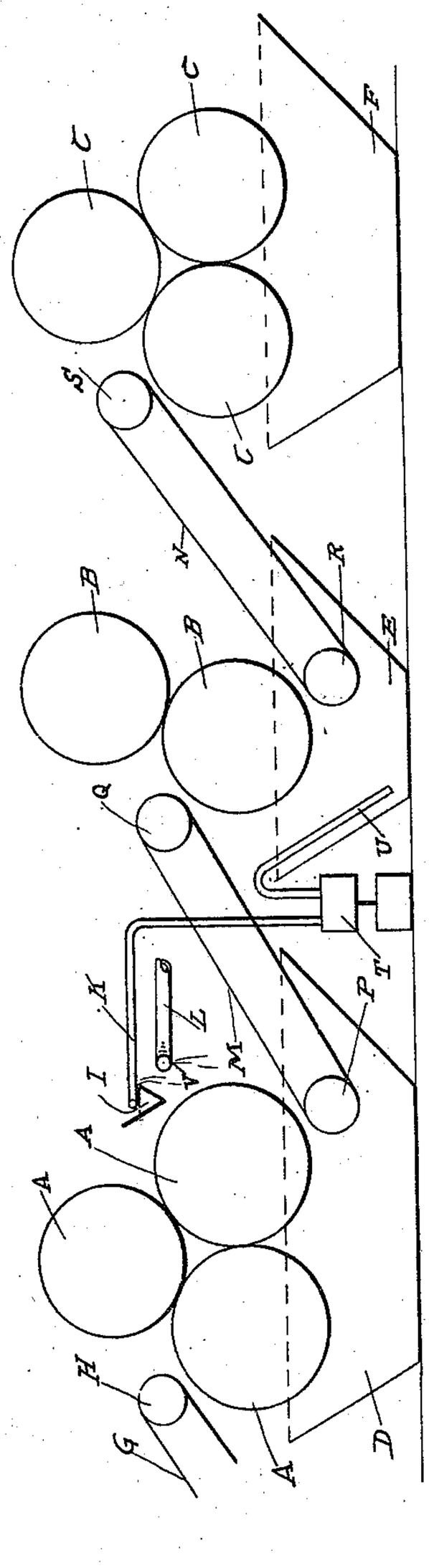
C. ROSENOW.

PROCESS OF EXTRACTING SUCROSE.

APPLICATION FILED APR. 23, 1910.

989,876. Patented Apr. 18, 1911.



Witnesses

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CURT ROSENOW, OF PEORIA, ILLINOIS.

PROCESS OF EXTRACTING SUCROSE.

989,876. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed April 23, 1910. Serial No. 557,201.

To all whom it may concern:

Be it known that I, CURT ROSENOW, a citizen of the United States, residing at Peoria, in the county of Peoria and State of Illinois, have invented certain new and useful Improvements in Processes of Extracting Sucrose, of which the following is a specification.

My invention relates to a process for extracting sucrose from sugar cane by means of crushing combined with maceration and my object is to provide a process with a view of improving the heretofore known processes as they have been applied in the extraction of sucrose from sugar cane.

At present it is common practice to mill and grind sugar cane by passing it through a plurality of mills. Ground or crushed sugar cane is called bagasse. It is also common practice to subject the bagasse to maceration for the purpose of thinning the juice contained therein and reducing the residual loss. This step in the process is introduced at a point between the last two mills of the operating series, the major portion of the juice having been extracted prior to that time. It is universal experience that subjecting bagasse to maceration renders it very sticky and slippery, and difficult to pass through the final mill without choking the same, and furthermore it renders necessary the evaporation of very large quantities of water.

It is the purpose of my invention to add to the commonly used steps for extracting sucrose from sugar cane a new step with the purpose of obviating the slippery condition of the bagasse after maceration so that it will readily pass through the final mill without choking it; to extract the largest possible amount of the sugar contained in the cane, and to reduce to a minimum the amount of water it is necessary to evaporate. This new step is the removal from the macerated bagasse of a portion of its juice, which is poorer in sugar content than the juice remaining in the macerated bagasse.

In the drawing, the figure is a side elevation intended to show in a diagrammatic manner, an arrangement of machine parts that might be employed for carrying out my process.

G is a conveyer or carrier, similar to M and N. It is driven by pulley H and delivers the bagasse from a previous grinding mill or mills to the mill A. The bagasse passes through mill A, where it is subjected to heavy pressure by means of which some of the juice is extracted and falls into juicepan D. With this juice we have no further concern. It will enter the process of manufacture jointly with the juices of any preceding mills. After the bagasse has passed through mill A it falls on carrier M, driven by pulleys P and Q. At this stage it is subjected to maceration, *i. e.* water is sprinkled on it through perforations V, of pipe L. Carrier M conducts the macerated bagasse to the light pressure rollers B. In passing between these rollers the bagasse is subjected to light pressure which expresses from it surplus water and very thin juices. This falls into juicepan E. From E pump T takes these thin juices by means of suction pipe U and pumps them through discharge pipe K into the open trough I. The thin juices overflow this trough and fall on the bagasse emerging from A. That is, they are used for maceration jointly with the water. The bagasse emerging from the rollers B falls on the carrier N driven by pulleys R and S and is carried to the final grinding mill C. In passing through C the bagasse is again subjected to very heavy pressure with the object of extracting from it as much as possible of the remaining juices. These juices fall into juice pan F, from where they are conducted into a common receptacle together with the juices from A, and any preceding grinding mills for the purpose of elaboration into sugar. The bagasse emerging from C is conducted to the furnaces of the boiler plant and is used as fuel. During the process as described there will be a tendency of the very thin juices expressed at B to increase in sugar content approaching a certain limit. This limiting sugar content will depend on circumstances but will always be less than that of the juices expressed by C. It may therefore be necessary to interrupt, perodically and for a brief period, the use of the thin juices for maceration. Means for doing this are not shown in the diagram as it is not a necessary part of the process.

What I claim and desire to secure by Letters Patent is:

1. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, then, at this par-

ticular stage of the process, extracting from the macerated bagasse a portion of its juice, which is poorer in sugar content than the juice remaining in the macerated bagasse, and in finally grinding the bagasse so treated in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

2. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, then, at this particular stage of the process, extracting from the macerated bagasse a portion of its juice which is poorer in sugar content than the juice remaining in the macerated bagasse, and in using and reusing the thus extracted thin juice for new maceration, and in finally grinding the bagasse so treated in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

3. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, extracting by very light pressure or by other means, from the macerated bagasse, a portion of its juice which is poorer in sugar content than the juice remaining in the macerated bagasse, and in finally grinding the bagasse so treated in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

4. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, extracting by very light pressure, or by other means from the macerated bagasse, a portion of its juice which is poorer in sugar content than the juice remaining in the macerated bagasse and in using and reusing the thus extracted thin juice for new maceration, and in finally grinding the bagasse, so treated, in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

5. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, removing from the macerated bagasse the slippery, spongy character it has acquired, and in finally grinding the bagasse so treated in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

6. The herein described process of extracting sucrose from sugar cane which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, removing from the macerated bagasse, by means of very light pressure or by other means, the slippery, spongy character it has acquired, and in finally grinding the bagasse so treated in another mill in order to extract therefrom as much of the remaining juice as possible, substantially as described.

7. The herein described process of extracting sucrose from sugar cane, which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, extracting by means of light pressure or by other means, from the macerated bagasse a portion of its juice which is poorer in sugar content than the juice remaining in the macerated bagasse, thereby removing from the macerated bagasse, the slippery and spongy character it has acquired, and in finally grinding the bagasse so treated in another mill, in order to extract therefrom as much of the remaining juice as possible, substantially as described.

8. The herein described process of extracting sucrose from sugar cane which consists in grinding the cane in one or more mills, in subjecting the bagasse so ground to immersion or to maceration, in then, at this particular stage of the process, extracting by means of light pressure or by other means, from the macerated bagasse a portion of its juice, which is poorer in sugar content than the juice remaining in the macerated bagasse, thereby removing from the macerated bagasse the slippery and spongy character it has acquired, and of using and reusing the thus extracted thin juice for new maceration and in finally grinding the bagasse so treated in another mill, in order to extract therefrom as much of the remaining juice as possible, substantially as described.

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

CURT ROSENOW.

Witnesses:
MARY E. COMEGYS,
FLORIDA C. GROBLE.