

M. S. BRINGIER.
Apparatus for Extracting Saccharine Matter from
Cane, &c.

No. 141,316.

Patented July 29, 1873.

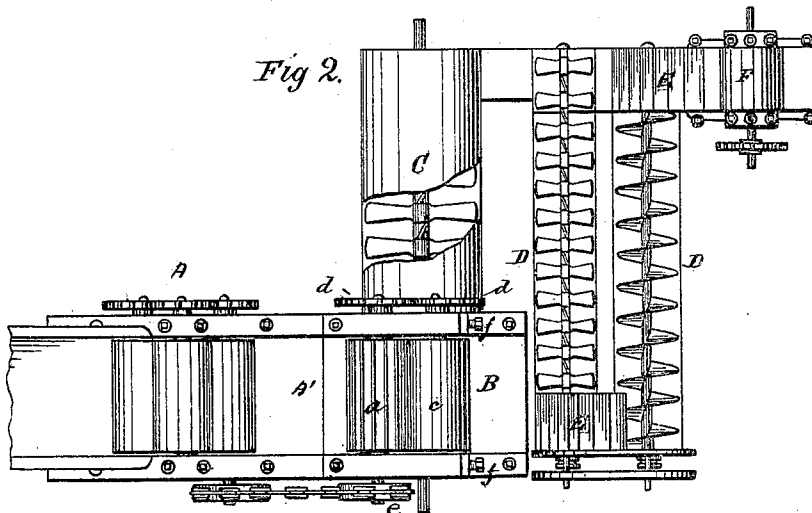
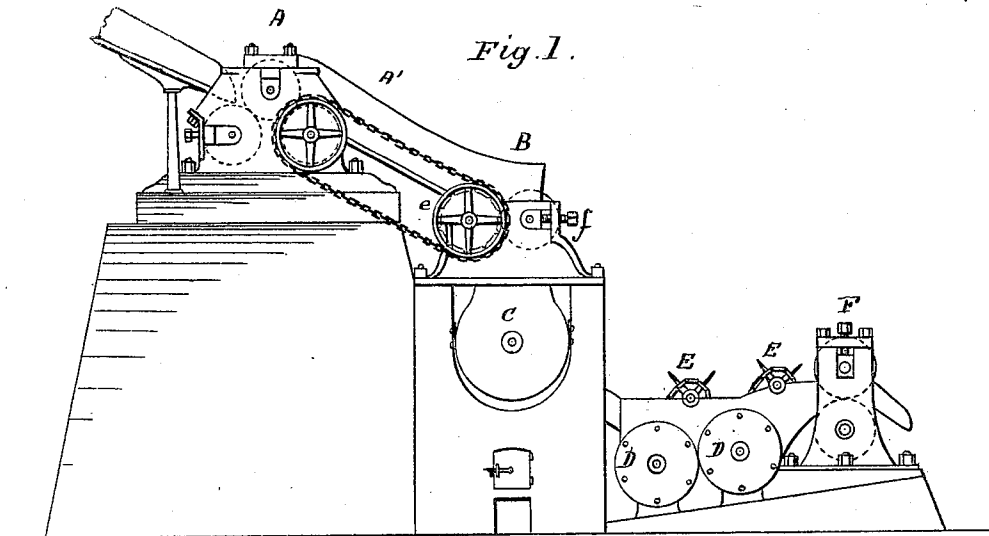
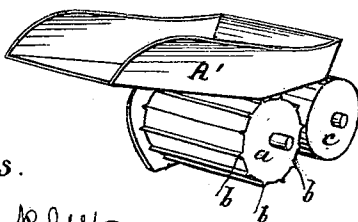


Fig. 3.



Witnesses.

John C. Buekey
Chas. Wilson

Inventor.

Marius S. Bringier
 by atty. *A. B. Cook*

UNITED STATES PATENT OFFICE.

MARIUS S. BRINGIER, OF ASCENSION PARISH, LOUISIANA.

IMPROVEMENT IN APPARATUS FOR EXTRACTING SACCHARINE MATTER FROM CANE, &c.

Specification forming part of Letters Patent No. **141,316**, dated July 29, 1873; application filed July 21, 1873.

To all whom it may concern:

Be it known that I, MARIUS S. BRINGIER, of the parish of Ascension, in the State of Louisiana, have invented certain new and useful Improvements in the Method of and Apparatus for Extracting Saccharine Matter from Cane and other Vegetable Saccharine Substances, of which the following is a specification:

In Letters Patent No. 140,461, dated July 1, 1873, I have described a process of extracting the saccharine by first slicing the cane, or other vegetable, then drying it in a heater, and then passing it through digesters or displacement-chambers, through which water is caused to flow in a direction opposite to the movement of the slices or "cosettes."

My present invention, while in part embodying the same general idea developed in my said patent, contemplates a preliminary treatment of the cane and a partial extraction of its saccharine before it is divided or cut up and heated, and further exhausted. To this end I pass the saccharine substance through the pressure-rollers of an ordinary sugar-mill, for instance, so that it will issue therefrom as ordinary bagasse, and then convey the bagasse to the cutting apparatus, whence it passes into and through the heater, and thence to another set of pressure-rollers; or it may pass from the heater through digesters or displacement apparatus, as described in my aforesaid patent, before being subjected to final pressure. I employ, in order to divide the bagasse, a cutting device of peculiar construction, and particularly designed to divide bagasse, although it may be used to cut any other saccharine substance. An apparatus adapted to carry my invention into effect is represented in the accompanying drawing, in which—

Figure 1 is a side elevation of said apparatus. Fig. 2 is a plan of the same, the top of the heater and the digesters being broken away to allow their rotary feed worms or blades to be seen. Fig. 3 is a perspective view of the cutting device just referred to.

A represents an ordinary sugar-mill, which, by an inclined chute or hopper, A', is connected with the cutting mechanism B, constituting part of an apparatus such as described in my

said Letters Patent above named. This apparatus is the same in principle and operation as that described in my patent, and therefore requires no description here, further than to state that C is the heater; D D, the digesters or displacement vessels or chambers; E E, the elevators; and F, the final pressure-rollers for squeezing the exhausted bagasse.

The cane or other substance to be operated on is first fed to, and caused to pass through, the mill A; thence it is conveyed as bagasse, through the chute or hopper A', to the cutting mechanism B, by which it is cut up, the pieces falling thence into the heater, through which, and the remainder of the apparatus, it passes in the manner stated in my patent No. 140,461, being subjected, in its passage, to the action of a stream of water moving in a contrary direction, as also therein described.

The effect of the whole operation is to very thoroughly exhaust the cane of its saccharine. This exhausting process is initiated in the sugar-mill A, which removes some of the juices, and from which the cane issues crushed and disintegrated as bagasse. In this condition it is still further divided and cut up into small pieces, which, after treatment in the heater to evaporate their juices, are washed out and exhausted in the digesters, passing out through the final pressure-rollers.

It will, of course, be understood that the organization of the apparatus may be considerably varied without departure from my invention, and that the cane, after passing between the pressure-rollers of the mill, can be conveyed by any suitable means, and in any convenient manner, to the cutting mechanism.

The method above described, which embraces the employment of the digesters intermediate between the heater and final pressure-rollers, is adapted to thoroughly exhaust and extract the saccharine; but I can dispense with those digesters, and after passing the cane through the mill, and then cutting it up and carrying it through the heater, I can convey it thence directly to pressure-rollers, such as seen at F. This process would increase the yield of saccharine from ten to fifteen per cent. over that obtained from the ordinary mill, but it would not, however, exhaust the plant or bagasse of its saccharine, as in the other case.

In the drawing I have represented a cutting mechanism adapted particularly to operate on bagasse. It consists of a metal roller, *a*, armed on its periphery with horizontal blades or cutters *b* extending the length of the roller. With this cutter-roller is employed a smooth-surfaced roller, *c*, against which the cutters are made to bear, for the purpose of cutting the bagasse passing between said rollers. *A'* is a hopper to supply the bagasse, and *d* are cog-wheels on the axis of rollers *a* and *c*, meshing with one another, to revolve the rollers in opposite directions, when power is applied to revolve the pulley *e* fixed on the axis or shaft of roller *a*. The journal-boxes of either or both of the rollers may be made adjustable, so as to permit the rollers to be set more or less closely together, as required. In the drawing, Fig. 1, the boxes of roller *c* are made thus adjustable, their position being controlled by set-screws *f*. The cutting mechanism is supported in suitable framing above the mouth of the heater *C*, in such position that the pieces of bagasse dropping down between them will fall into the heater.

The operation of the cutter device is as follows: On leaving the pressure-rollers of an ordinary sugar-mill, the bagasse is conveyed to the said device, so as to be delivered above and between the rollers. The rotation of these rollers causes the blades or cutters to cut the bagasse, and the reduced or divided material as it drops down from between the rollers is conveyed to the heating-chamber for the purpose of being treated or worked, as hereinbefore specified.

I do not limit myself to the exact arrangement of the cutting mechanism, nor shape or location of the cutting-blades, as the same may be varied to some extent without departure from my invention. The number of cutting-rollers may be increased, if desired, and in lieu of employing a smooth-faced roller or roll-

ers, I can use a pair or pairs of cutting-rollers, so placed and adjusted together that their blades will work together, so as to give a shear-cut on the bagasse.

I would remark that, in heating the bagasse or cane, there should be no contact of these substances with the steam, which is the heating agent, inasmuch as the condensation of the steam would produce juices that would require a large amount of fuel.

Having described my invention, and the manner in which the same is or may be carried into effect, what I claim, and desire to secure by Letters Patent, is—

1. The treatment of sugar-cane or other saccharine vegetable substance, for the purpose of extracting the saccharine therefrom, by first subjecting it to pressure, as in the ordinary sugar-mill, and then dividing or reducing it into small pieces, which are subjected to subsequent heating and pressure, substantially in the manner and by the means shown and described.

2. The method of extracting saccharine from sugar-cane and other vegetable saccharine substances by subjecting the same to preliminary pressure, as in the ordinary sugar-mill, followed by the process described in my Letters Patent, No. 140,461, of July 1, 1873, substantially as set forth.

3. The herein-described cutting mechanism for dividing the bagasse or other saccharine vegetable substance, the same being constructed and operating substantially as shown and specified.

In testimony whereof I have signed my name to this specification before two subscribing witnesses.

M. S. BRINGIER.

Witnesses:

ARTHUR BARBARIN,
PAUL DUCATEL.