(No Model.) 2 Sheets—Sheet 1.

A. S. WHEELER.

BAGASSE WASHING AND SACCHARINE EXTRACTING MACHINE.

No. 276,513. Patented Apr. 24, 1883.

Fig. 1

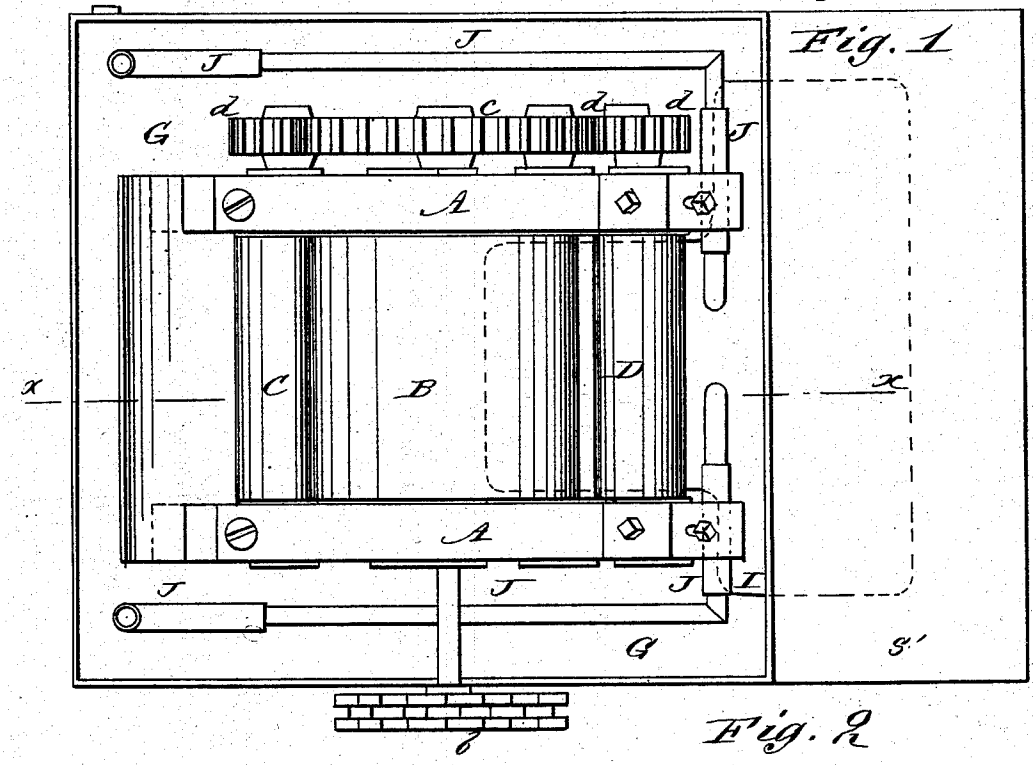
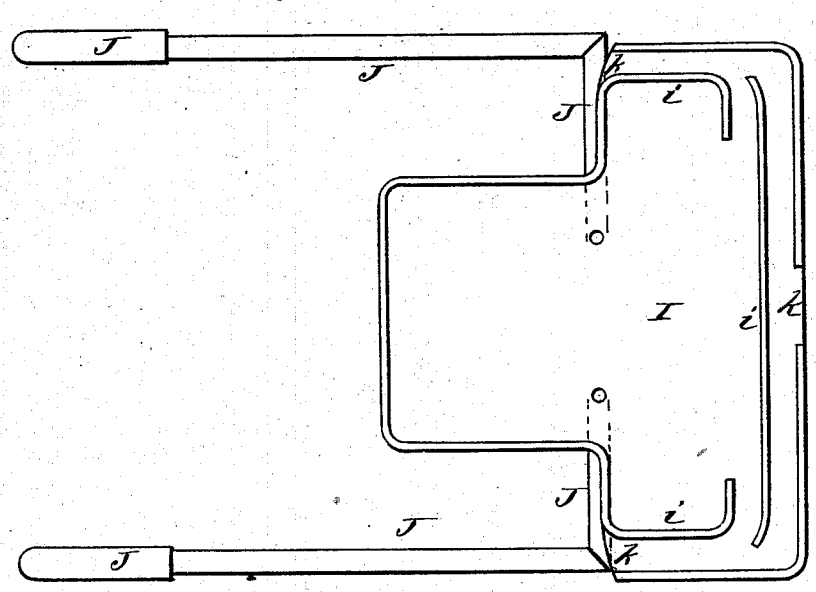


Fig. 2



WITNESSES:

C. Neveux

E. Bedgwick

INVENTOR:

A. S. Wheeler

BY Munn & Co

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

A. S. WHEELER.

BAGASSE WASHING AND SACCHARINE EXTRACTING MACHINE.

No. 276,513. Patented Apr. 24, 1883.

Fig. 3

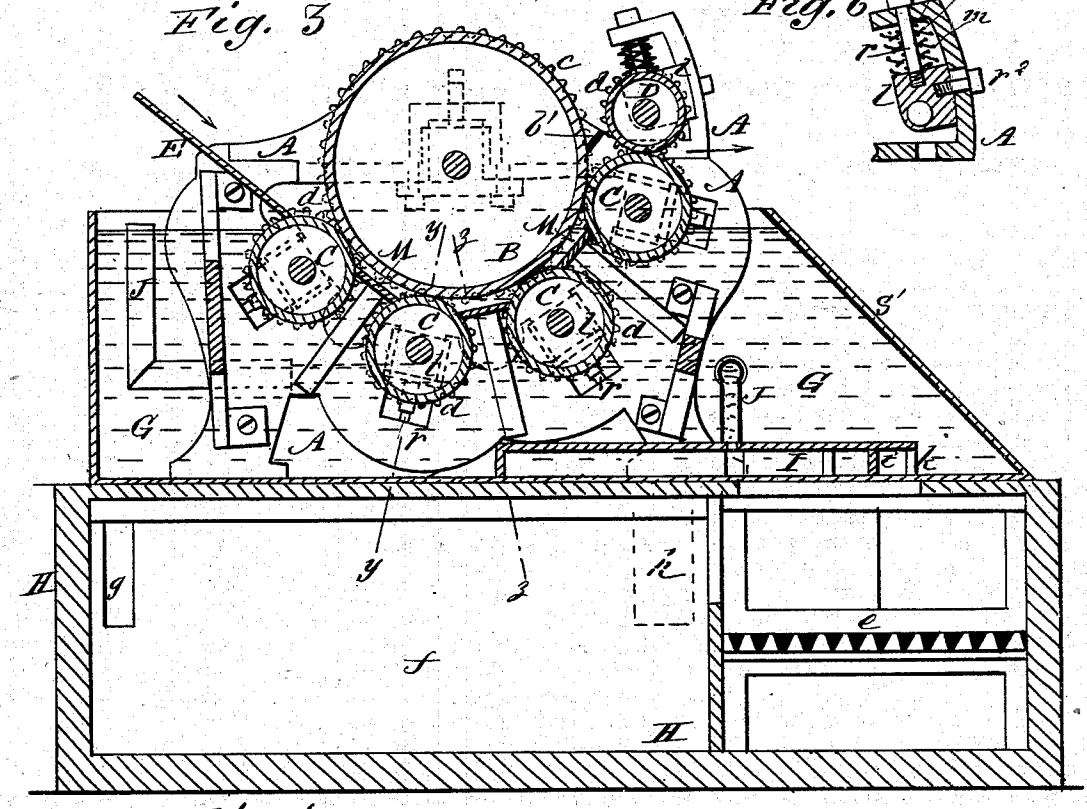


Fig. 6

Fig. 4

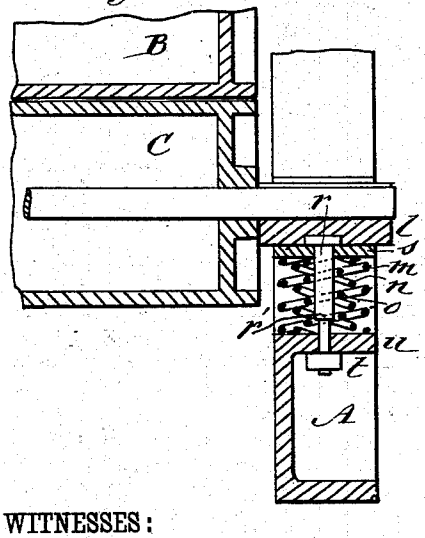
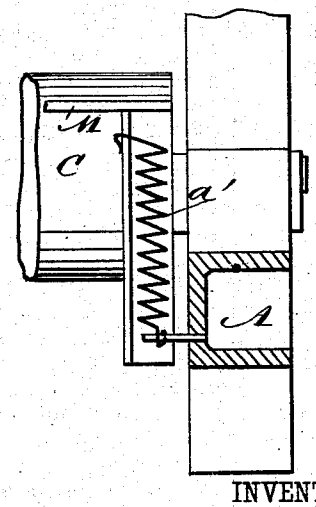


Fig. 5



WITNESSES:

C. Neveux

C. Bedgwick

INVENTOR:

A. S. Wheeler

BY Munn & Co

ATTORNEYS.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

ALGERNON S. WHEELER, OF NEW ORLEANS, LOUISIANA.

BAGASSE-WASHING AND SACCHARINE-EXTRACTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 276,513, dated April 24, 1883.

Application filed August 25, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALGERNON SIDNEY WHEELER, of New Orleans, in the parish of Orleans and State of Louisiana, have invented certain new and useful Improvements in Bagasse-Washing and Saccharine-Extracting Machines, of which the following is a full, clear, and exact description.

This invention relates to apparatus or machines for extracting saccharine matter from bagasse or ground cane.

The invention generally consists in a combination of compressing-rolls arranged within a hot-water vat for saturating the bagasse and for dissolving the saccharine matter; also, in an ebullition-tank arranged within said vat, and telescopic tubes for injecting liquid or steam onto the bagasse, and in various constructions and combinations of parts, whereby the efficiency of the apparatus is promoted, substantially as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved apparatus; Fig. 2, an inverted plan view of the ebullition-tank with its attached telescopic pipes; Fig. 3, a vertical longitudinal section on the line *x x* in Fig. 1; Figs. 4 and 5, transverse sections, in part upon an enlarged scale, on the lines *y y* and *z z*, respectively, of Fig. 3; and Fig. 6, a sectional view of the yielding bearing of the delivery-roll with its attachments.

A in the drawings indicates a frame of any suitable construction, and which serves to carry a main roll, B, and a series of smaller parallel rolls, C C and D, the ones C C of which work in juxtaposition with the main roll, and the one D of which is a delivery-roll. On the shaft of the large or main roll B is a chain-wheel, *b*, for communicating rotary motion by a chain to said roll from a chain-wheel on the sugar-mill, adjacent to or back of which my bagasse-washing and saccharine-extracting apparatus is set. A spur-wheel, *c*, upon the shaft of the roll B and pinions *d d d* on the rolls C C and D transmit the necessary rotary motion to the rolls C C D.

It is designed that the several rolls receive the bagasse as fast as it is made by the sugar-mill, a feed board or apron, E, being used, if desired, to conduct the bagasse to them.

The frame A and rolls carried by it are all arranged within a vat or pan, G, which is mounted upon suitable brick-work, H, made to form a furnace, with arch and flues for heating said vat, which is partially filled with water, so as to cause the lower rolls to be immersed in hot or boiling water for the purpose of dissolving, while the rolls, by their compressing action, extract the saccharine matter from the bagasse.

The general operation may be briefly described as follows: The machine being set in operation, the bagasse introduced over the feed-board E is first compressed between the main roll B and advance lower roll C, and as it leaves the latter is expanded and caused to absorb hot water in the vat G. It then passes on for a repetition of the action successively between the other rolls C and the main roll B, expanding and absorbing the water or liquid between each roll C, and is finally delivered by or beneath the suitably-rotating delivery-roll D in a comparatively dry condition.

To more perfectly extract and dissolve the saccharine matter, I place in the bottom of the vat G an inverted ebullition-pan, I, and arrange the same immediately over the fire or hottest part of the furnace, and by ebullition cause the hot water or liquid and steam to be projected upon the bagasse while passing onto the feed-board E, or before entering between the rolls, by means of pipes J, connected with the pan I and made telescopic, so that they may be placed in any desired position to operate upon the bagasse as it enters or is received by the machine.

The furnace may consist of a fire-place, *e*, extending across the brick structure H, and a central longitudinal division-wall, *f*, forming direct and return flues on opposite sides of it, and connected by a back opening, *g*, and terminating in an aperture, *h*, from the return-flue to the chimney, thereby giving heat under the whole vat G.

The ebullition-pan I is preferably of T shape, with its head extending over the fire-place *e*

and its leg or wing back over the flues, and is provided with suitable circulating-strips, *i*, and apertures *k*, as shown in Fig. 2.

The end *s'* of the vat G over the fire-place is made inclined, to provide a free delivery for the bagasse and additional length of vat over the furnace. A faucet may be fitted to said vat, so that as the water in it becomes too thick or heavily charged with sirup to make it serviceable on the bagasse by reason of the evaporation which takes place or deposit of saccharine matter it may be emptied or drawn off, and the vat be refilled with water.

Under or at the back of each journal-box *l* of the rolls C are steel spiral springs *m*, *n*, and *o*, (seen more clearly in Fig. 4,) and combined with these are set-bolts *r*. These set-bolts serve the double purpose of holding the springs sufficiently compressed or under tension to allow of the rolls C meeting or nearly meeting the main roll B without permitting of their bearing against it to produce objectionable friction or to cause the machine to labor, also of keeping said springs under heavy pressure to provide for the yielding of them whenever the bagasse is received in mats or irregularly, whereby breaking or clogging is prevented. These provisions are met by causing the heads of the set-bolts (see Fig. 4) to rest upon a follower, *s*, supported by the springs back of the journal-boxes, and by regulating-nuts *t* on the opposite ends of the bolts bearing under or against projections *u* on the main frame. Furthermore, the set-bolts *r* are constructed with a shoulder, *r'*, so that in or during the compression of the springs they have their back action through the stop or projection *u* limited to prevent the toothed gear of the rolls from becoming disengaged.

The springs at the back of each journal-box *l* are in nests of two, three, or more, so as to telescope one within the other, and each succeeding coiled spring in a nest or set is wound in a reverse direction to the one next to it. Thus the coil *m* is wound in one direction, the coil *n* in an opposite direction, and the coil *o* in the same direction as the first coil. By thus multiplying the number of springs and crossing them a stronger and better distributed spring-support is obtained and a free action is insured for each spring. The same arrangement of springs is shown as applied to the journal-box *l* of the delivery-roll D; but in this case, instead of the journal-box having its motion restricted by a stop-collar on the set-bolt *r*, to prevent the disengagement of the gearing, it has a stop-pin, r^2, arranged to pass through a slot in a support or portion of the frame A, within which the journal-box slides, as shown in Fig. 6.

Plates or guides M (shown in Figs. 3 and 5) are interposed between the rolls C C, to convey the bagasse from one roll to another. These plates should also recede, in common with the receding of the rolls C C, under a heavy pressure, to prevent the bagasse from passing under said plates and down or back between said rolls. To this end the plates M are supported or controlled by springs *a'*, which keep the plates in contact with the rolls.

Back of the main roll B is a plate, *b'*, arranged to prevent bagasse from adhering to said roll and to guide it to the delivery-roll D.

Housing should be applied to each end of the rolls to prevent bagasse from working out on the sides.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for washing bagasse and extracting the saccharine matter therefrom, the combination of a series of rolls for compressing the bagasse as it is passed in between them, and a hot-water tank or vat in which said rolls are arranged for saturating the bagasse as it passes between the rolls and for dissolving the saccharine matter exuding from the bagasse, substantially as specified.

2. In an apparatus for washing bagasse and extracting the saccharine matter therefrom, the combination of the positively-driven main roll B, a series of secondary rolls, C and D, supported in yielding bearings and geared for operation in connection with the main roll, a hot-water tank or vat, G, within the liquid contained in which the rolls C are immersed, and a furnace applied to said tank or vat for heating the water or liquid therein, essentially as and for the purposes herein set forth.

3. In an apparatus for washing bagasse and extracting the saccharine matter therefrom, the combination of an ebullition-tank, I, having attached telescopic tubes J, the hot-water vat G, within which said ebullition-tank is arranged, a furnace arranged beneath said vat and over the fire-place and flues of which the ebullition-tank is placed, and the compressing-rolls B and C C, arranged within the vat, substantially as and for the purposes described.

4. In an apparatus for washing bagasse and extracting the saccharine matter therefrom, the combination, with the main roll B and with the series of rolls C, in gear therewith, and having yielding bearings, of the yielding plates M, arranged between said rolls C, and controlled by springs for action in concert with the rolls C, substantially as herein described.

ALGERNON SIDNEY WHEELER.

Witnesses:
ANDREW HERO,
P. A. ORY.