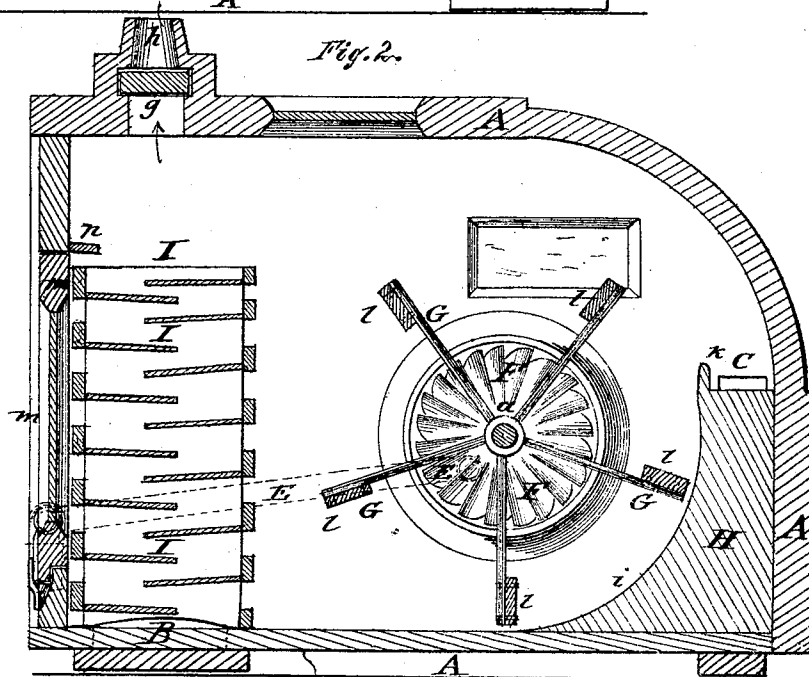
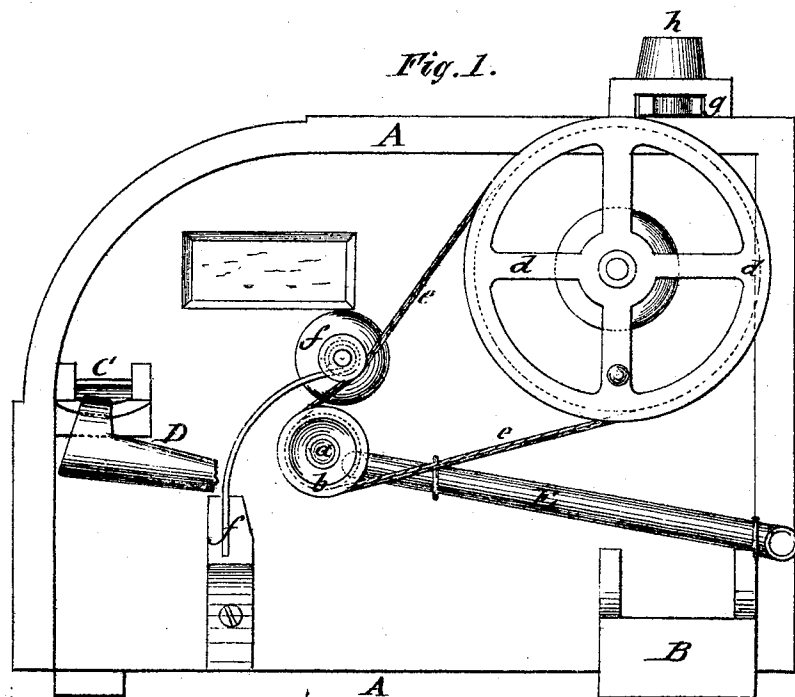


G. C. TAYLOR.
Apparatus for Treating Cane-Juice.
 No. 140,443. Patented July 1, 1873.



Witnesses:
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UNITED STATES PATENT OFFICE.

GEORGE C. TAYLOR, OF THIBODEAUX, LOUISIANA.

IMPROVEMENT IN APPARATUS FOR TREATING CANE-JUICE.

Specification forming part of Letters Patent No. **140,443**, dated July 1, 1873; application filed March 29, 1873.

To all whom it may concern:

Be it known that I, GEORGE C. TAYLOR, of Thibodeaux, in the parish of La Fourche and State of Louisiana, have invented a new and Improved Condensing-Machine for Bleaching Cane-Juice or other Liquids with Sulphurous or other Gases, and process of impregnating the juice with the same, of which the following is a specification:

In the accompanying drawing, Figure 1 is a front view of my improved condensing-machine, showing the conducting-pipe for the sulphurous gas and the driving-wheels; and Fig. 2 is a vertical longitudinal section of the same, showing interior arrangement.

Similar letters of reference indicate corresponding parts.

The object of my invention is to construct an improved condensing-machine for sugar plantations and chemical establishments, by which cane-juice and molasses may be rapidly bleached without allowing the escape of sulphurous gases from the machine to the other parts of the building. The annoyance arising to workmen from the escape of gases is prevented by my machine, and the thorough action of the sulphurous acid on every particle by a process of impregnation of the juice obtained.

By a fan-wheel the required supply of gas is regulated, and the action of the same on the juice effected by a centrifugal or spray wheel in connection with a reacting arch and absorbing shelves, producing a thorough contact of the gas with the greatest surface of juice.

In the drawing, A represents the outer casing of the condensing-machine of rectangular shape with one corner rounded off in the shape of an arch. Casing A is made of wood or other suitable material, and constructed in such a manner that the sulphurous gases cannot escape. The supply-tube B admits the juice by a slot in the bottom of the casing A to the interior thereof, and prevents any escape of the gas thereby. The juice after having passed through the machine is discharged by means of a spout, C, and conducting-trough D at the base of the arched part, and forces its way by a slot in the same manner as on entering, preventing thereby any escape of

gas. A conducting-pipe, E, communicates with the furnace when the sulphurous-acid gases are generated, and enters at the side near the central part of the casing A. A shaft, *a*, turning in suitable journals, has a pulley, *b*, keyed outside the casing, which connects with the driving-wheel *d* by ropes *c*, being held thereon by idler *f*, and transmits the motive power to the fan-wheel F, and spraying or centrifugal wheel G keyed inside of casing A to shaft *a*. The fan-wheel F increases the draft of the fumes into the machine, and thereby the condensation of the gas. When only a small feed of juice passes through the machine the spraying-wheel creates a sufficient draft for slight condensation. The valve *g* and escape-pipe *h* at the top of the machine carry off the excess of fumes and regulate the degree of condensation. Valve *g* is left open when the machine is not in motion, and allows the fumes from the furnace to escape without annoying the laborers. In the interior of the machine, below the arched part, which is constructed concentrically to the shaft *a* of the wheel *g*, is arranged below discharge-spout C the wall or body H, which connects with the bottom part of the casing by a tangential arc, *i*, also concentric to shaft *a*. The vertical continuation of arc *i* ends in the projecting piece *k*, which serves to collect the juice dripping down from the arched top. The paddles *l* of the spraying-wheel G pass near the bottom and along arc *i*, carrying up with them the cane-juice entering from supply-trough B. The juice is thrown along the tangential extension to the arched top, and the greater part thrown forward by reaction, falling on absorbing-shelves I arranged suitably above supply-trough B. The absorbing-shelves I are placed under slight inclination to each other, so that the sulphurous gas can act thoroughly on the juice when passing over the shelves. The action of the gas of sulphurous acid not being instantaneous, like chlorine, requires a longer exposure of the juice. The continuous action of the centrifugal wheel G on the juice, combined with the spraying and passing over the shelves, allows the gas to operate on every particle of the juice; the same operation is continued till the juice is bleached in a satisfactory manner. A door, *m*, may be applied at

the narrow part of casing A in front of the shelves I, and a dripping-shelf, *n*, applied above it to prevent leakage. At the top of the door suitable glass windows may be arranged, so that the operation of the apparatus may be superintended through them.

This apparatus may also be used advantageously for bleaching all kinds of liquids by sulphurous and other gases, its operation not being confined to the bleaching of cane-juice and molasses.

Another application of this machine may be made as a powerful sanitary engine during epidemics by impregnating the water from the hydrants with disinfecting-agents for street washing in connection with a small steam-engine as driving power.

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

1. The fan-wheel F and spraying-wheel G *l*, arranged as specified, to be rotated together on the shaft *a* by means described, and thus cause the supply or current of gas admitted through pipe E to be proportional to the amount of juice raised by the wheel.

2. The shelves I I, alternated and inclined, as shown, to cause the cane-juice to flow from one to the other, spaces being provided for admission of gas and circulation thereof beneath each shelf, as shown and described.

3. The rotating spraying-wheel G *l* and the series of absorbing-shelves I, all arranged to operate as specified.

GEORGE C. TAYLOR.

Witnesses:

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