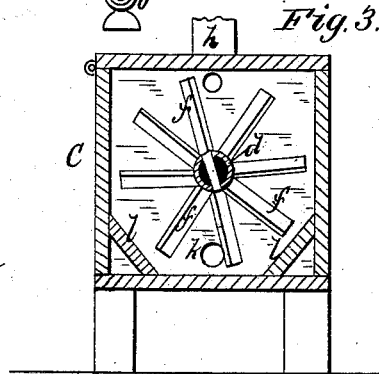
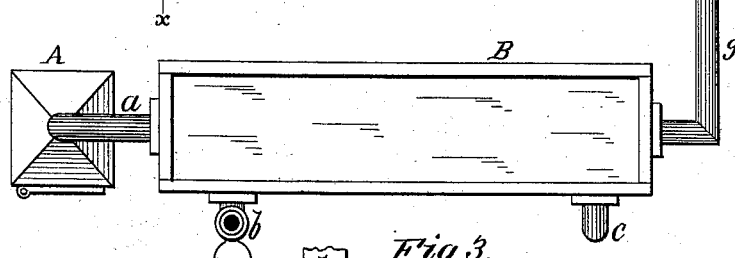
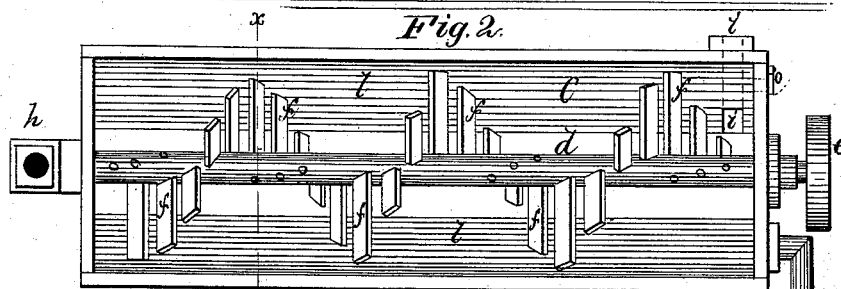
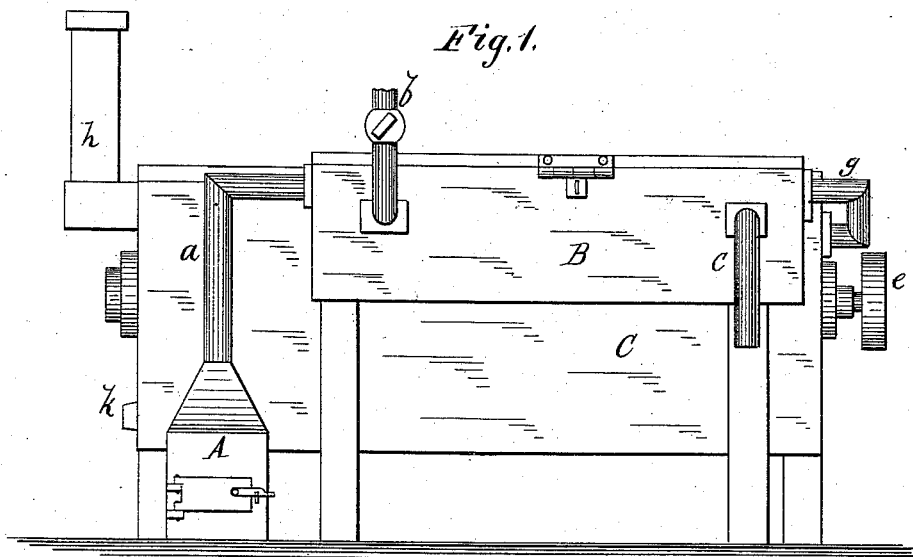


L. B. HART.
Apparatus for Defecating Cane-Juice.
No. 219,466. Patented Sept. 9, 1879.



WITNESSES:
Henry N. Miller
C. Sedgwick

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UNITED STATES PATENT OFFICE.

LEWIS B. HART, OF HOPE VILLA, LOUISIANA.

IMPROVEMENT IN APPARATUS FOR DEFECATING CANE-JUICE.

Specification forming part of Letters Patent No. **219,466**, dated September 9, 1879; application filed May 7, 1879.

To all whom it may concern:

Be it known that I, LEWIS B. HART, of Hope Villa, in the parish of East Baton Rouge and State of Louisiana, have invented a new and Improved Apparatus for Defecating Cane-Juice, of which the following is a specification.

My improvements relate to sulphur-machines for defecating cane-juice, and are for the purpose of purifying and cooling the sulphur-fumes before they enter the juice-box, and to cause the complete mingling of the fumes with the juice in the box.

The invention consists in the combination of a furnace, a water-box, and a juice-box, the latter being provided with corner-strips, spirally-arranged paddles, with their faces inclined to their shaft, and a connection with the furnace through the water-box, as herein-after described.

Figure 1 is a side view of the apparatus. Fig. 2 is a top view, the covers of the boxes being removed. Fig. 3 is a vertical transverse section on line *x x* of Fig. 2.

Similar letters of reference indicate corresponding parts.

A is the furnace, B the water-box, and C the juice-box.

The furnace A may be of any desired construction, and the fumes from the combustion pass by the pipe *a* to the box B at one end and above the water-level. The box B is fitted with a supply water-pipe, *b*, that is furnished with a cock for regulating the supply, and the water overflows by the pipe *c*, applied to the box at the other end, so that the water is maintained at a uniform level, and is constantly changing.

The juice-box C is fitted with a longitudinal shaft, *d*, that projects through a packing-gland at one end of the box, and carries a pulley, *e*, so that it may be revolved rapidly by suitable power. The shaft is fitted with flights or paddles *f*, arranged in spiral form along its entire length. At the upper end of box C it is connected with box B by a pipe, *g*, above the water-level, and at the lower end the box C communicates by an opening with a chimney, *h*. The juice enters box C by the pipe *i*, and is discharged at the lower end by pipe *k*.

The sulphur-fumes from the furnace A pass by pipe *a* to the water-box, and pass over the water to pipe *g* and box C. In passing through the box B the fumes are cooled and purified.

The shaft *d* acts by the flights *f*, to raise the cane-juice passing through and scatter it in a fine spray, so that the particles come in intimate contact with the sulphurous fumes. The flights act also to draw a current of air with the fumes through pipe *g*, and by the valved opening *o* in the end of box C, and thus assist the draft of the furnace, and the air and remaining fumes escape finally by the chimney *h*.

By this apparatus all the essential properties of the sulphurous fumes will be absorbed and every portion of the juice acted upon. The discharge-pipe *k* will be slightly elevated from the bottom of the box C, to detain the juice and give opportunity for the flights to act on every part. The bottom of the box C will also be fitted with corner-strips *l* for the same purpose.

The flights or paddles *f* will be attached in any desired manner. I prefer to use a hollow shaft, *d*, as shown, drilled for the tenon of the paddles to pass through, so that they can be wedged. The paddles may be connected removably on the shaft to permit of their adjustment and the removal of a portion when desired to diminish their number; also to change the angle of the spiral, so that the juice may be propelled more or less rapidly through the box.

I am aware that it is not new to connect the juice-box with the furnace through the water-box, or to provide the juice-box with paddle-wheels, or to mix the fumes of sulphur with cane-juice; but in my combination the spiral paddles, with their faces inclined to the shaft, act with the shaft as an exhauster to draw the sulphur-fumes and air through the box and sprayed juice and expel them into the chimney.

What I claim as new and of my invention is—

The juice-box C, provided with corner-strips *l* and spirally-arranged paddles *f*, with their faces inclined to the shaft, in combination with the water-box and furnace, as shown and described.

LEWIS B. HART.

Witnesses:

O. A. BULLION,
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