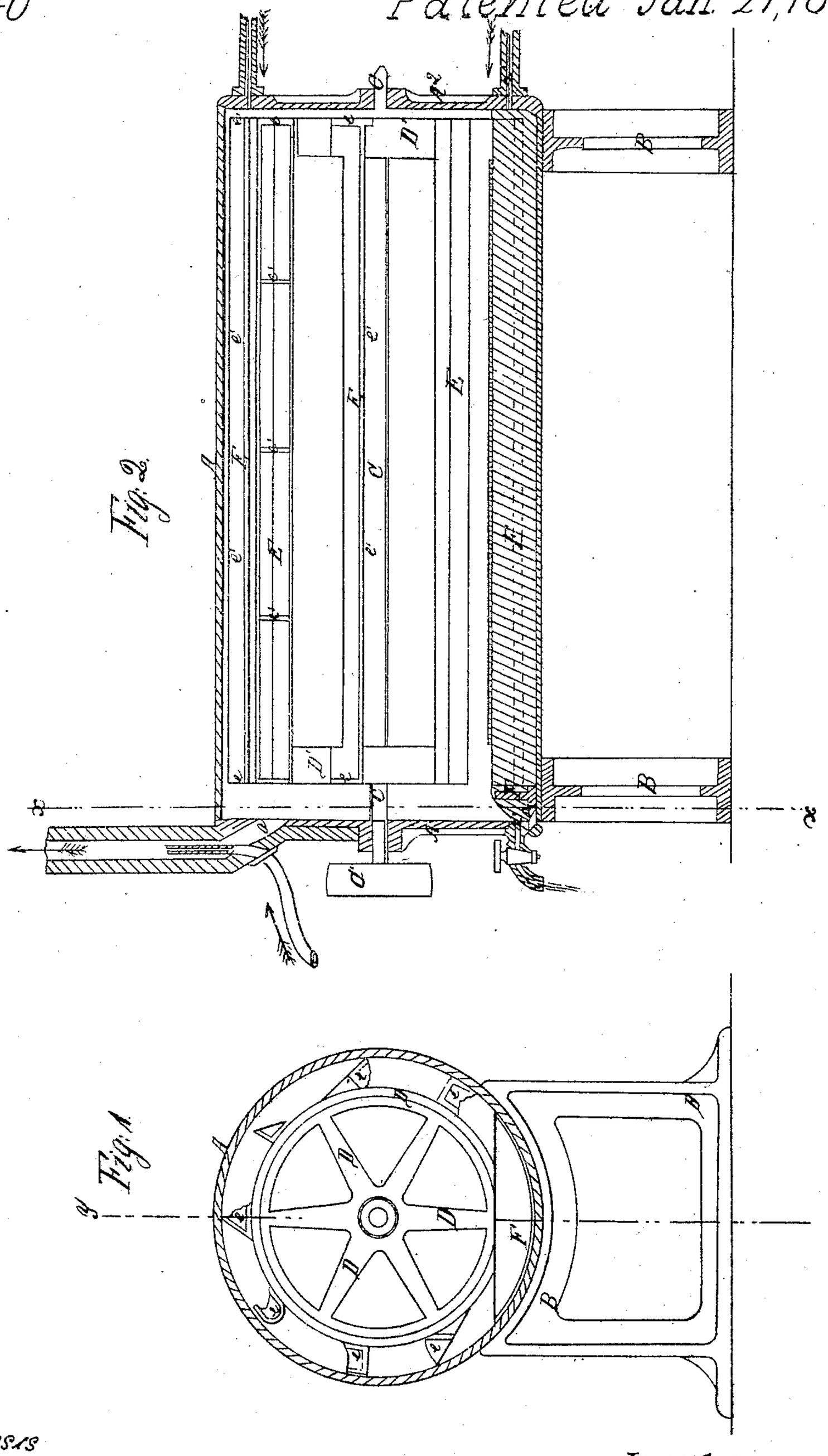
J. E. Pattison.

Treating Cane-Juice with Sulphurous Acid.

No. 73640 Patented Jan. 21, 1868.



Witnesses
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JOHN E. PATTISON, OF THIBODAUX, LOUISIANA.

Letters Patent No. 73,640, *dated January* 21, 1868.

IMPROVED APPARATUS FOR TREATING CANE-JUICE WITH SULPHUROUS ACID.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN E. PATTISON, of Thibodaux, in the parish of Lafourche, and State of Louisiana, have invented a new and useful Improvement in Apparatus for Treating Cane-Juice; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, which are made a part of this specification.

This invention relates to certain improvements or alterations in the apparatus for treating cane-juice, for which Letters Patent of the United States, No. 57,958, were granted to me on the 11th day of September, 1866. Said Letters Patent describe the use of sulphurous acid gas as a medium for purifying and bleaching the juice; and inasmuch as its functions and mode of application are the same in connection with the present apparatus, this description will be confined more particularly to the construction of said apparatus.

Figure 1 is a vertical transverse section of my improved apparatus on the line *x x*, fig. 2, and

Figure 2 is a longitudinal section of the same on line *y y*, fig. 1.

Similar letters of reference indicate corresponding parts in the two figures.

In the drawings, A represents a long cylinder, of any suitable material, which is mounted upon the pedestals or supports B B, so as to remain stationary while the operation is in progress. C is a longitudinal shaft mounted centrally within the cylinder A, and having suitable bearings in the heads or ends A^1 A^2 of said cylinder. The outer end of the shaft C is provided with a pulley, C′, to enable the shaft C to be rotated by a band driven by any convenient connection in the mill. D D D represent a series of arms radiating from the shaft C, to which they are attached and by which they are rotated. Attached to the extremities of the arms D are hoops or rings, D′ D′, which support and carry a series of troughs, E E E, which extend nearly from end to end of the cylinder A, and which revolve in close proximity with the internal circumference of said cylinder, the intention being to leave no room for juice or gas between the surface of the cylinder and the revolving troughs. The troughs E may be either curved, V-shaped, or rectangular in their transverse section, as shown, and they are closed with end-pieces, *e e*, to cause the juice to remain in the troughs till elevated to the desired position, and provided with two or more partitions, *e′ e′*, each in order to prevent the juice from rushing too much toward either end of the cylinder, and to cause the same to be poured out of the buckets at that part of the cylinder from which it is lifted. F is a projection or partition rising from the lower part of the cylinder A, in proximity to the rim *a* of the movable head A^1. This projection causes the juice in the cylinder to rise above the exit-opening a^1 before it can flow out through the same. The projection F may be movable or adjustable, or provided with a draw-cock, so that when the process is finished, the residuum retained in the lower part of the cylinder by said projection may be drawn off through the discharge-opening a^1. The juice to be treated is admitted to the cylinder through the orifice a^2 in the lower part of the head A^2, which entirely closes that end of the cylinder. a^3 is an orifice or aperture for the admission of sulphurous acid gas, which being thus introduced at the end A^2 is diffused within the cylinder, and serves to bleach and defecate the cane-juice as the latter is raised and dropped in attenuated streams or sheets. The juice being compelled to rise one or more inches in the cylinder, by the projection F, is caught by the troughs E and lifted to the points where the inversion of the respective troughs commences, and the juice is then poured out of the troughs in sheets descending in different planes according to the angles of the sides of the troughs. In this way the juice is taken up by the troughs or buckets and dropped again to the bottom of the cylinder several times before reaching the discharge-opening. By this means the juice is thoroughly subjected to the action of the gas, as both sides of each descending sheet are exposed to the gas. By this slow lifting and pouring process the juice is not dashed and agitated in large quantities as is done by the paddles or agitators of other machines, which agitation induces fermentation and foam, and prevents the effective action of the gas, it being impossible for the gas to act properly when foam or scum is interposed between itself and the naked juice. The passage of the sulphurous acid toward, and its discharge through the end A^1 of the cylinder, may be effected as well as regulated by means of a jet of steam in the chimney G, which receives and conducts off the gas as it issues from the orifice a^4. The chimney G may be of wood or other suitable material. The removable head A^1 renders the interior of the cylinder readily accessible for cleansing or other purposes.

The use of sulphurous acid is described and disclaimed in my previous patent hereinbefore alluded to, and,

as in my previous patent, the mechanical contrivance, whereby this medium is effectively applied to the juice, forms the subject of my claim.

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

1. A stationary cylinder, A, in combination with revolving troughs E, one or more, or their equivalents, said troughs being contained within said cylinder, and employed to raise and drop the juice in order to bring it under the effective action of sulphurous acid, substantially as described.

2. The projection or partition F, arranged and employed in the manner and for the purpose set forth.

3. The provision in the troughs E of the partitions *e'*, substantially as and for the purpose set forth.

JOHN E. PATTISON.

Witnesses:
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