

(No Model.)

C. D. ARMSTRONG.
CANE MILL.

No. 273,432.

Patented Mar. 6, 1883.

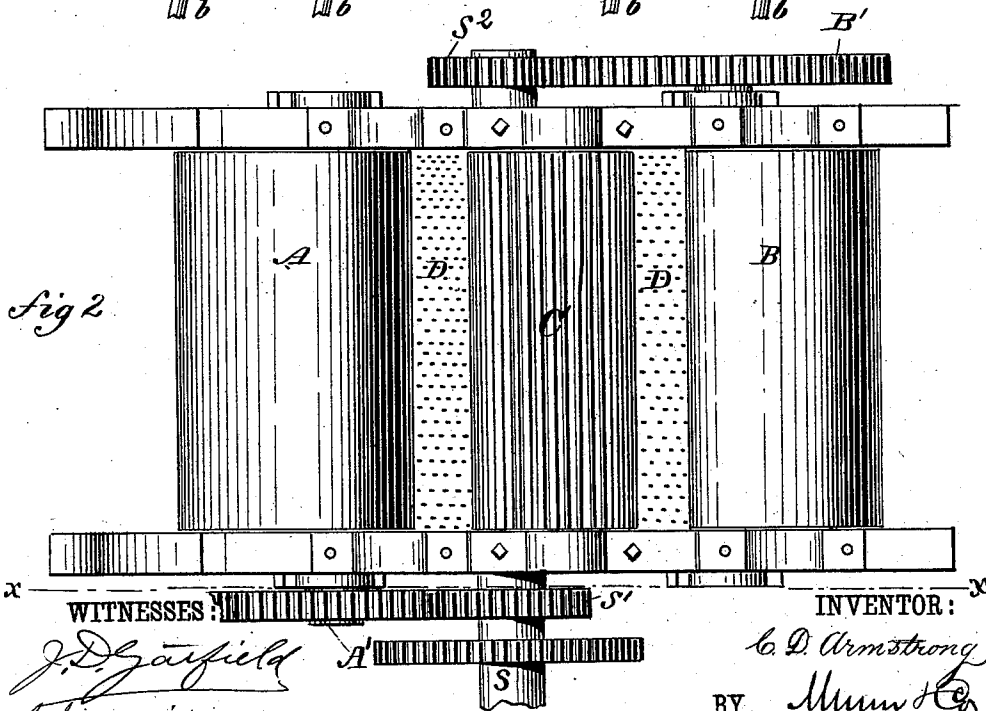
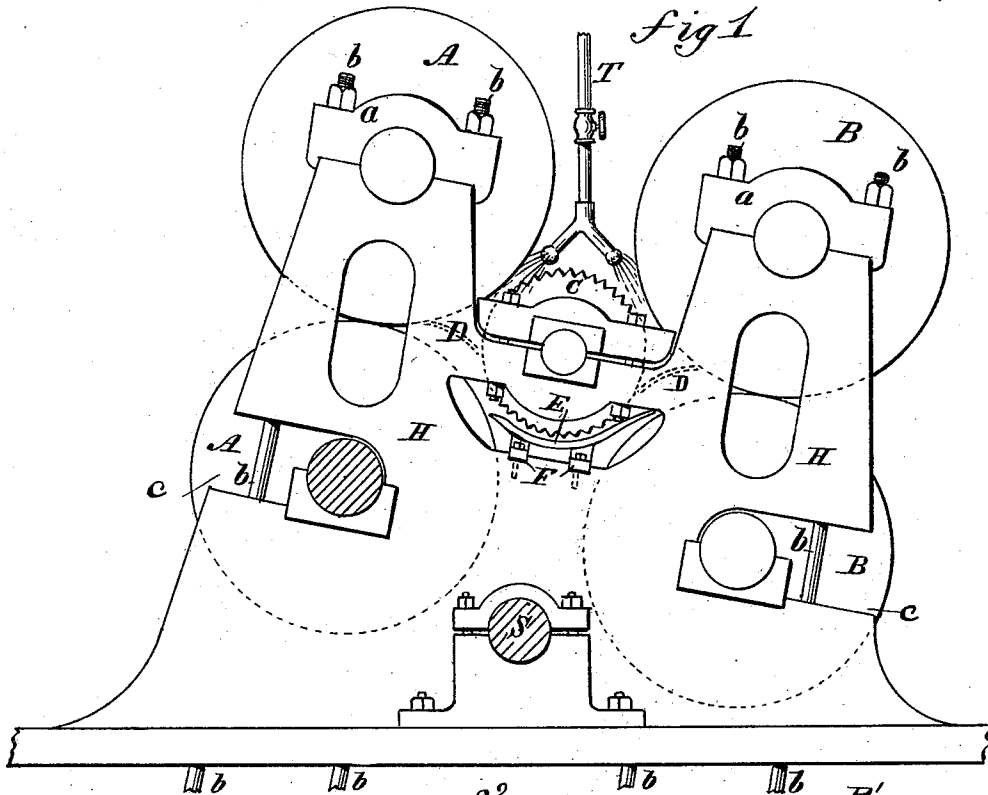


Fig 2

WITNESSES:
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UNITED STATES PATENT OFFICE.

CHRISTIAN D. ARMSTRONG, OF ST. BERNARD, LOUISIANA.

CANE-MILL.

SPECIFICATION forming part of Letters Patent No. 273,432, dated March 6, 1883.

Application filed June 19, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN D. ARMSTRONG, of St. Bernard, in the parish of St. Bernard and State of Louisiana, have invented a new and Improved Cane-Mill, of which the following is a full, clear, and exact description.

My invention consists in certain improvements in the construction of mills for crushing sugar-cane, having the object to obtain durability and a more thorough maceration of the cane and extraction of the juice, as hereinafter described and claimed.

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

Figure 1 is a sectional side elevation of a cane-mill of my improved construction on the line *x x*, Fig. 2. Fig. 2 is a plan view of the same with the upper rollers removed.

A A are the front pair of rollers for receiving the cane. B B are the second or finishing rollers, and H H are the housings in which the two pairs of rollers are sustained. C is an intermediate roller having a corrugated surface.

D D are perforated guide-plates, projecting at opposite sides of the roller C, between the two pairs of rollers A A and B B.

E is a pan fitted beneath the roller C, and in which this roller works, which pan is sustained upon lugs F on the housings H H.

The driving-shaft S is provided with two pinions, S' and S², one at the outer side of each housing, in which the rollers are journaled.

The lower roller A is provided with a cog-wheel, A', engaging with the pinion S', and the lower roller B is provided with a cog-wheel, B', engaging with the pinion S², whereby the lower rollers A and B will be rotated. The speed of these rollers can be varied by varying the size of the corresponding pinions and cog-wheels.

T is a pipe for supplying water, provided at its lower end with branch pipes, that extend in the proper direction for discharging water upon the guides D. The two upper rollers A B are sustained in boxes at the upper part of the housings H, that are provided with caps a,

held down by long bolts *b*, which pass at the side of the housings through the base of the machine, to which they will be securely fixed. The lower rollers A B are sustained in boxes that are fitted in open mortises *c* in the sides of the housings H, so that the bearings are open to the air and readily accessible for applying lubricating materials. At the same time these lower rollers can be readily removed without displacement of the top rollers. The axis of the upper rollers in each pair is set forward of the axis of its lower roller, so as to facilitate the free discharge of the juice. With the rollers arranged in this manner the bearings of the lower rollers are at the heaviest and strongest part of the housings, and the pressure and strain are entirely vertical, so that the breakage of any parts except of the caps and bolts is impossible.

The intermediate roller, C, is driven by the frictional contact of the bagasse between it and the pan E, and while acting as a macerator upon the cane, in its passage from the first to the second pair of rollers, also serves to carry the cane mashed by the first pair of rollers in a continuous feed to the second pair, thus obviating the necessity for a carrier between the two pairs of rollers. The cane is thus subjected to two distinct pressures and an intermediate maceration, and at the same time the cane is saturated in its passage through the pan E, to which water or other fluid is supplied by the pipe T. The pan E acts as a guide-plate to guide the bagasse from the rollers A to the rollers B, and it may be readily removed and replaced without more than a momentary stoppage of the mill. This pan overflows to the main pan underlying the whole mill.

The guides D serve to direct the bagasse in its passage between the two pairs of rollers, and thereby prevent choking, and at the same time to distribute the fluid upon the mashed cane in the pan.

The top rollers A may be creased or grooved, where found more advantageous, to receive the cane.

The pan E may be made smooth or grooved, and both the pan and the corrugated roller may be perforated.

Having thus fully described my invention, I

claim as new and desire to secure by Letters Patent—

5 1. In a cane-mill, the combination, with the housings H and the rollers A B, of the intermediate corrugated roller, C, and means, substantially as set forth, whereby the bagasse is held against said roller and it is caused to be driven by the passage of the bagasse from the rollers A, as set forth.

10 2. In a cane-mill, the combination, with the housings H, the rollers A B, the lower ones of which are provided with the pinions A' B', respectively, and the drive-shaft S, provided with the pinions S' S², of the intermediate corrugated roller, C, and the pan E, fitted be-
15 neath the said intermediate roller, substantially as herein shown and described, whereby the bagasse is caused to pass between the pairs of

rollers and the intermediate roller driven by the passage of the bagasse from one set of 20 rollers to the other, as set forth.

3. In cane-mills, the intermediate corrugated roller, C, and pan E, the said roller being driven by the frictional contact of the bagasse between it and the pan, in combination with 25 the housings H and the front and rear rollers of the mill, substantially as and for the purposes set forth.

4. In cane-mills, the perforated guides D, in combination with the intermediate roller, C, 30 pipe T, and the pan E, substantially as and for the purposes set forth.

CHRISTIAN D. ARMSTRONG.

Witnesses:

ANDREW HERO, Jr.,

P. A. ORY.