A. EATON.

Sugar Cane Mill.

No. 57,883. Patented Sept. 11, 1866.

Fig. 2.

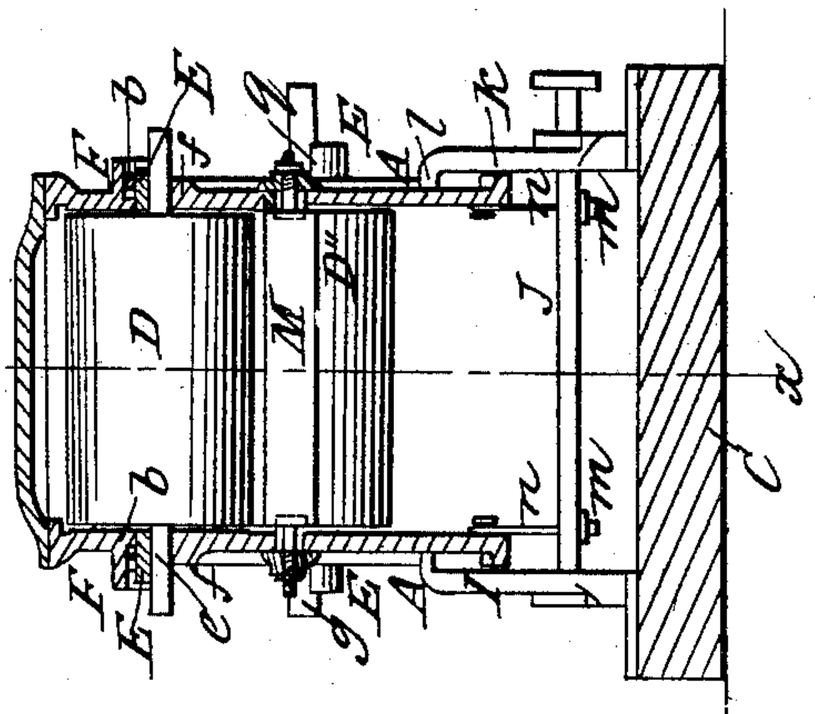

Fig. 1.

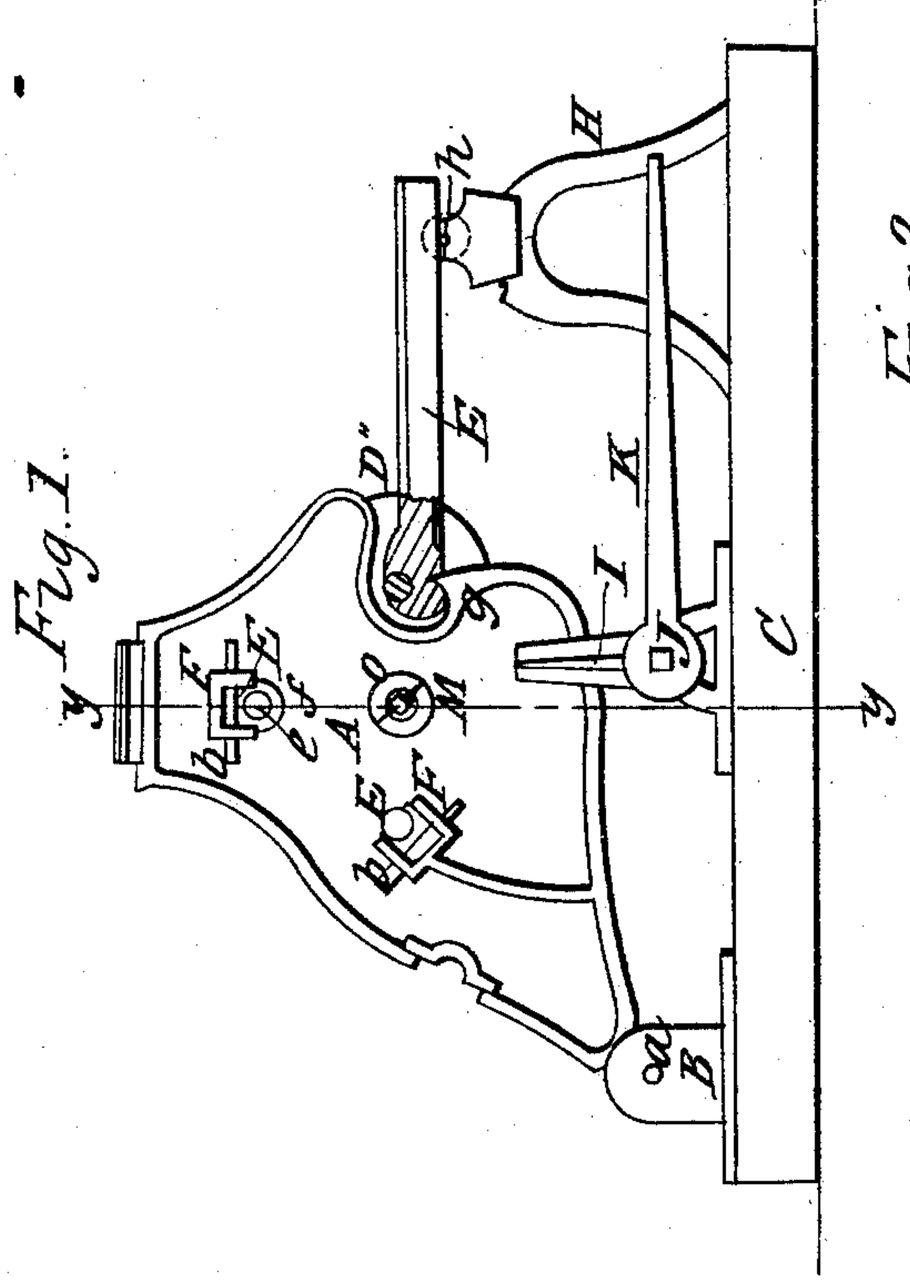

Fig. 3.

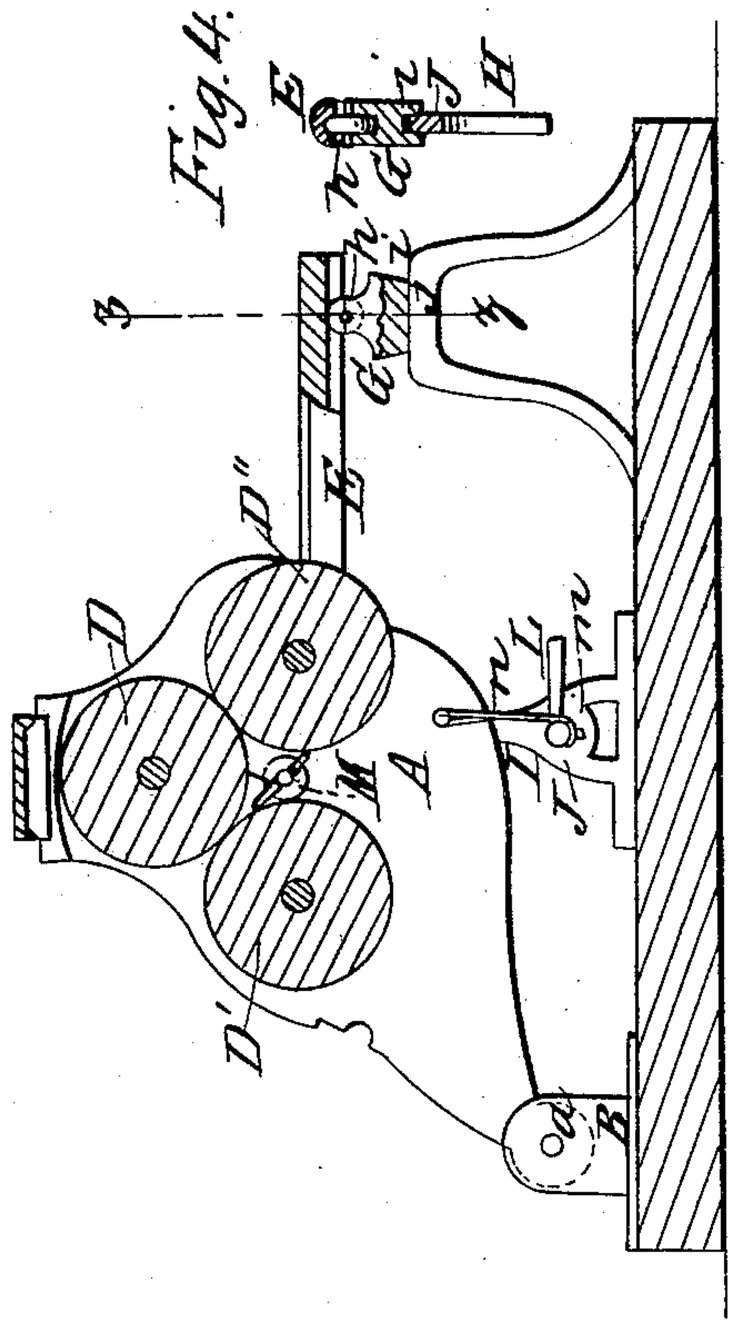

Fig. 4.

Witnesses:

Wm. Treuru

Theo Tusch

Inventor:

A Eaton

By Munn & Co

Attys.

UNITED STATES PATENT OFFICE.

ALVAH EATON, OF MADISON, WISCONSIN.

IMPROVEMENT IN SUGAR-CANE MILLS.

Specification forming part of Letters Patent No. **57,883**, dated September 11, 1866.

To all whom it may concern:

Be it known that I, ALVAH EATON, of Madison, in the county of Dané and State of Wisconsin, have invented a new and Improved Mill for Crushing Sugar-Cane; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of my invention; Fig. 2, a transverse vertical section of the same, taken in the line *x x*, Fig. 1; Fig. 3, a longitudinal vertical section of the same, taken in the line *y y*, Fig. 2; Fig. 4, a vertical section of a portion of the same, taken in the line *z z*, Fig. 3.

Similar letters of reference indicate corresponding parts.

This invention consists in a novel and improved arrangement of pressure-rollers and a frame, as hereinafter fully shown and described, whereby it is believed that a very superior mill for the purpose specified is obtained, the advantages of which will appear or be set forth in the following description.

The frame of the machine is composed of two side pieces, A A, one end of which is connected by joints *a a* to uprights B, secured to the base C, on which the device rests. In these side pieces, A A, there are fitted two rollers, D D′, which are parallel with each other, and have their bearings or boxes E fitted in pockets F, cast with the side pieces. The bearings or boxes are prevented from sliding out from the pockets by means of keys *b*, which are driven through the pockets and fit in grooves in the bearings or boxes, as shown clearly in Fig. 2. By this arrangement it will be seen that the boxes or bearings of a roller may be removed and replaced without taking the mill down.

The upper roller, D, has its journals *c* resting in half-boxes *f*, which are cast with the side pieces, A A, and serve as supports for said roller to adjust the other rollers from. The other roller, D″, (there being three rollers in all,) has its bearings at the inner ends of arms E, which rest on lips *g* at the front parts of the side pieces, A A. The outer parts of the arms E rest on rollers *h h*, which are placed in boxes G, the latter being provided with a rack, *i*, at their under side, which engage with racks *j* on the upper ends of uprights H. By this arrangement the rollers *h* may be adjusted nearer to or farther from roller D″, and the length of the arms E virtually lengthened or shortened, as occasion may require.

From the above description it will be seen that the weight of the mill is made to serve as a means for aiding in giving the pressure to the rollers D D″, and this pressure modified by adjusting the rollers *h*, on which the outer parts of the arms E rest.

The side pieces, A A, are prevented from rising too high in consequence of lips *k* at the outer surfaces of the side pieces coming in contact with lips *l* at the upper ends of uprights I, attached to the base C. In these uprights I I a rock-shaft, J, is fitted, having a lever, K, at one end of it, and two arms, L L, attached in line with the side pieces, A A. By means of these arms L L the frame of the mill is raised when the rock-shaft J is turned from right to left. The rock-shaft J is also provided with two projections, *m m*, to engage with links *n n*, attached to the side pieces, the projections *m* engaging with the links when the shaft J is turned from left to right, and drawing down the side pieces, A A, so as to increase the pressure between the rollers D D″. By this arrangement entire control is had over the mill, as regards the regulating of the pressure of the rollers aforesaid.

M is a scraper, which is constructed of a flat piece of steel, or any other suitable metal which will yield or give to a certain extent. This scraper is fitted between the rollers D D″, as shown clearly in Fig. 3, and serves as a cane-guide as well as a scraper. The ends of this scraper are fitted in caps *o* in the sides, A A, of the frame, a square being on each cap for the purpose of receiving a wrench to adjust the scraper, the scraper being provided with screws *p* at its ends, which screws pass through the caps, and have nuts *g* at their outer ends.

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

1. The employment or use in a cane-crush-

ing mill of a jointed frame or a frame hinged at one end, in connection with a roller having its bearings on arms, one end of which rest on the frame, and all arranged in such a manner that the gravity of the mill is rendered subservient in assisting in giving the necessary pressure to the rollers, substantially as set forth.

2. The rock-shaft J, provided with the arms L L, or their equivalents, and the projections *m m*, in connection with the links *n n*, attached to the frame, substantially as and for the purpose specified.

3. The adjustable boxes G, in which the rollers *h* of the arms E are fitted, for the purpose of virtually lengthening and shortening said arms, as specified.

4. The lips *k*, at the outer surfaces of the side pieces, A A, in connection with the lips *l*, at the upper ends of the uprights I I, as and for the purpose set forth.

ALVAH EATON.

Witnesses:
REUBEN NOBLE,
G. HENRY FRESE.