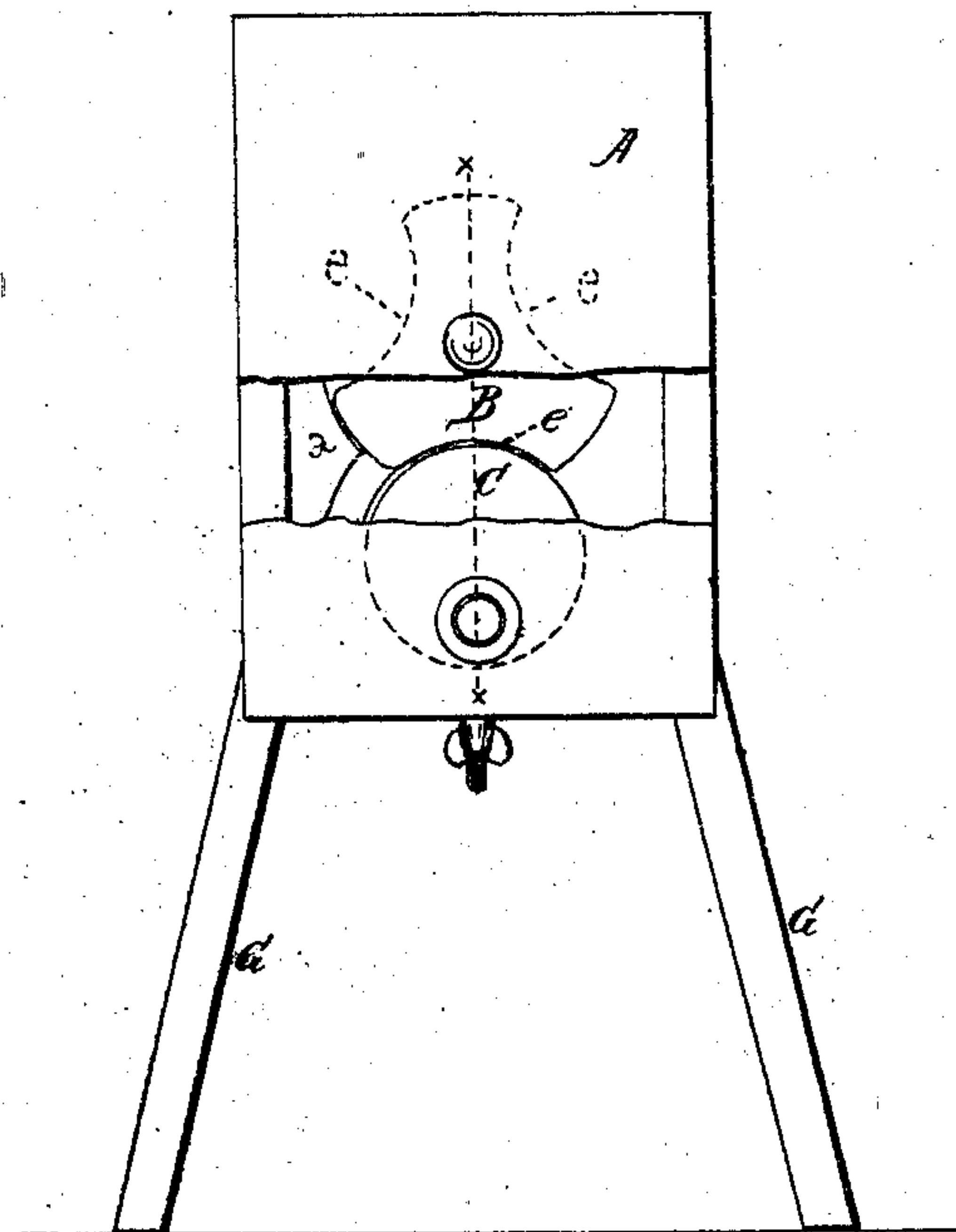


N. EATON.  
Cider-Mills.

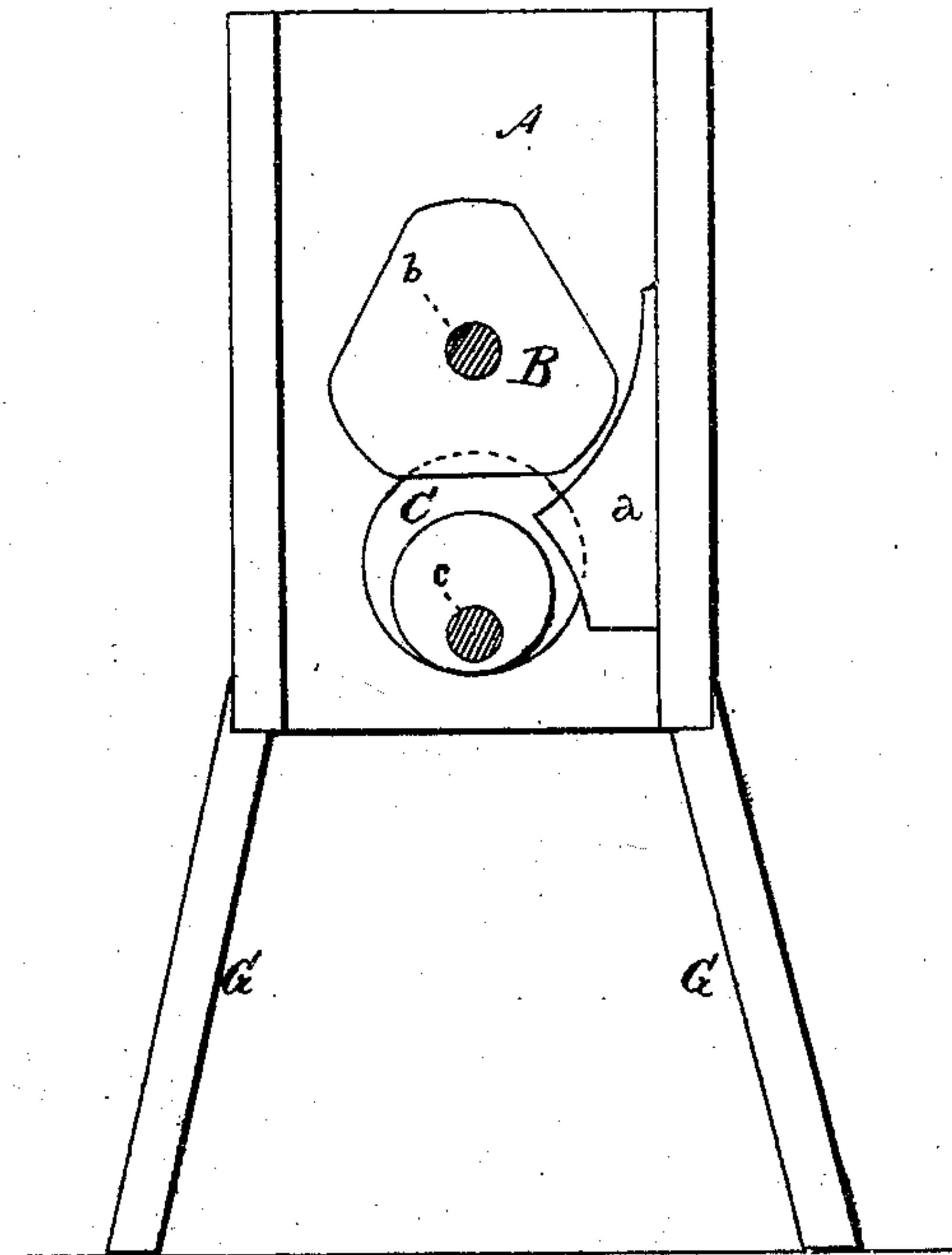
No. 133,840.

Patented Dec. 10, 1872.

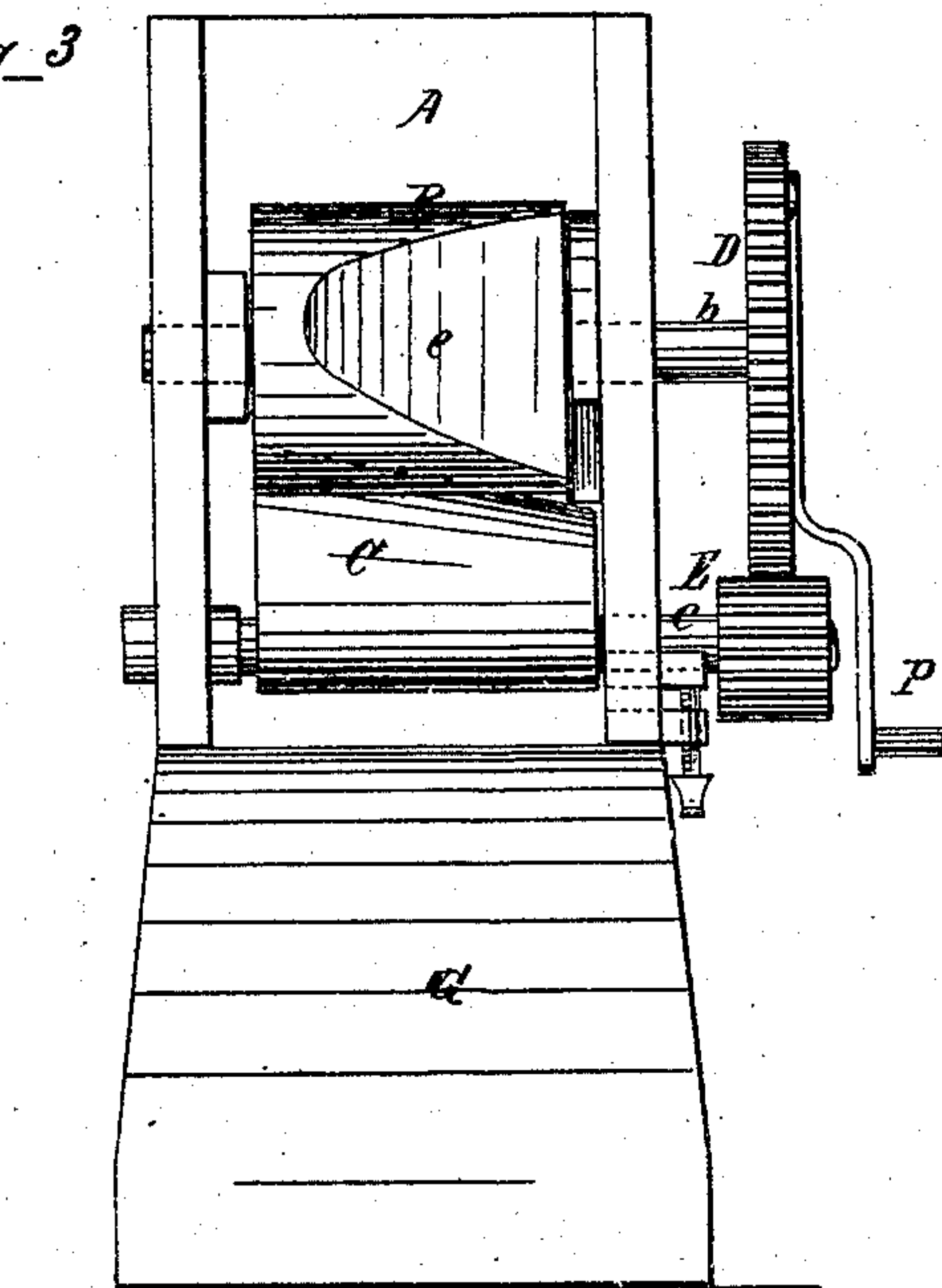
*Fig 1.*



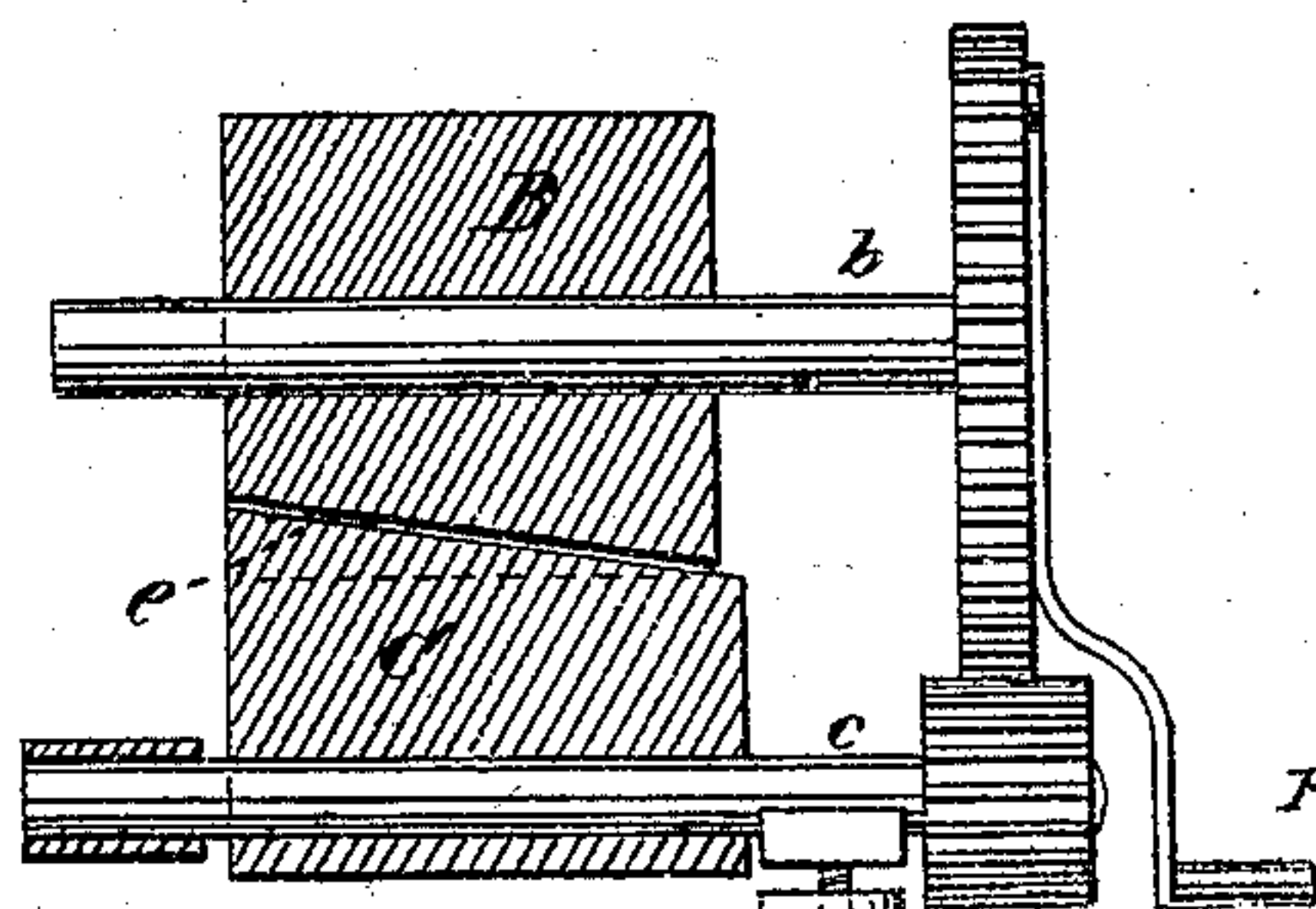
*Fig 2.*



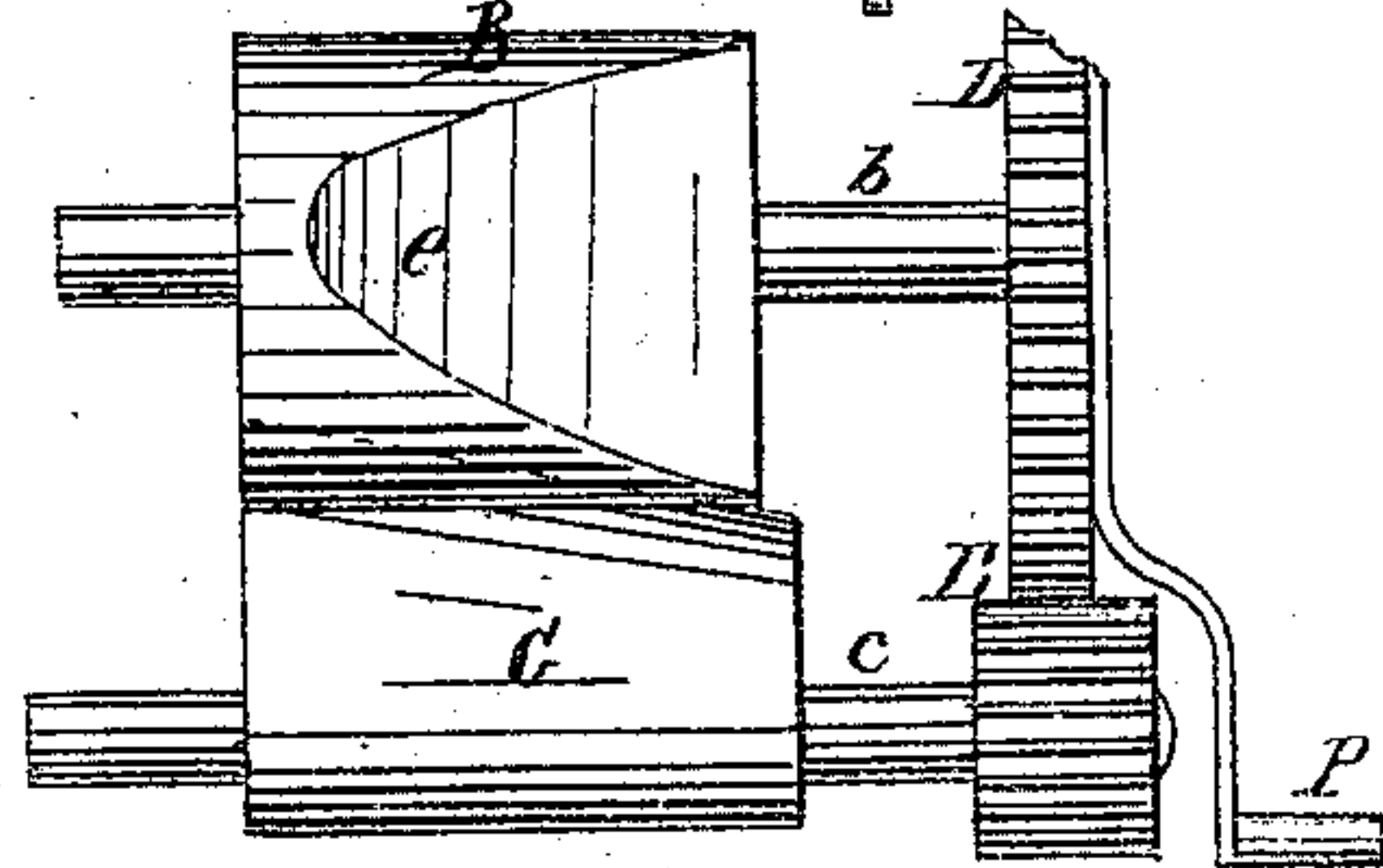
*Fig 3.*



*Fig 4.*



*Fig 5.*



*Witnesses.*  
*Geo. A. Woodward*  
*Henry D. Woodward*

*Inventor.*

*Norman Eaton*



# UNITED STATES PATENT OFFICE.

NORMAN EATON, OF WOBURN, MASSACHUSETTS.

## IMPROVEMENT IN CIDER-MILLS.

Specification forming part of Letters Patent No. 133,840, dated December 10, 1872.

*To all whom it may concern:*

Be it known that I, NORMAN EATON, of Woburn, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Cider-Mills, of which the following is a specification:

The nature of my invention consists in a novel construction of the rolls of a cider-mill to thoroughly crush and grind fruit from which juice is to be pressed.

In the drawing, Figure 1 represents a side view of the mill with part of the hopper taken away to show the rolls. Fig. 2 represents an end view of the rolls taken opposite to that in Fig. 1. Fig. 3 represents a front view of the mill with part of the hopper taken away to show the rolls. Fig. 4 represents a front sectional view of the rolls taken through them at lines *x x* and *x x* in Fig. 1, when they are revolved to such positions that these lines will form one straight line. Fig. 5 represents a front view of the rolls as made without the regulating device.

Like letters in all the figures represent like parts.

A is the hopper of the mill that holds the fruit to be ground, made with projection *a* to help confine the fruit while being ground, supported by legs G G. B and C are rolls that act together to grind the fruit, and are placed one above the other in the hopper. B is the upper roll or crusher that first takes hold of the fruit when the mill is operated, and is made with recesses or cavities *e e e*, and so shaped that when the mill is operated the under or eccentric roll C can make one revolution through each one of these recesses *e* successively while it—the upper roll or crusher B—makes one revolution, and the surfaces of both rolls keep at a fixed distance apart. This roll or crusher B may be made with more or less of these recesses *e*; but the gears D and E must be made in such proportions each to each that while the large gear D revolves once it shall revolve the small gear E and thus the roll C exactly as many times as there are recesses *e* in the upper roll or crusher B; otherwise the rolls will bind and will not work. *b* is the shaft of the upper roll or crusher B, and *c* is the shaft of the eccentric roll C. The roll C is situated

directly under the upper roll or crusher B in the hopper, and is placed eccentrically upon its shaft *c* to give the required motion when used in combination with roll or crusher B.

As the rolls are revolved this roll C meshes into recesses *e* of crusher B, breaks the fruit confined therein, and at the same time grates it against the surface of the crusher B as it revolves through the recess, into a fine pomace, and then throws it out at the lower part of the hopper. This roll C having a swift motion over the surface of the crusher B keeps it clean, so that none of the fruit will stick to it after being ground, which it would do if both rolls revolved with the same speed.

The device for regulating the mill to grind the fruit coarse or fine is arranged as follows: The recesses *e* in the upper roll or crusher B are made deep at one end of the roll, and grow shallow toward its circumference at the other end. The eccentric roll C is made larger at one end than at the other, to match the upper roll or crusher B, so that their surfaces will be parallel, but at angles with their shafts. The under roll C is made so that it can be pushed horizontally in its bearings up to the crusher B to grind the fruit fine, or drawn away from the crusher to grind the fruit coarse.

When the fruit is to be ground coarse, the under or eccentric roll is drawn away from the upper roll or crusher in position as represented in Fig. 4.

I do not claim any particular device for adjusting the under roll to or from the upper roll, which, in this instance, is done by means of a hollow set-screw, which forms a bearing for the shaft of one end of the under roll C, whose operation is clearly shown in Fig. 3 in the drawing.

When the mill is to be used for grinding only one kind of fruit the regulating device may be dispensed with, and the recesses *e* in the crusher B should be made the same depth at both ends, and the under roll C made the same size at both ends as represented in Fig. 5 in the drawing. Thus it will be evident that the first part of my invention may be used without the second.

When the mill is operated power is first ap-

plied to the upper roll or crusher B by means of handle P on the gear D. The fruit is introduced into the top of the hopper, when it is seized by the crusher B and broken into small pieces; then grated into a fine pomace, as it is confined between the recesses *e* of the crusher B and the hopper A by the under or eccentric roll C.

Having thus described my invention, what I claim is—

The fluted roller B, in combination with the eccentric roller C, when combined as set forth.  
NORMAN EATON.

Witnesses:

GEO. A. WOODWARD,  
HENRY D. WOODWARD.