F. M. ROBINSON.

Roller Mill.

No. 25,916. Patented Oct. 25, 1859.

Fig. 1.

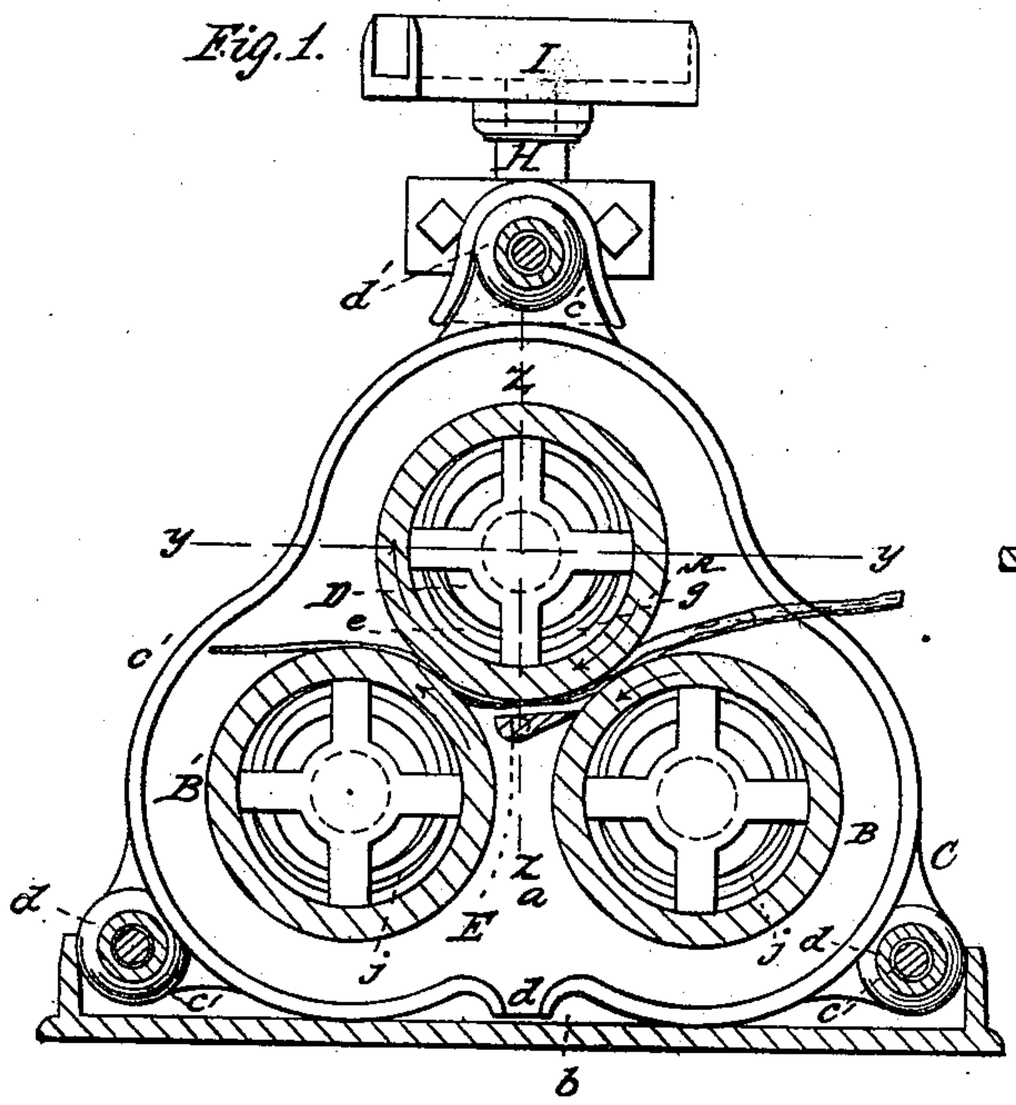


Fig. 3.

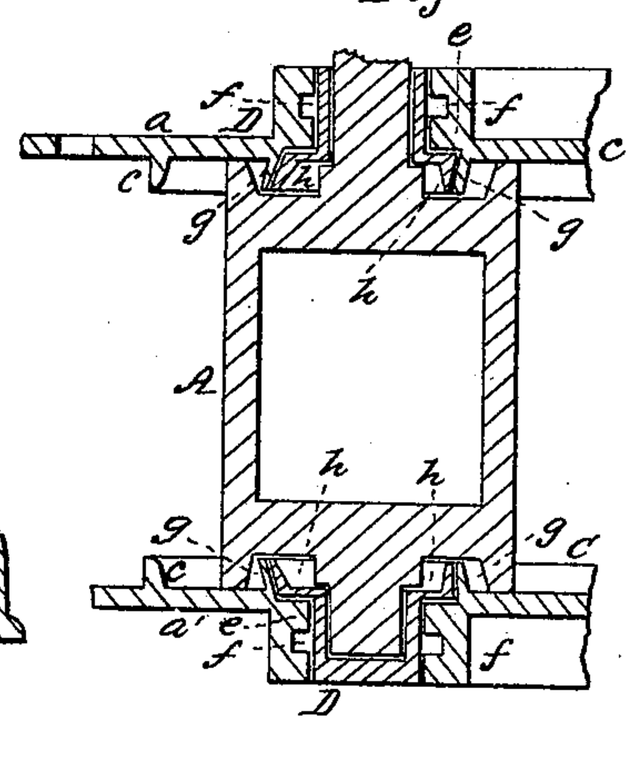
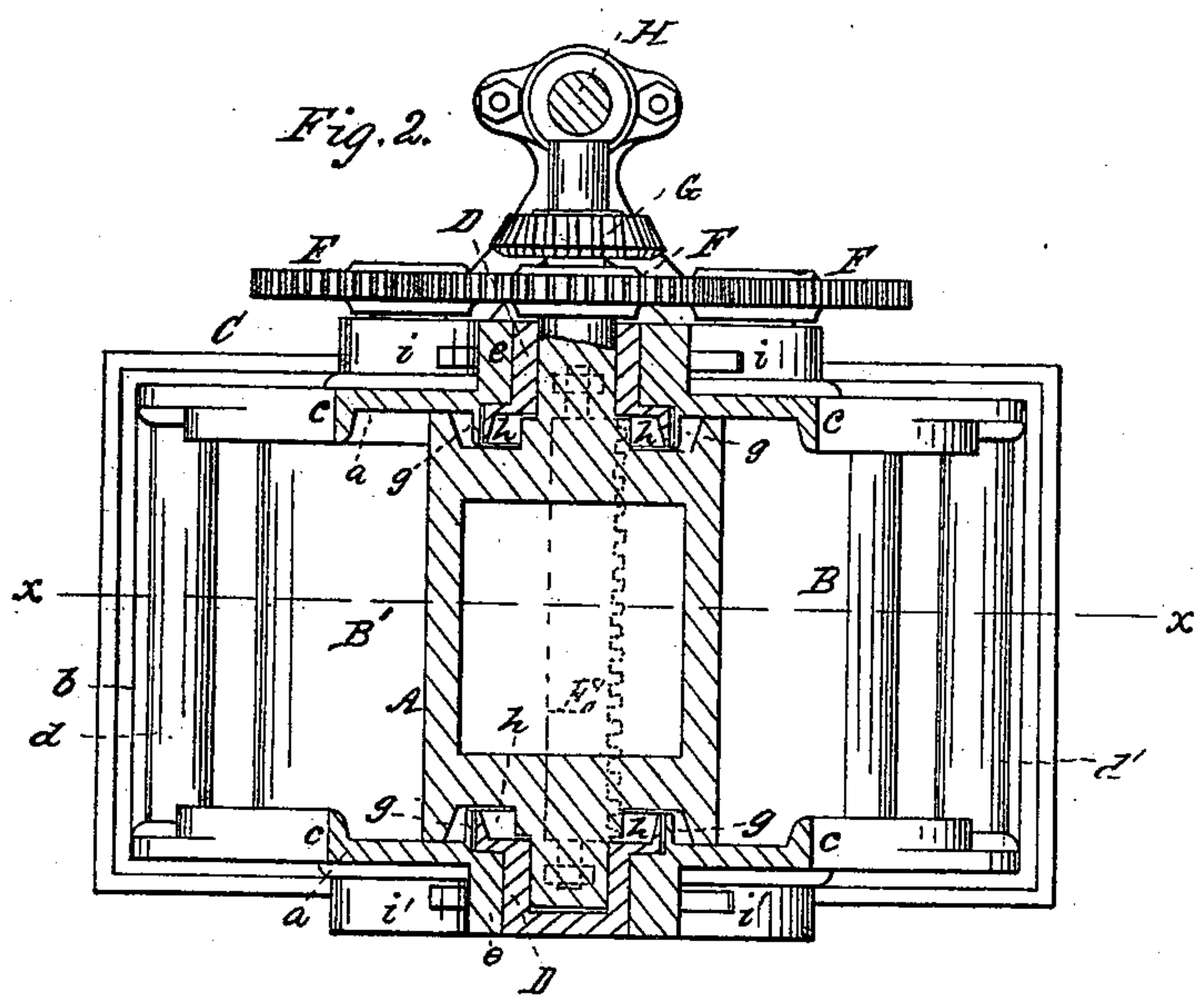


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

F. M. ROBINSON, OF CONNEAUTVILLE, PENNSYLVANIA.

IMPROVEMENT IN MILLS FOR CRUSHING SUGAR-CANE.

Specification forming part of Letters Patent No. **25,916**, dated October 25, 1859.

To all whom it may concern:

Be it known that I, F. M. ROBINSON, of Conneautville, in the county of Crawford and State of Pennsylvania, have invented a new and Improved Roller-Mill; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section of my mill, the line *x x*, Fig. 2, indicating the plane of section. Fig. 2 is a horizontal section of the same, taken in the line *y y*, Fig. 1; and Fig. 3 is a vertical longitudinal central section of the top roller, the line *z z*, Fig. 1, indicating the plane of section.

Similar letters in the three views refer to corresponding parts.

This invention relates to certain improvements in that class of mills in which three rollers are employed, the first or main roller being somewhat farther from the first of the secondary rollers than from the other, with a scraper between the two last-named rollers, which is so arranged that the cane has to pass from the first pair of rollers through under the main roller and between the second pair of rollers; and mills of this class with the latest improvements have annular ledges around the boxes of the rollers, so that the juice from the cane or other substance to be crushed is kept off the journals, and that the lubricating substance is confined between these ledges and prevented mixing with the juice.

To enable those skilled in the art to make and use my invention, I will proceed to describe it.

The rollers A, B, and B′ are arranged in a frame, C, which consists of two side plates, *a a′*, and a bottom, *b*. When the mill is to be used in a horizontal position, or when the mill is used in a vertical position, the bottom *b* is removed, and the frame C in this case consists of two plates, *a a′*, only, one on the top and one below. These plates are provided with a flange, *c*, which extends all around their circumference, one place, *d*, only being left open on the bottom part of each flange, as clearly shown in Fig. 1. This place forms a spout to conduct the juice from the plates *a a′* to the bottom *b*, or directly to the vessel provided for this purpose when the mill is used in a vertical position. The two plates *a a′* are secured together and to the bottom *b* by means of screw-rods *c′*, which pass through hollow tubes *d′*, that serve to keep the two plates the proper distance apart.

A is the main roller, the bearings of which are in boxes D, which are adjustable in sockets *e* in the side plates, *a a′*, by means of keys *f*. These sockets are surrounded by annular ledges *g*, which are inclined toward that side farthest from the secondary rollers B B′, as clearly shown in Fig. 3. The boxes D are provided with similar ledges, *h*, so that the oil or lubricating substance is confined in the boxes D, and the juice from the crushed substance is prevented coming in contact with the boxes or journals by the ledges *g*. The secondary rollers B B′ are arranged in relation to the main roller, as clearly represented in Fig. 1, the roller B being farther apart from the main roller than the roller B′, and the relative position of the three rollers is such that when the main roller is adjusted up or down by means of the keys *f*, the original proportion between the distance of this roller from the two other rollers is preserved. The bearings of the rollers B B′ are in sockets *i i′*, which are surrounded by annular ledges *j*, that are inclined toward the main roller A in the same manner as the ledges *g*, which surround the sockets *e* of the main roller. The sockets *i′* in the plate *a′* are capped over, so that when the mill is used in a vertical position the lubricating substance is prevented running off. Between the rollers B B′, and firmly secured to the side plates, *a a′*, is the scraper E, which serves to scrape off the juice from the roller B and to conduct the substance to be crushed from the first pair of rollers to the second pair. The rollers connect by spur-wheels F, and when used in a horizontal position a bevel-wheel, G, is mounted on the axle of the main roller A, which receives motion from an upright shaft, H, that carries the flanged center, I, which latter receives the sweep. When the mill is used in a vertical position, the shaft H is removed and the flanged center is secured to the axle of the main shaft.

This mill is intended principally to crush sugar-cane, and the cane is passed into the mill over the roller B, where it is partially crushed and from whence it passes over the scraper E through between the two rollers A and B′, where the juice is perfectly squeezed out. The roller B is kept clean by the action of the scraper E, and the journals are preserved from the influence of the juice by the inclined ledges

g and *j*, which conduct the juice that is wiped from the ends of the rollers by the side plates, *a a'* to the sputs *d*, and as these ledges are inclined on their upper side, no part of the juice will ever find its way into the journal-boxes of either one of the rollers. The distance of the main roller A from the secondary rollers B B' can be adjusted without interfering with the operation of the inclined ledges *g*, the boxes D of this roller being provided with similar ledges, *h*, which confine the lubricating substance within the boxes, leaving them free to move up and down by the action of the keys *f*.

When the mill is used in a vertical position, the boxes *i' i'* and one of the boxes D, which are all capped over, serve as steps for the axles of the rollers, and they retain the lubricating substance.

What I claim as new, and desire to secure by Letters Patent, is—

The combination of the flanged journal-boxes D with the flanged sockets *e*, in connection with the flanges *g h* of the above parts, all as and for the purpose herein shown and described.

F. M. ROBINSON.

Witnesses:
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