2 Sheets—Sheet 1.

A. G. MUNN, C. T. CLARK & T. BRENNAN.

CANE-MILL.

No. 192,076. Patented June 19, 1877.

Fig. 1.

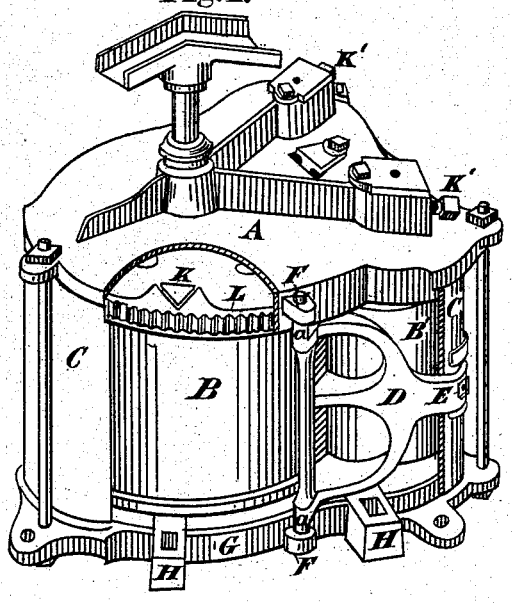


Fig. 2.

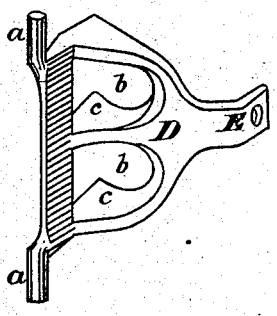
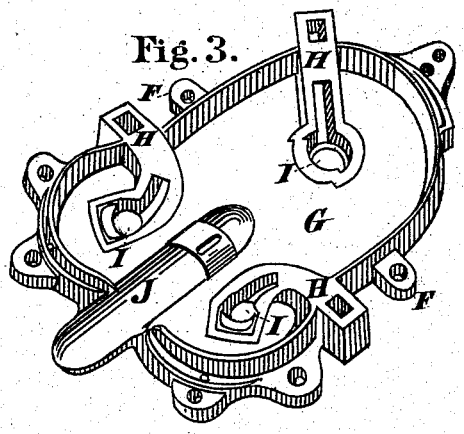


Fig. 3.



WITNESSES.

Frank Pardee
E. B. Hewitt

INVENTOR.

Abraham G. Munn
Charles T. Clark.
Thomas Brennan
by J. G. Hewitt
attorney.

2 Sheets—Sheet 2.

A. G. MUNN, C. T. CLARK & T. BRENNAN.

CANE-MILL.

No. 192,076. Patented June 19, 1877.

Fig. 4.

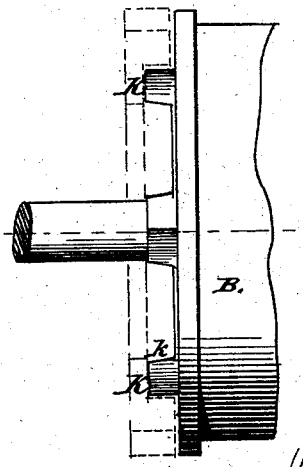


Fig. 5.

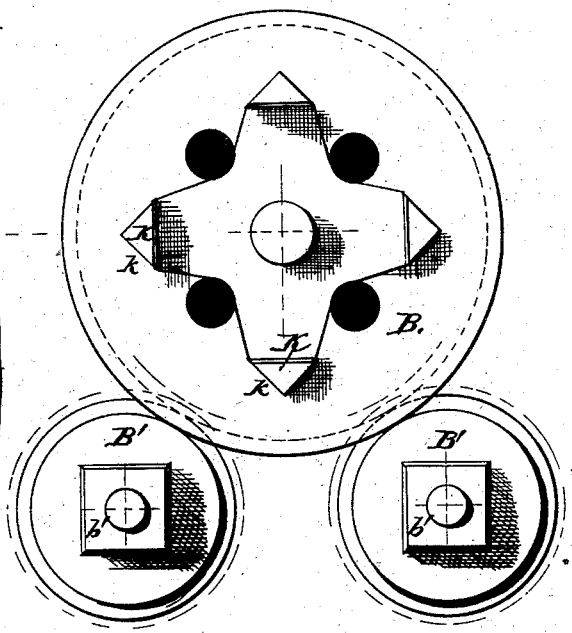


Fig. 6.

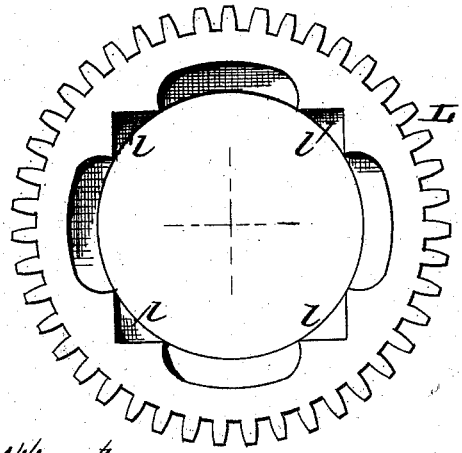
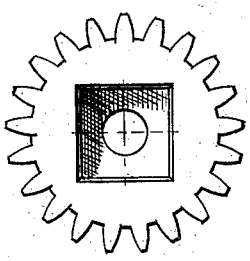


Fig. 7.



Attest:
H. L. Penne
A. Moore

Inventors.
Abraham G. Munn,
C. T. Clark.
Thos. Brennan
by Atty, Wm. H. Dinsmore.

UNITED STATES PATENT OFFICE.

ABRAHAM G. MUNN, CHARLES T. CLARK, AND THOMAS BRENNAN, OF LOUISVILLE, KENTUCKY.

IMPROVEMENT IN CANE-MILLS.

Specification forming part of Letters Patent No. **192,076**, dated June 19, 1877; application filed March 24, 1877.

To all whom it may concern:

Be it known that we, ABRAHAM G. MUNN, CHARLES T. CLARK, and THOMAS BRENNAN, of the city of Louisville, in the county of Jefferson and State of Kentucky, have invented a certain new and useful Improvement in Cane-Mills; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others 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 perspective view of the mill, showing the reversible feed-guide, oil-openings, and driving-lugs on top of the roller. Fig. 2 is a perspective view of the reversible feed-guide, showing its general construction. Fig. 3 is a perspective view of the bottom plate, showing the oil-conduits and juice-channel. Fig. 4 is a side view of the main roller in horizontal position. Fig. 5 is a top view of the several rollers in their ordinary arrangement. Fig. 6 is a bottom-plan view of the gear of the main roller; and Fig. 7, a similar view of the gear of one of the small rollers.

Similar letters of reference indicate corresponding parts of the drawings.

This invention relates to certain improvements in the construction of cane-mills; and the invention consists in a reversible feed-guide—that is to say, a feed-guide adapted to be used on either side of a mill which is capable of operating in either direction.

It also consists of peculiarly-constructed connections of the driving-gear and roller, whereby said roller may be turned in either direction for crushing the cane.

The letter A designates the upper or cap plate of the mill, in which are formed or which is provided with boxes or bearings for the upper journals of the rollers. These bearings or boxes may be provided with adjusting-screws or devices K′. G is the bed or base plate, in which are bearings I I I for the lower journals of the rollers. This lower plate G is provided with a circumferential flange, as also may be the upper or cap plate. J is a juice-channel in the bed-plate. H H are oil-conduits, having an opening on the outside of the flange of the bed-plate G, and leading to the bearings I, said conduits being covered within the bed-plate, so as to prevent the commingling of the lubricant and the expressed juice. B is the main roller, whose journals turn in the bearings in the plates A and G. One or more smaller rollers, B′ B′, are provided, whose journals rest in the boxes or bearings provided for them in the plates A G. These several rollers are connected by suitable gearing, as shown. The main roller has formed on its upper surface a number of lugs, K, say four, whose top surfaces and sides are perfectly flat, the sides being truly vertical, and which lugs are of open **V** shape. (See Fig. 5.) The gear-wheel L for this main roller has formed in its under surface recesses *l*, of equal number, and corresponding exactly in shape, with the lugs K on the roller, and designed to fit upon or over such lugs closely, but not rigidly, whereby said gear is prevented from rising from the roller, for, if it should rise, the cap-plate would be damaged, and the operation of the mill impeded or stopped.

It may be here observed that, by making the faces *k k* of these lugs K plane vertical surfaces, the roller can be turned in either direction with equal facility and effect, for the holding or binding action thereof on the gear through its recesses is the same both ways.

The rollers B′ have square bosses *b′* on their upper surfaces at the bases of their journals, over which bosses fit the gears of these rollers, the said gears having corresponding recesses to this end. (See Figs. 5 and 7.) C C are supports for the plates A and G, rods being used to bolt or connect the said plates. F F are bearings projecting from the sides of the upper and lower plates A G, and adapted to receive the journals *a a* of a feed-guide, D. E is a tongue on the feed-guide, provided with means (as a set or thumb screw) by which it may be secured to the forward support C. This feed-guide has openings *b* and inwardly-projecting tables *c*, whereby the cane is fed evenly to the rollers, and is prevented from going above or below the flanges of the roller, it being understood that the main roller is one of the ordinary flanged character.

This feed-guide is capable of application to

either side of the mill, being reversible or removable, so that the cane may be fed from either side, as before explained, the roller being capable of operation in either direction. The tables *c* of the feed-guide project well into or between the rollers, so as to deliver the cane directly and immediately thereto.

What we claim is—

1. A reversible feed-guide constructed with journals and a device for locking it in position, in combination with a cane-mill having bearings on both sides thereof to receive said feed-guide, substantially as and for the purpose described.

2. A cane-mill provided with bearings F F on both sides, in combination with a reversible feed-guide and mechanism for securing the same in position, substantially as specified.

3. A reversible feed-guide constructed with feed-openings *b*, tables *c* therefor, a tongue, E, and journals *a*, in combination with a cane-mill, substantially as described.

4. The main or driving roller of a cane-mill, constructed with open V-shaped lugs K, having perfectly vertical plane sides, in combination with a gear-wheel, L, having correspondingly-shaped recesses *l*, constituting a rigid connection, whereby said roller and wheel are so firmly held together as to prevent the latter from rising, and the mill be thus rendered capable of operation in either direction.

ABRAHAM G. MUNN.
CHARLES T. CLARK.
THOMAS BRENNAN.

Witnesses:
W. G. MUNN,
WM. H. WATTS.