(No Model.) 2 Sheets—Sheet 1.

I. LEPLEY & W. H. HEPBURN.

GRINDING AND AMALGAMATING PAN.

No. 250,552. Patented Dec. 6, 1881.

Fig. 1.

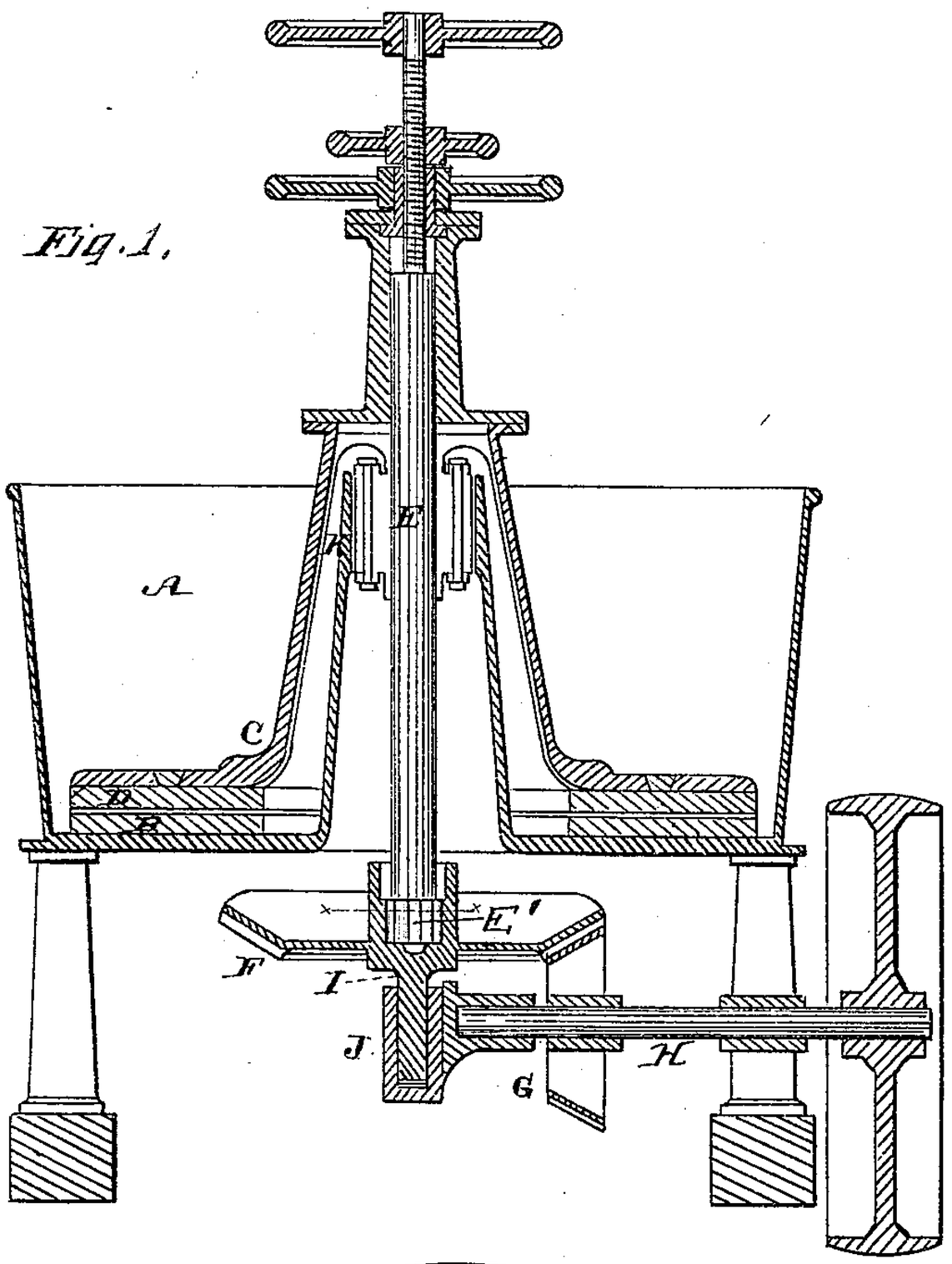
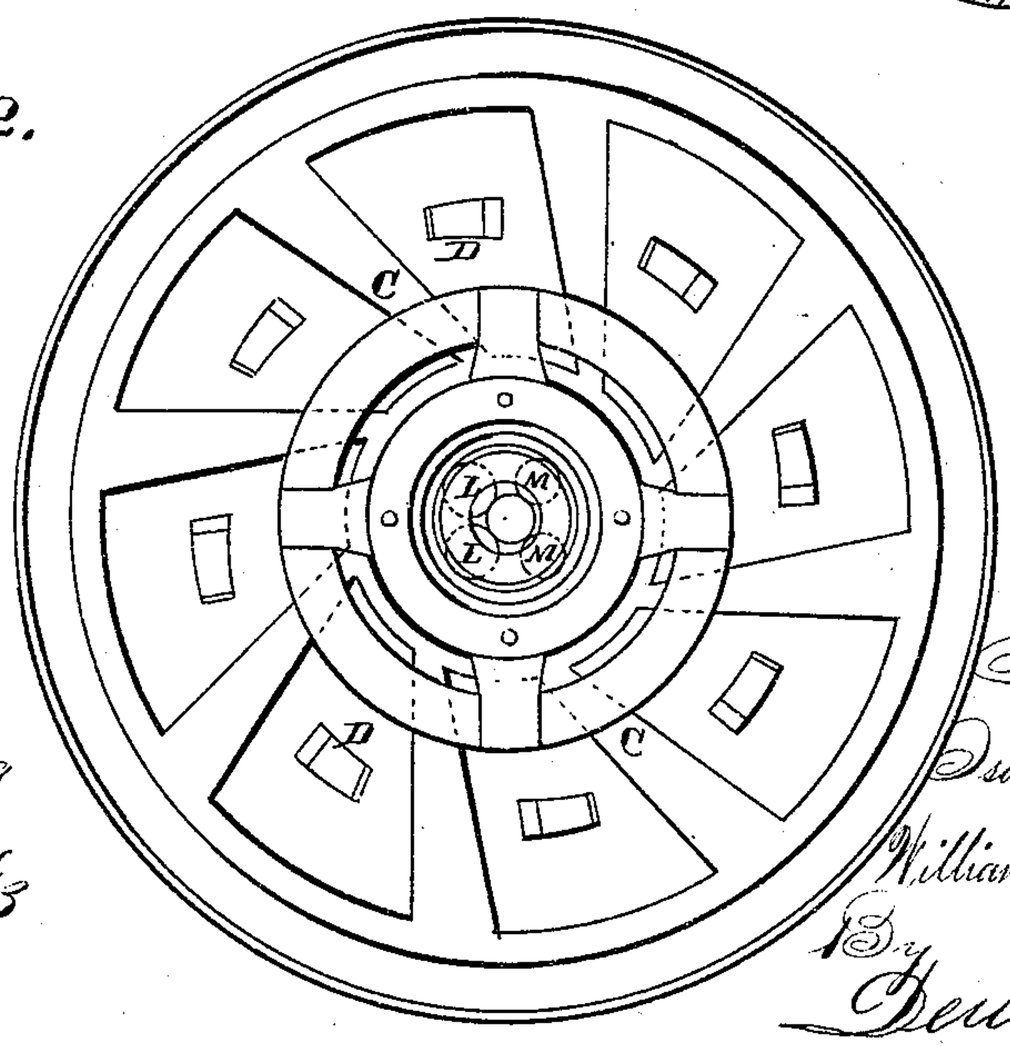


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

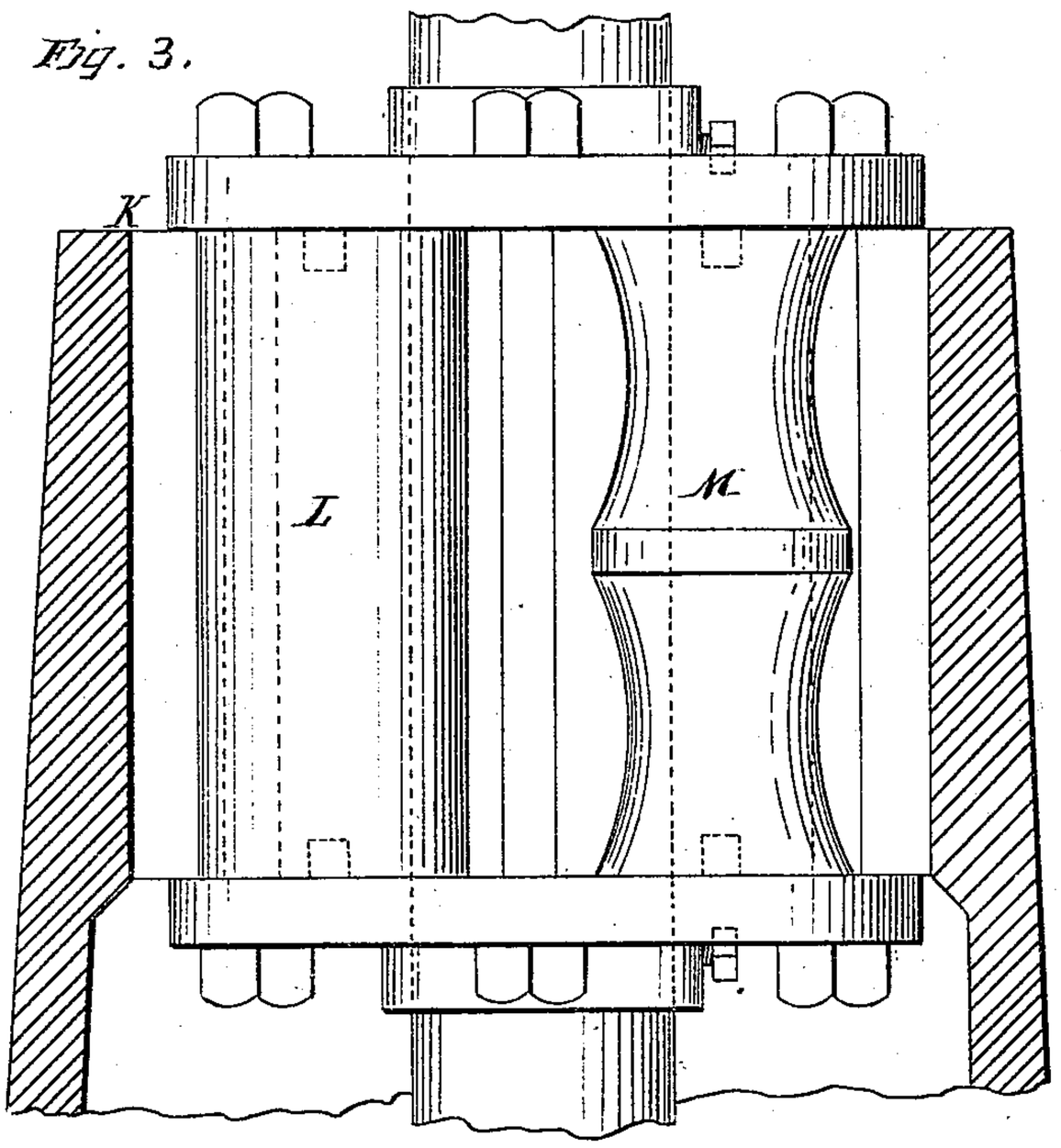


Fig. 5.

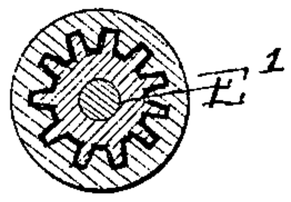
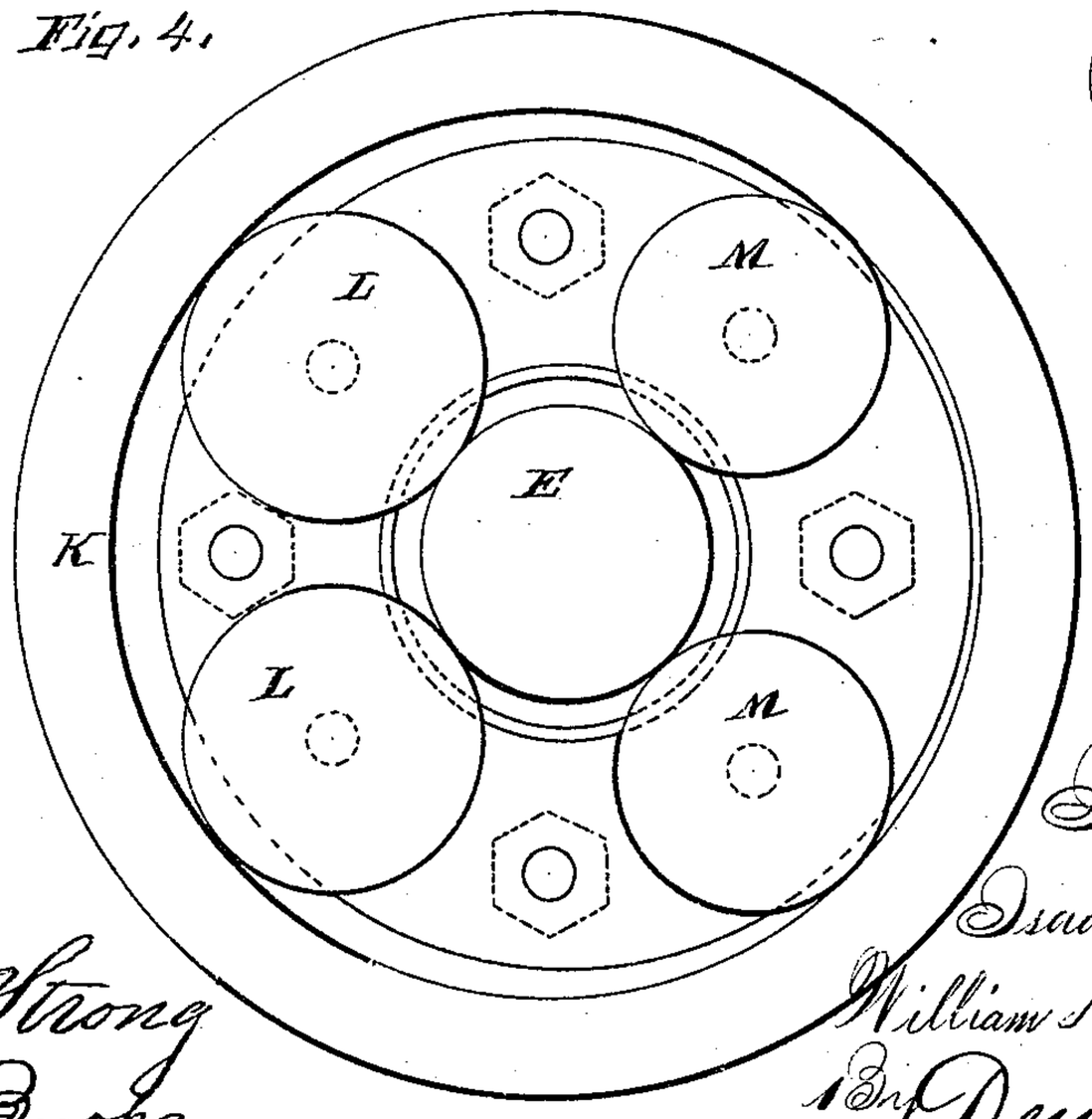


Fig. 4.



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UNITED STATES PATENT OFFICE.

ISAAC LEPLEY AND WILLIAM H. HEPBURN, OF AMADOR, CALIFORNIA.

GRINDING AND AMALGAMATING PAN.

SPECIFICATION forming part of Letters Patent No. 250,552, dated December 6, 1881.

Application filed August 18, 1881. (No model.)

To all whom it may concern:

Be it known that we, ISAAC LEPLEY and WILLIAM H. HEPBURN, of Amador, county of Amador, State of California, have invented a Grinding and Amalgamating Pan; and we do hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to certain improvements in grinding and amalgamating pans; and it consists in an apparatus for imparting a peculiar motion to the muller by causing the upper end of the shaft to describe a small circle, in addition to its rotation upon its axis, so that the muller will be revolved, and will also be caused to have a rolling motion upon the bottom or dies, as will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a view of the pan in vertical section. Fig. 2 is a plan view. Fig. 3 is an enlarged vertical section of the device for giving a rolling motion. Fig. 4 is a transverse section of the device. Fig. 5 is a detail horizontal section through the line *x x* of Fig. 1.

A is a pan of any convenient or suitable form for the work to be done, and having dies B in the bottom, in the usual manner.

C is the muller, having shoes D, which serve to grind the material as it passes between them and the dies. The muller is driven by a vertical shaft, E, and has the usual hand-wheel and screw to raise and lower it. A bevel-gear, F, and a pinion, G, upon the horizontal driving-shaft H, give motion to it.

The gear F is secured to a short supplemental spindle, I, which turns in a step, J, and has a peculiarly-slotted opening in its upper end to receive the foot of the vertical shaft E, which is corrugated or grooved to fit this slot and form a universal clutch-joint, so that while it will be rotated by the action of the gears upon the step the upper end of the shaft may also be allowed a rolling movement, like that in a ball-and-socket joint. This joint or clutch is shown at E′. In order to produce this movement of the upper part of the shaft a case, K, is formed in the upper part of the central cone of the pan, and rollers L M are placed vertically within this case, so as to inclose the shaft E between them. The ends of these rollers have pintles, which are journaled in guiding-plates, and the rollers just fill the space between the sides of the case and the vertical shaft, so that as the latter rotates they roll around between it and the case. Two of these rollers, L L, are larger than the rollers M, and they thus force the shaft E out of a central line, and as it rotates it will thus be caused to describe a circle with its upper end. As the muller is carried by the upper end of the shaft E it will also partake of this motion, and the result will be that the shoes upon one side will touch the dies or rim close to them, while those upon the other side will be lifted away from the dies. The outer edge of the muller will thus be given a rolling motion around upon the dies, so that the shoes are brought alternately into contact with the dies, while the muller is all the time revolving upon its own axis. This peculiar action tends to bring the pulp beneath every part of the muller, and to subject it to a thorough action. The same motion may be imparted to the muller in various other ways, as by the use of an eccentric sleeve instead of the rollers, or by other means, the object being to prevent the muller and dies wearing to a perfect fit, as occurs when the muller has only a plain horizontal motion.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The improvement in grinding and amalgamating pans, consisting of the rotating muller, with its driving-shaft and gears, as shown, in combination with a mechanism consisting of case K and rolls L M, of different sizes, whereby an additional rolling or eccentric motion is given the muller, substantially as and for the purpose herein described.

2. The muller-driving shaft E and the gear and pinion F and G, in combination with the supplemental spindle I, the step J, the shaft E, and the universal joint or clutch E′, substantially as and for the purpose herein described.

3. In a grinding and amalgamating pan, the muller C, driving-shaft E, and gears F G, in combination with the step J, spindle I, and universal joint or clutch E′, and the mechanism consisting of case K and rolls L M, of different sizes, for producing a rolling or eccentric motion, substantially as and for the purpose herein described.

In witness whereof we have hereunto set our hands.

ISAAC LEPLEY.
WILLIAM H. HEPBURN.

Witnesses:
I. N. RANDOLPH,
WARREN PARSONS.