(No Model.) 2 Sheets—Sheet 1.

G. COTTRELL.

MILL STOCK FEEDER.

No. 329,364. Patented Oct. 27, 1885.

Fig. 1.

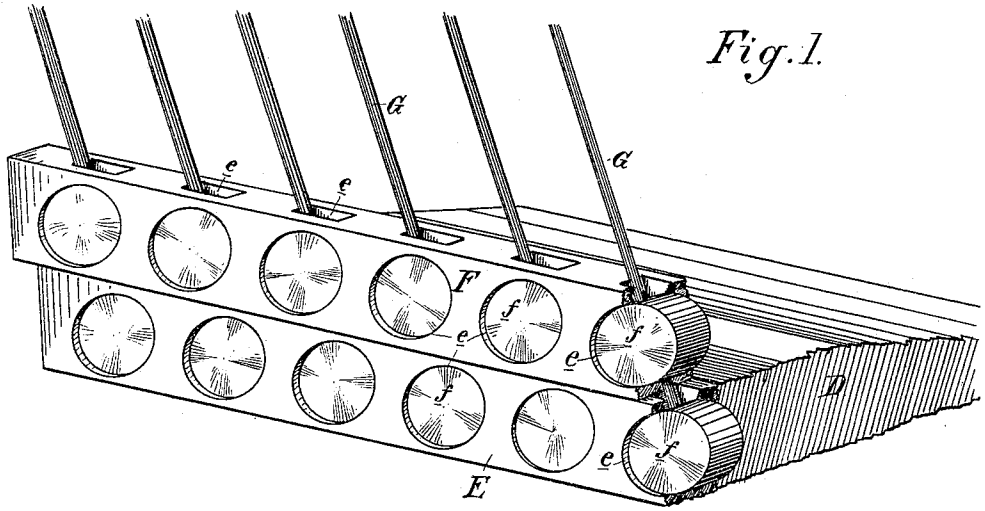
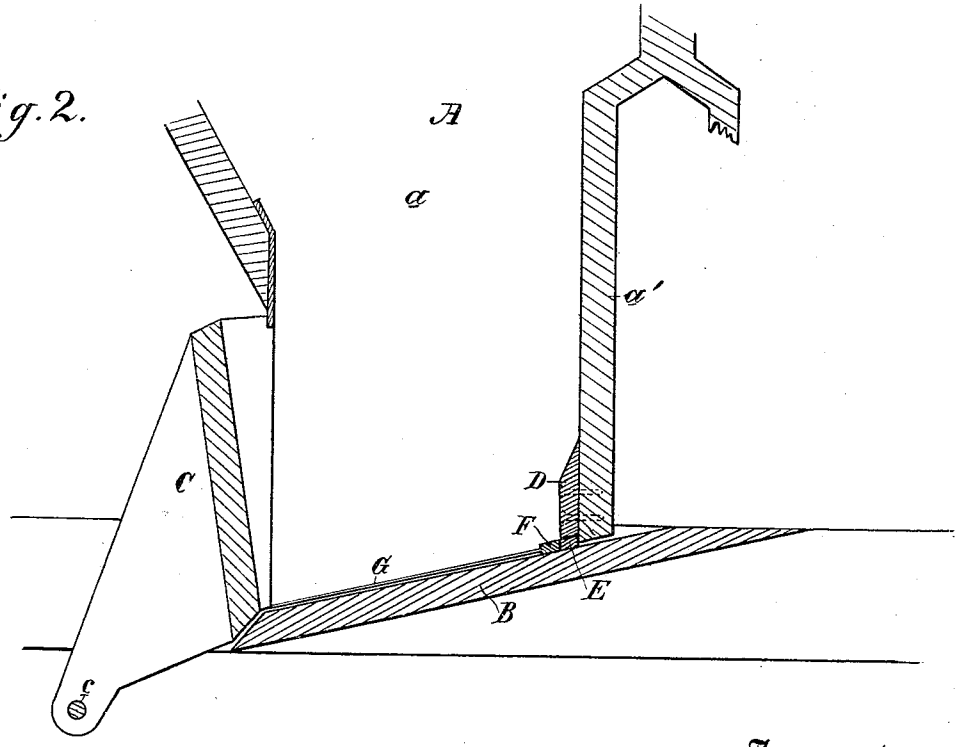


Fig. 2.



Witnesses,
H. C. Lee.

Inventor,
Geo Cottrell
By Dewey & Co.
Attorneys

(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

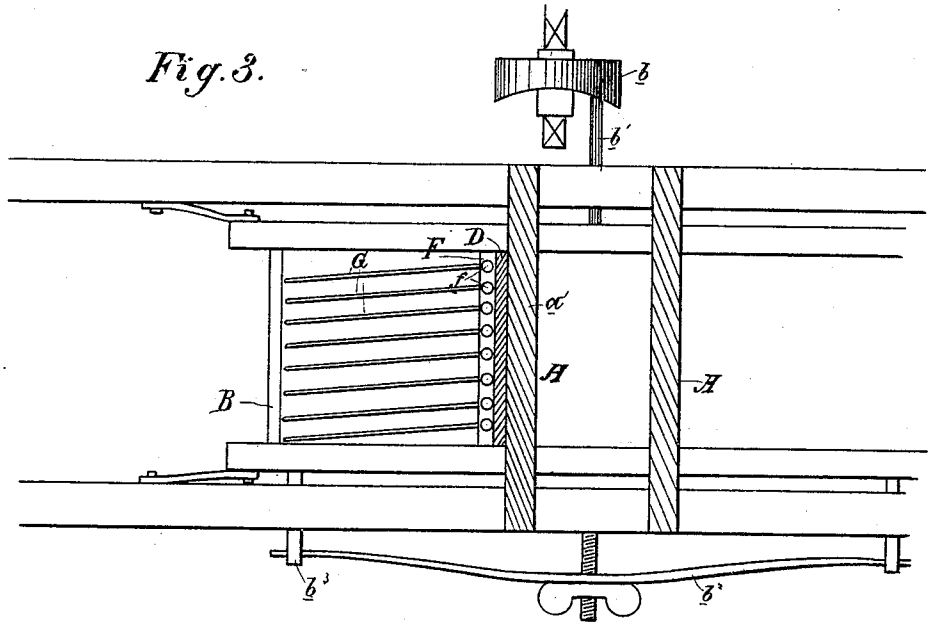
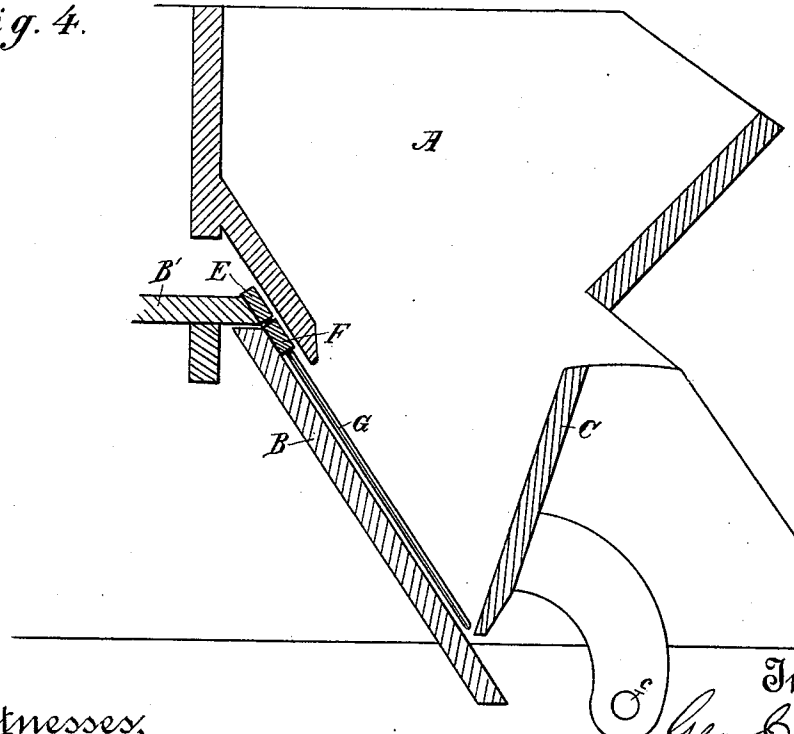


Fig. 4.



Witnesses,
J. H. Strouse.
H. C. Lee.

Inventor,
Geo. Cottrell
By Dewey & Co.
Attorneys

UNITED STATES PATENT OFFICE.

GEORGE COTTRELL, OF SAN FRANCISCO, CALIFORNIA.

MILL-STOCK FEEDER.

SPECIFICATION forming part of Letters Patent No. 329,364, dated October 27, 1885.

Application filed July 27, 1885. Serial No. 172,815. (No model.)

To all whom it may concern:

Be it known that I, GEORGE COTTRELL, of the city and county of San Francisco, State of California, have invented an Improvement in Mill-Stock Feeders; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of automatic feeders which are employed to deliver mill-stock of various kinds to rolls, purifiers, and similar machines; and my invention consists in the construction and combination of devices hereinafter described and claimed.

Referring to the accompanying drawings, Figure 1 is a perspective view of my agitating mechanism. Fig. 2 is a vertical section of my feeder with the agitator applied. Fig. 3 is a horizontal section through hopper A. Fig. 4 is a vertical section showing the application of the agitating mechanism over a fixed board.

Feeders of this class are usually double or two-part ones, and I have herein deemed it necessary simply to illustrate one half or side of the feeder.

A is the hopper, having a throat, *a*. Under the throat of the hopper is a shaker, B, which has a lateral motion, or one that is parallel with its delivery-edge, which motion may be imparted to it by any suitable mechanism—such, for example, as a cam, *b*, operating against a pin, b', on one side of the shaker, and a spring, b^2, connected with the arms or pins b^3 on the other side of the shaker. The shaker is located at a slight downward inclination directly below the throat of the hopper.

C is the feed-gate, which forms the front wall of the throat of the hopper, pivoted below and at the point *c*, and having its lower edge in such relation to the delivery-edge of the shaker that the weight of the material in the hopper and its throat, causing the movement of the gate on its pivotal center, provides a feed-aperture between its lower edge and the delivery-edge of the shaker, through which the material passes to the rolls, unnecessary herein to show.

These parts which I have described are the parts of the feeder for which I have heretofore applied for Letters Patent of the United States, the application being numbered 168,829, and dated June 15, 1885.

In practice it has generally been deemed sufficient to use substantially the parts described; but I have found that I can obtain a more perfect and regular feed by introducing agitator-fingers located and constructed as follows: In Fig. 1, D is a board, to one edge of which is firmly secured a bar, E. On one edge of this bar, and parallel with it, is a bar, F. In both bars are made sockets *e*, in which are inserted short shafts *f*, which are adapted to have an oscillating motion in their seats. Through the sockets, bars, and shafts *f* pass the fingers G. The effect of this construction is such that when one bar is moved on the other the fingers are given a vibratory motion, turning on the pivot-shafts *f* in both bars. Their motion at their extreme ends is much greater than at their bases. The short shafts *f* are preferably made of leather, for the sake of durability. By reference to Fig. 2 it will be seen that the board D, to which the bar E is secured, is firmly bolted to the back wall, a', of the hopper, and that the fingers G extend over the shaker B and lie parallel therewith, their extreme points projecting downwardly to the delivery-edge of the shaker, and into the feed-aperture made between the gate and the shaker. The bar F is firmly secured to the shaker.

The operation is as follows: By the lateral movement of the shaker the bar F is carried with it, while the bar E remains fixed. This causes the vibration of the fingers, which, working in the material and projecting into the feed-aperture, causes its positive and regular discharge, every portion of the material being reached by the overlapping fingers. It will be noticed, however, that if the bar F were fixed and the bar E had a lateral longitudinal motion, the same effect would be produced. In order to illustrate this, I refer to Fig. 4, in which, instead of the laterally-moving shaker, I have the fixed board, which is here designated, similarly to the shaker, by the letter B. Above the upper end of the board B is a laterally-moving strip or piece, B'. The bar E is firmly secured to this movable strip, while the bar F is secured to the

fixed feed-board B. The lateral movement of the strip B′ causes the vibration of the fingers G, as before described.

I am aware that it is not new to use agitator-fingers in the throat of a feed-hopper; but these fingers have been arranged in different locations from mine, and have been differently constructed, some of them projecting from an oscillating shaft above, and some of them projecting upwardly directly from the shaker, and in some cases the fingers project from without into the feed aperture. I do not therefore claim, broadly, the employment of agitator-fingers.

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

1. In a mill stock feeder, the combination of the hopper provided with a feed-aperture, the feed-board, and the vibrating fingers G above the feed-board, lying parallel therewith and extending to and projecting within the feed-aperture, substantially as herein described.

2. In a mill-stock feeder, the combination of a fixed bar, a moving bar upon one edge and parallel with the fixed bar, and the agitator-fingers pivoted in the two bars, whereby said fingers are vibrated on their bases, substantially as herein described.

3. In a mill-stock feeder, a hopper, a feed-board, and a feed-gate, in combination with the vibrating fingers G, lying over and parallel with the feed-board and projecting within the feed-aperture, and the parallel bars E F, in which the fingers are pivoted, one of said bars being fixed and the other having a lateral longitudinal motion, whereby the fingers are vibrated over the board, substantially as herein described.

4. In a mill-stock feeder, the hopper, the shaker B, having a movement parallel with its delivery-edge, and the feed-gate C, in combination with the vibrating agitator-fingers G over the shaker and parallel therewith, substantially as herein described.

5. In a mill-stock feeder, the hopper A, the laterally-moving shaker B, and the feed-gate C, in combination with the agitator-fingers G, lying over and parallel with the feed-board, and the bars E and F, in which the fingers are pivoted, the bar E being secured to the hopper and the bar F to the shaker, whereby the fingers are vibrated, substantially as herein described.

6. In a mill-stock feeder, the combination, with the hopper, of the agitating mechanism in the throat of the hopper, comprising the bars E F, having sockets *e*, the short shafts *f*, pivoted in the said sockets, and the fingers G, passing through the sockets and shafts of the two bars, substantially as herein described.

7. In a mill-stock feeder, the combination, with a hopper, of the agitating mechanism in the throat of the hopper, comprising the bars E F, fitted with short shafts *f*, made of leather, and the fingers G in said shafts, substantially as herein described.

8. In a mill-stock feeder, the agitating mechanism in the throat of the hopper, comprising the bars E F, having sockets *e*, and short shafts *f*, pivoted in said sockets, and the fingers G in the shafts, in combination with a hopper to which the material is fed, and to which one of the bars is fixed, a reciprocating shaker to which the other bar is fixed, and a gate by which the material is allowed to discharge, substantially as herein described.

In witness whereof I have hereunto set my hand.

GEORGE COTTRELL.

Witnesses:
S. H. NOURSE,
H. C. LEE.