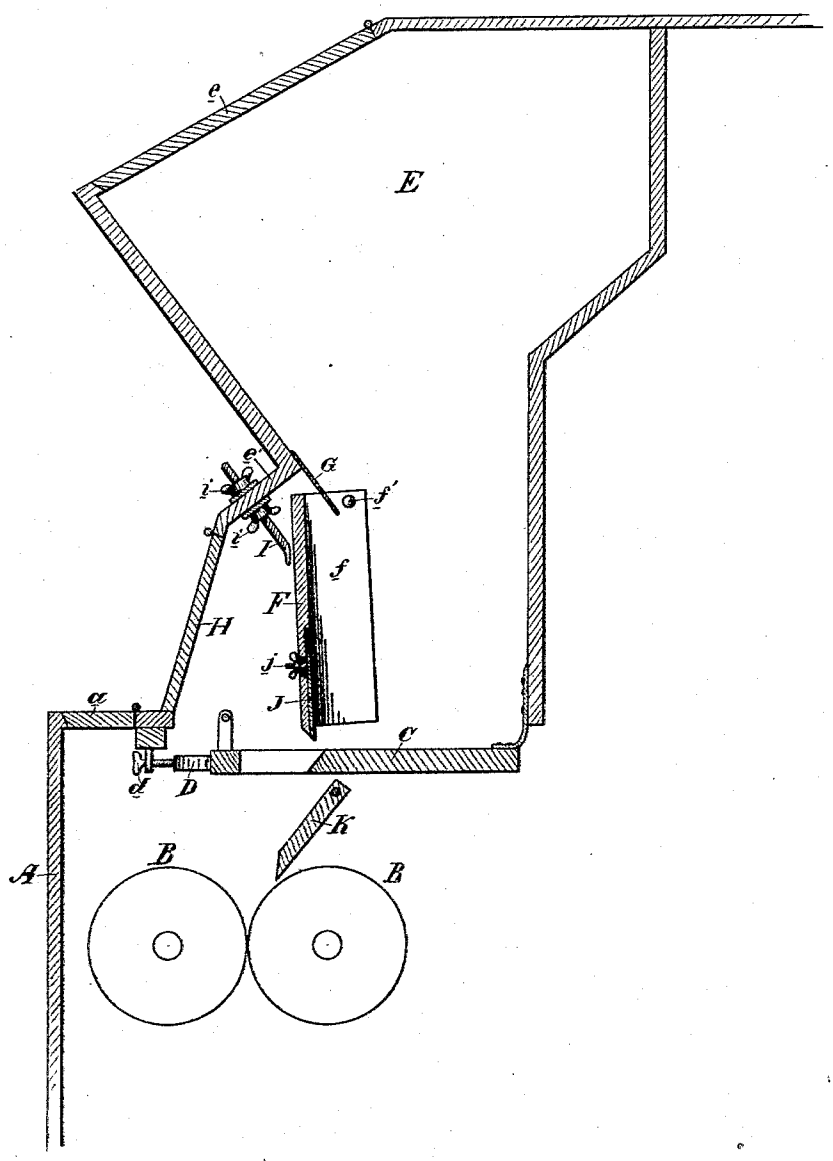
(No Model.)

G. DOWNIE & A. F. EISAN.

MILL STOCK FEEDER.

No. 325,327. Patented Sept. 1, 1885.



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UNITED STATES PATENT OFFICE.

GEORGE DOWNIE AND ALBERT F. EISAN, OF MARYSVILLE, CALIFORNIA.

MILL-STOCK FEEDER.

SPECIFICATION forming part of Letters Patent No. 325,327, dated September 1, 1885.

Application filed April 13, 1885. (No model.)

To all whom it may concern:

Be it known that we, GEORGE DOWNIE and ALBERT F. EISAN, of Marysville, Yuba county, State of California, have invented an Improvement in Mill-Stock Feeders; and we hereby declare the following to be a full, clear, and exact description of the same.

Our invention relates to that class of feeders which are adapted to properly direct or feed what is known as "mill-stock" to any suitable machine underneath—such as rolls or a purifier; and our invention consists in the construction and combination of devices, all of which we shall hereinafter fully explain and claim.

The object of our invention is to provide a simple and effective feeder of this class adapted to automatically feed the stuff in a uniform and steady stream.

Referring to the accompanying drawing, the figure is a vertical section of our mill-stock feeder.

A is a boxing or shell, which is mounted over or contains in its lower portion the rolls B, which constitute one form of a machine to which our feeder is applicable.

Suspended by hangers in the top of the boxing is the horizontal shaker C, which is adapted to receive a rapid reciprocating motion by means of an eccentric and connecting-rod, unnecessary herein to show. Bearing against the front extension or arms of the shaker is a curved flat spring, D, the tension of which is adjusted by a thumb-nut and bolt, *d*, whereby the lost or loose motion of the eccentric is taken up and the vibration of the shaker is rendered noiseless.

E is the feed-hopper, provided with a hinged door, *e*, at its top, by means of which access is had thereto.

In the front of the throat of the hopper is the swinging feed-gate F. This consists of a vertical board, each end of which is provided with a flange, *f*, by which it is pivoted, the pivots *f'* being in the upper inner corners of the end flanges, and extending into the side walls of the hopper.

The shaker C forms the base or bottom of the throat of the hopper, and the lower edge of the swinging gate F is in close relation with the forward or discharge edge of the shaker.

G is a piece of sheet metal acting as a guard to cover the space between the top of the gate F and an outwardly-inclined flange *e'* of the hopper. H is a door hinged to the wall *e'*, whereby the gate F is properly inclosed and protected. Passing through the wall *e'* is a screw-stop, I, the lower end of which is adapted to bear against the gate F, when necessary, said stop being adjusted longitudinally by means of the inner and outer thumb-nuts, *i*. Upon the inner surface of the lower end of the gate F is a lip, J, which is adapted to move up or down by means of the thumb-nut and bolt *j*, thereby extending the gate F, when necessary, as we shall hereinafter explain.

Pivoted under the shaker C in the walls of the boxing A is a directing-board, K, which lies in a position adapting it to receive the stuff from the discharge end of the shaker, and to direct it accurately between the rolls B.

A hinged lid or cover, *a*, is provided for the top of the boxing to permit access thereto.

The operation of the feeder is as follows: The stuff is fed into the hopper E and falls down upon the shaker C. When the weight of stuff within the throat of the hopper becomes sufficient, it forces outward the swinging gate F automatically, thus leaving a small transverse feed-aperture between its lower edge and the shaker. Through this aperture the stuff, after spreading out, passes and is discharged over the end of the shaker upon the directing-board K, by which it is discharged between the rolls. By thus hanging loosely the gate F its operation is entirely automatic, depending upon the stuff itself within the throat of the hopper, and this results in a positive action of the gate to cause it to make an aperture for the discharge of the stuff exact and equal to its requirements. From this it follows that the discharge or feed of the stuff is uniform and constant without any tendency to cake or clog. The advantage of the directing-board K is to obviate any pulsations or waves which may be in the feed, and cause it to spread out in a thin layer or sheet, in which form it is fed to the rolls. There may be occasions when the automatic action of the gate is not required, as where the machine having been tested and a regular and stated operation being in progress, the

capacity of the feed is fixed and remains so. In such a case the stop I is screwed down against the gate to any point which may be desired, and thus holds said gate in proper position to permit the fixed discharge.

When the purifier is used, it sometimes happens that the shaker sags, thereby separating itself from the gate and leaving too large a feed-opening. In that case the adjustable lip J on the gate F is moved vertically downward, providing an extension for said gate, and thus bringing it and the shaker in the proper relation. Another object of hinging or pivoting the directing-board K is that it may be lifted out of the way when what is known as a "tram" is inserted for the pupose of testing the perfect adjustment of the rolls. This tram is a flat or level parallelogram, which is laid upon the impinging rolls, and by its clicking sound denotes any uneveness which may exist in the mounting of the rolls.

If the board K were a fixed one, it is obvious that the tram could not be placed upon the rolls; but by pivoting it it can be raised to a horizontal position, and thus permit the tram to be placed in position.

It is usual in making these machines to make them double—that is to say, another set of parts corresponding to those we have described, all included practically in one frame; but we have considered it necessary to show but one set of devices.

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

1. In a mill-stock feeder, the combination of the hopper E and shaker C under its throat with the gate F, forming the front wall of the throat of the hopper, the flanges *f* on the ends or sides of the gate, extending inwardly into the throat of the hopper, and the pivots *f'* in the upper inner corners of said flanges, substantially as herein described.

2. In a mill-stock feeder, the shaker C and the hopper E, having an outwardly-inclined flange, *e'*, on its forward wall, and a door, H, hinged to the flange, in combination with the vertically-arranged gate F, forming the front wall of the throat of the hopper, its lower end being in close relation with the front edge of the shaker, the pivots *f'*, by which the gate F is suspended, and the guard-plate G, substantially as herein described.

3. A mill-stock feeder comprising the shaker C, the hopper E, the swinging gate F, forming the front wall of the throat of the hopper, and having its lower edge in close relation with the discharge edge of the shaker, and the swinging or pivoted directing-board K under the discharge end of the shaker and adapted to receive the stuff therefrom and deliver it to rolls or other machine below, substantially as herein described.

In witness whereof we have hereunto set our hands.

GEORGE DOWNIE.
ALBERT F. EISAN.

Witnesses:
W. F. PENCOCK,
A. K. IRWIN.