(No Model.)

G. COTTRELL.

MILL STOCK FEEDER.

No. 325,788. Patented Sept. 8, 1885.

Fig. 1.

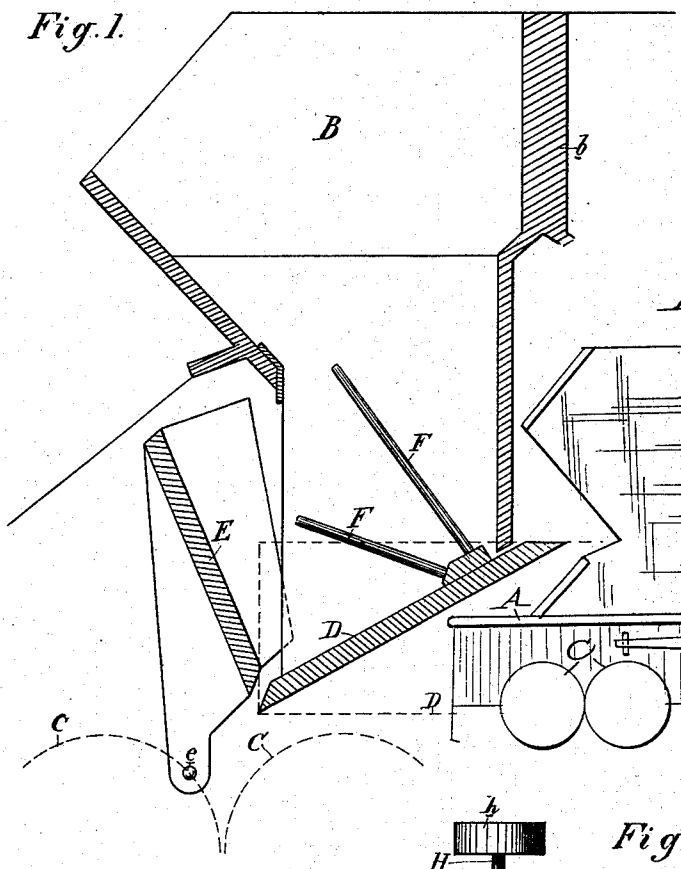


Fig. 3.

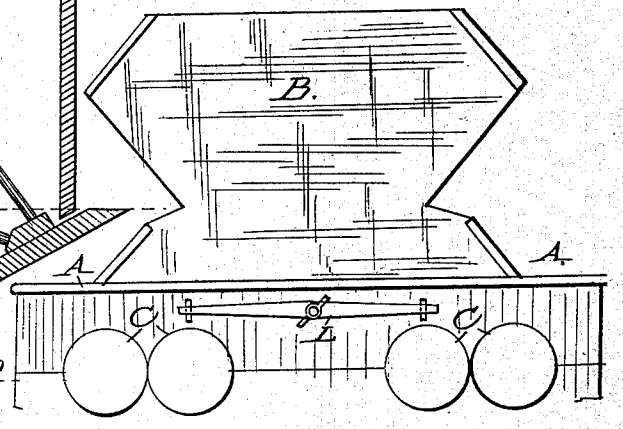
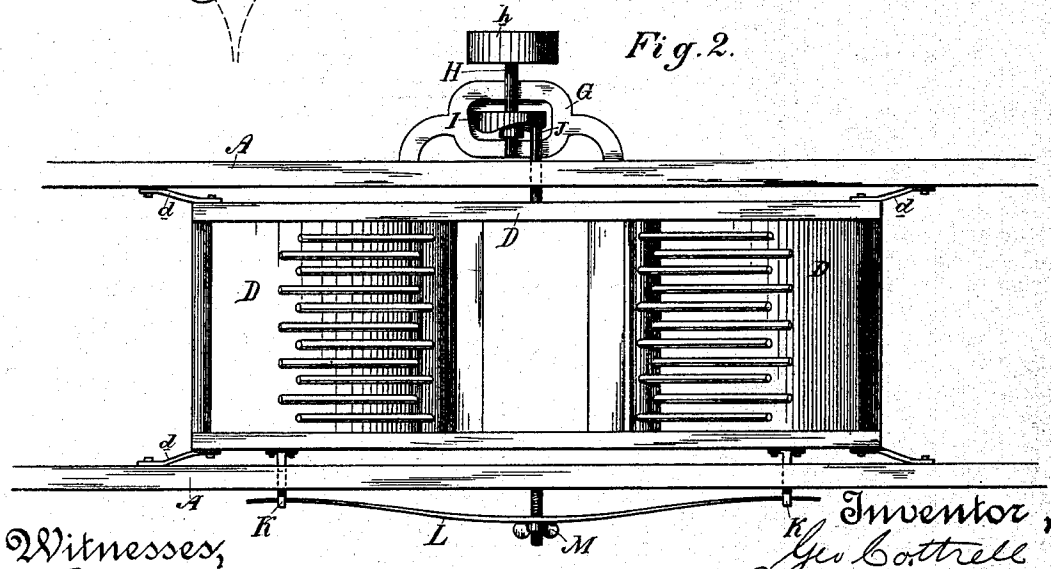


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE COTTRELL, OF SAN FRANCISCO, CALIFORNIA.

MILL-STOCK FEEDER.

SPECIFICATION forming part of Letters Patent No. 325,788, dated September 8, 1885.

Application filed June 15, 1885. (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 feeders used for delivering mill-stock to rolls, purifying-machines, &c.; and my invention consists in the construction and combinations of devices, all of which I shall hereinafter fully describe and claim.

The object of my invention is to provide a simple and effective feeder for mill-stock.

Referring to the accompanying drawings, Figure 1 is a vertical section of one half or end of my feeder. Fig. 2 is a plan view of my improved mill-stock feeder. Fig. 3 is a side elevation showing the complete feeder, its ends being alike and adapted to feed to two sets of rolls.

A is the main frame, which supports the hopper B, and is itself supported above the rolls C or other machine with which the feeder may be connected. The hopper is divided by a central partition, *b*, forming, practically, two hoppers, one at each end.

D is the shaker. It consists of an oblong frame, Fig. 2, having its ends inclined downwardly, and lying just below the throat of the hopper. The shaker is mounted on spring arms or hangers *d*, secured to its corners and to the main frame, as shown in Fig. 2.

E is the feed-gate, which forms the front wall of the throat of the hopper. It is pivoted below the main frame, at the point *e*, and its lower edge is in relation with the delivery-edge of the shaker. The point *e*, which is the center of the pivotal action of the gate, is below its lower edge and back of the plane of its center of gravity.

Upon the shaker, and projecting within the throat of the hopper, are the agitator-arms F.

The shaker is given a reciprocating motion parallel with its delivery-edge by the following means: On one side of the frame A is an oil-boxing, G, in which is mounted the shaft H, carrying the driving-pulley *h*. Upon the shaft, and running in the oil-boxing G, is the cam I. Secured to the side of the shaker is a pin or stud, J, which projects into the boxing G, and impinges on cam I. Secured to the other side of the shaker are the arms K, the ends of which are connected with or bear against the ends of a spring, L, secured to the main frame by an adjusting or set screw, M. The cam I forces the shaker over in one direction, and the spring L throws it back.

The tension of the spring is regulated by screw M.

The impingement of the pin J and cam I develops the least amount of friction, as it takes place in the oil-boxing. The shaker may therefore be reciprocated at a high rate of speed without jar or noise.

The operation of the feeder is as follows: The middlings or other stuff to be fed are placed in the hopper. When a sufficient quantity has been so placed to give the weight required to move the gate, said gate, swinging slightly on its pivotal center, removes its lower edge from the edge of the shaker, which, reciprocating rapidly, causes a steady and even feed through the aperture thus formed.

The amount of feed is regulated by the separation of the gate from the shaker, which depends on the weight of the material in the hopper, and as the gate is pivoted behind the plane of its center of gravity, which causes it to have a closing tendency, the whole feeding operation is automatically regulated. The object in making the shaker reciprocate sidewise, instead of endwise, as is usually done, is to make it feed constantly. Those shakers which move in a direction at right angles to their delivery-edge feed only when moving in one direction—namely, backward; but my shaker feeds in both directions constantly.

I am aware that regulating-gates in the front walls of the throats of hoppers have been used. I therefore do not claim the feature, broadly.

I am also aware of a feed shoe or shaker to which a motion parallel with its delivery is given; but I do not claim such, broadly.

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 a hopper, an inclined shaker below the hopper and reciprocating parallel with its delivery edge, and a swinging gate forming the front

wall of the throat of the hopper and arranged in relation with the delivery-edge of the shaker, said gate having its pivotal center at a point below its lower edge and back of the plane of its center of gravity, whereby its action is automatic, substantially as herein described.

2. In a mill-stock feeder, the shaker D and spring arms or hangers *d*, in combination with the mechanism by which it is given a reciprocating motion parallel to its delivery-edge, consisting of the driving-shaft H, having cam I, and the pin or stud J on one side of the shaker impinging against the cam, the spring L, and set-screw M, and the arms K on the other side of the shaker, substantially as herein described.

3. In a mill-stock feeder, the main frame and the shaker D, having the pin or stud J on one side and the arms K on the other, in combination with the spring arms or hangers *d*, the rotating cam I, impinging against the pin, the spring L, and set-screw M, acting on arms K, substantially as herein described.

In witness whereof I have hereunto set my hand.

GEORGE COTTRELL.

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