

(No Model.)

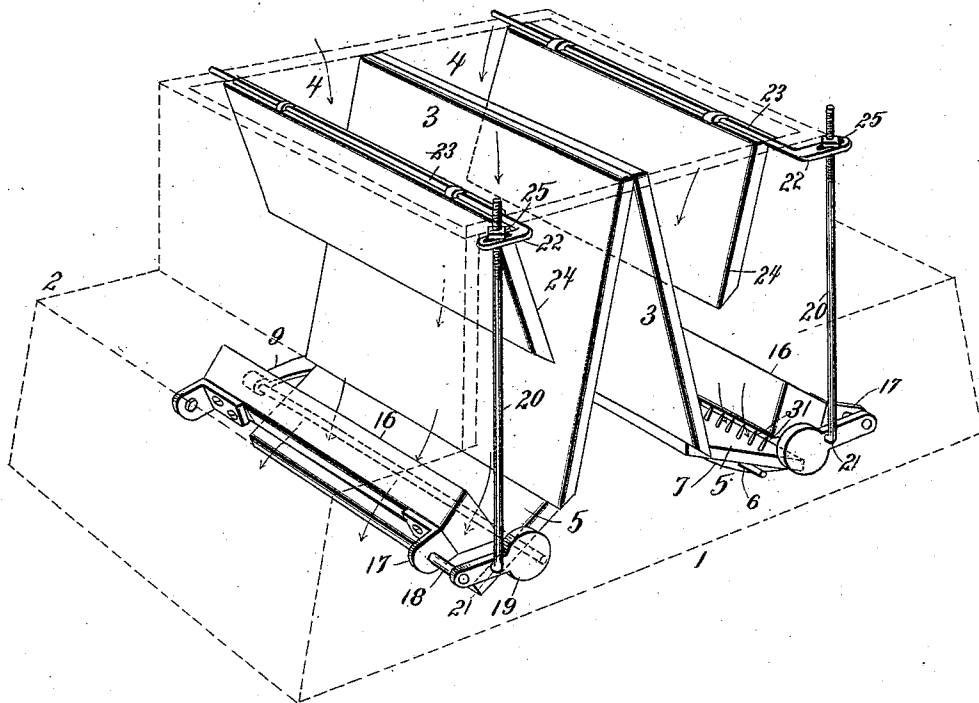
2 Sheets—Sheet 1.

L. S. CAMPBELL.
FEED REGULATOR.

No. 486,851.

Patented Nov. 29, 1892.

Fig 1



Attest:
W. C. Burdine
J. B. Owens.

Inventor
Lawrence S. Campbell
per ~~Lawrence S. Campbell~~
his Attys.

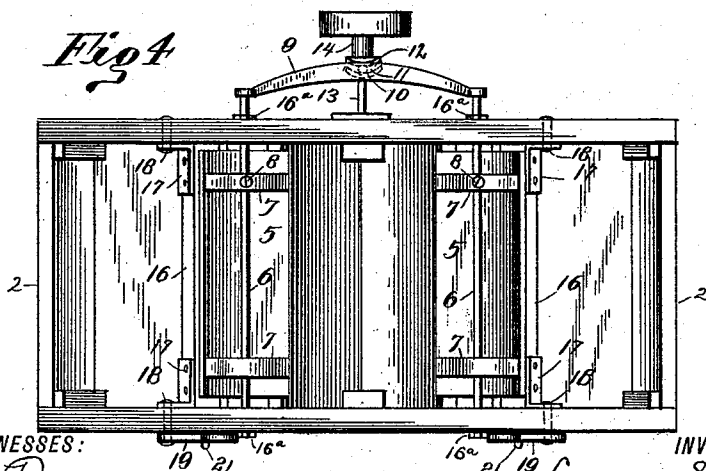
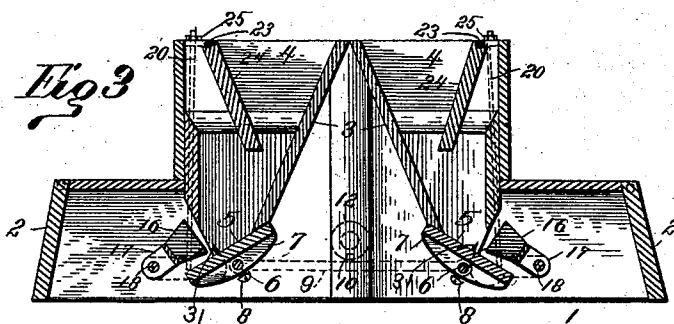
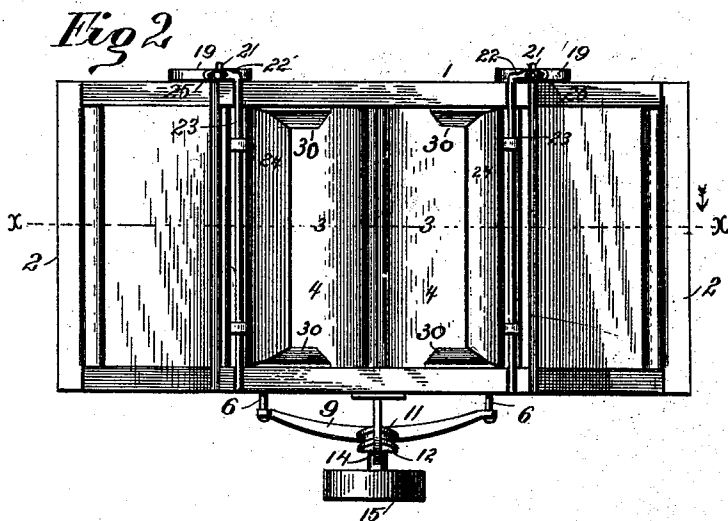
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2 Sheets—Sheet 2.

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WITNESSES:

C. C. Burdine
J. P. Owens

INVENTOR

Lawrence S. Campbell
BY
Attorneys

UNITED STATES PATENT OFFICE.

LAWRENCE S. CAMPBELL, OF ALLEGAN, MICHIGAN, ASSIGNOR OF ONE-HALF
TO JOHN M. HEATH AND ALLEN OSTRANDER, OF SAME PLACE.

FEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 486,851, dated November 29, 1892.

Application filed December 28, 1891, Serial No. 416,354. (No model.)

To all whom it may concern:

Be it known that I, LAWRENCE S. CAMPBELL, a citizen of the United States, residing at Allegan, in the county of Allegan and State of Michigan, have invented certain new and useful Improvements in Feed-Regulators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to that class of shake-feeds for roller-mills in which the shaker-board is given a curvilinear movement.

Heretofore it has been common to connect these shaker-boards with an intermediate rotary shaft provided with alternating cams or cranks located within the feed box or frame and difficult of access. In the old devices the crowding or packing of the material has been a great desideratum.

The object of my invention is to provide mechanism which will effect a better distribution of the feed, prevent packing, and be more accessible, simple, cheap, effective, and generally more desirable. To accomplish this purpose, I provide the peculiar features and combinations presently to be described, and specified in the claims.

In the accompanying drawings, Figure 1 represents a perspective view of my device, in which the casing is denoted by dotted lines. Fig. 2 represents a top view of my complete invention, in which the casing is removed; Fig. 3, a sectional elevation taken on line *x x*, Fig. 2; Fig. 4, a bottom view.

The reference-numeral 1 denotes the usual exterior casing provided with hinged end doors 2. In the upper part of the casing are two sloping partitions 3, forming the sides of the feed-chutes 4. These partitions are rigid and diverge as they extend downward and slope at an angle of about forty-five degrees. Immediately below the bottom of the partitions and across the mouth of the hopper is placed a shaker-board 5, sloping at an angle of about ninety degrees. The ends of the mouth of the chute are provided with sloping projections 30, which overhang the shaker-board

to prevent the material from passing through at the ends of the board. As both shaker-boards and their immediate connections are alike, a description of one will suffice for both. The boards are supported upon horizontal rods 6, which pass through cleats 7, provided with set-screws 8, by means of which the boards are fastened to the rods. These rods pass through bearings 16^a in the sides of the casing and are fastened to the opposite ends of an exterior arm 9, extending substantially parallel with the side of the casing. The top of this arm is provided with a pin 10, projecting into a curved groove 11 within a rotary cam 12, and the latter is mounted on a horizontal shaft 13, mounted in a bracket 14, and actuated by a pulley 15.

In order to regulate the supply of stock to the rolls, I provide an automatic feeding device consisting of a rocking cut-off 16, fastened on arms 17, supported on pivots 18 in the sides of the casing. One of the pivots to each of the cut-offs extends through the casing and is provided with a weight 19, which when liberated closes the cut-off and stops the feed. The weight is held up by a vertical rod 20, detachably connected to the weight by having its lower end 21 hooked to enter a recess in the side of the weight. The upper end of this rod is adjustably connected to a crank 22 on a rock-shaft 23, carrying a valve 24, operating across the interior of the chute. The upper end is fastened by a nut 25, so that by turning it one way or the other the crank and weight will be drawn nearer together or placed farther apart. When the crank and weight are drawn nearer together, the valve will the more quickly cross the chute in unison with the rise and fall of the cut-off 16, as will be more fully explained later on. On the upper face of the feeder-board is placed a row of upward-projecting pins 31. They extend transversely across the discharge-opening and serve to break up chunks of bran when the latter is treated, prevent clogging, and otherwise effect a better feed.

The preferred construction of my device having been set forth, I will now proceed to describe its operation.

The stock, being introduced into the chutes 4, will fall onto the shaker-board at the bottom

in the usual way. The pulley 15, being thrown into action, revolves the cam 12 and actuates the arm 9, and hence the rods 6 carrying the shake-boards, both of which boards are moved simultaneously and given a rectilinear reciprocating or, in other words, an endwise movement. The advantage of this movement is that instead of moving the shaker-boards in a direction parallel to the movement of the grain, as in the old devices of this kind, the board is vibrated in a direction at right angles thereto and effects a more uniform feed. In the shaking movement the pins 31 break or crumble any lumps which may collect at the mouth of the chute. In feeding bran this provision is especially advantageous. The feed may be arrested whenever the rolls are stopped by simply unhooking the lower end of connecting-rod 20, which will let the weight 19 drop and carry with it the cut-off 16 and close the mouth of the chute. When the weight is connected, its downward movement will lift the valve 24 up across the chute and arrest the downward movement of the stock, and the downward pressure of the stock upon the valve will lower the cut-off and reduce the amount of stock discharged to the rolls.

Among the advantages possessed by my arrangement should be mentioned the fact that all the metal rods and other actuating mechanism are kept out of contact with the stock as it passes through the chutes; that the operating mechanism is located on the exterior of the casing to render it accessible at all

times for repairs, and that the operating parts are extremely simple and effective.

It is evident that my invention is susceptible of many slight variations which might suggest themselves to a skilled mechanic. Therefore I do not limit myself to the exact construction herein shown, but consider myself entitled to all such variations as come within the spirit and scope of my invention.

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

The combination, in a shake-feed for roller-mills, a feed-chute provided with a sloping interior wall, a shaker-board located at the bottom of said wall and having an endwise or transverse movement, a pivoted cut-off commanding the mouth of the chute, a weighted arm secured to actuate the cut-off, a valve swinging against the sloping wall and provided with a rearwardly-extending arm, an adjustable rod connecting said arm and the weighted arm, and a horizontal shaft and cam connected with the shaker-boards and located on the exterior of the casing surrounding the chute, all arranged in the manner and for the purpose substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

LAWRENCE S. CAMPBELL.

Witnesses:

HANNIBAL HART,
A. S. CALKINS.