(No Model.)

C. J. PILLIOD.

FEED REGULATOR.

No. 422,623. Patented Mar. 4, 1890.

Fig. 1.

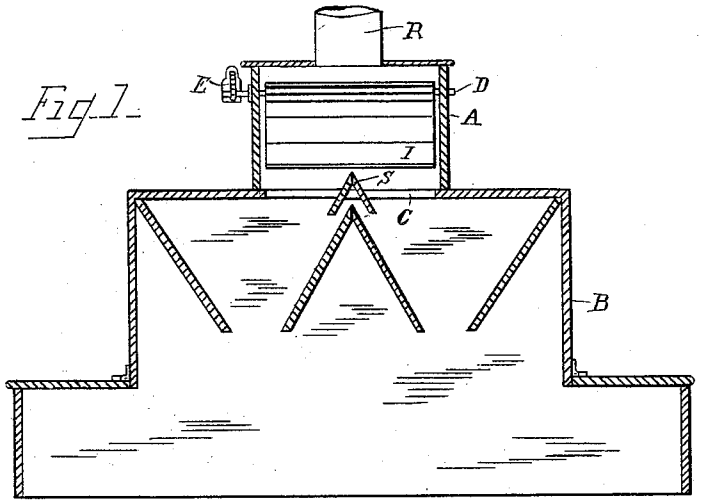


Fig. 2.

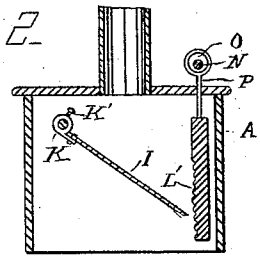


Fig. 3.

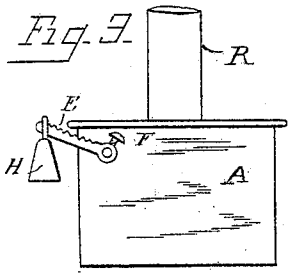


Fig. 4.

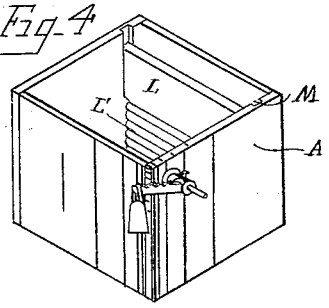
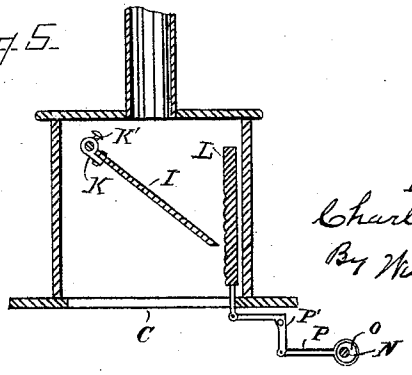


Fig. 5.



Witnesses.
Carroll J. Webster.
Geo. H. Hartley

Inventor.
Charles J. Pilliod
By William Webster
Atty

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES J. PILLIOD, OF SWANTON, OHIO, ASSIGNOR TO LEWIS N. PILLIOD AND HOLLY S. BASSETT, OF SAME PLACE.

FEED-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 422,623, dated March 4, 1890.

Application filed April 9, 1888. Serial No. 270,016. (No model.)

To all whom it may concern:

Be it known that I, CHARLES J. PILLIOD, a citizen of the United States, and residing at Swanton, in the county of Fulton and State of Ohio, have invented certain new and useful Improvements in Feed-Regulators; and I do hereby declare that the following is a full, clear, and exact description of the invention, which 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 letters of reference marked thereon, which form part of this specification.

My invention relates to an automatic feed mechanism for roller-mills, and is designed for use in mills where the same stock is being fed to two sets of rolls.

Heretofore it has been usual to feed the stock to each set of rollers by means of a spout delivering the stock to a division-board placed centrally of the two hoppers.

It has been found that the uneven delivery of stock to the spout causes an impulse to be given to the body of stock in the spout, whereby there is frequently a greater amount fed to one hopper than to the other, causing one set of rolls to be choked while the other set is running clear of stock.

My invention consists in a receptacle for stock, supplemental to the usual hopper and placed upon the same, and provided with an automatically-adjustable feed-gate pivoted within the receptacle, and adapted to receive the stock from the common source and deliver the same in even quantities to each set of rolls when coacting with a vertically-reciprocating feed-board moving within the receptacle.

In the drawings, Figure 1 represents a vertical section of the hopper of a mill with my regulator attached thereto, the divider being shown in vertical section. Fig. 2 is a vertical section of the regulator, showing the interior in side view. Fig. 3 is a side elevation of the supplemental hopper, showing the arm and counter-weight. Fig. 4 is a perspective view of the supplemental hopper with its top removed to expose the interior feed mechanism. Fig. 5 is a vertical section of the divider, showing a modified form of reciprocating mechanism.

A designates the supplemental receptacle for stock, placed upon hopper B of the mill, and having communication therewith through an opening C, formed in the top of the hopper directly beneath receptacle A.

D is a horizontal rod journaled in the sides of receptacle A, and having a right-angled arm E adjustably secured thereon by means of a set-screw F. Arm E is notched along its upper side, and a weight H is suspended therefrom by means of a bail secured to the weight, whereby the weight may be suspended at any desired distance from rod D, and held in place by reason of the bail engaging with the notches upon the arm wherever adjusted.

I designates a feed-gate connected to rod D by being secured to hangers K, adjustably connected to the rod by set-screws K′.

L is a vertically-reciprocating feed-board moving in guides or ways M formed in the sides of receptacle A.

N is a rotating shaft journaled in bearings upon the receptacle, and having eccentrics O, to which are connected pitmen P, which are attached either directly to the feed-board, as shown in Fig. 1, or indirectly by means of a bell-crank lever P′, as shown in Fig. 5. Feed-board L is formed with its inner side fluted or corrugated, as shown at L′, for a purpose hereinafter stated.

R represents the feed-spout inserted within the top of receptacle A and adapted to convey the stock to the feed-gate to be divided and fed to the rolls.

S is a dividing-board placed within the hopper in parallel relation with the rolls and at right angles to the feed-gate, and is designed to separate the stock delivered to the hopper and by its inclination to direct the stock to the feeder within the mill.

In operation stock is fed through spout R and falls upon feed-gate L, which is adjusted to receive and sustain enough stock to insure its filling the throat between the gate and board and thereby spread the entire length of the gate and to lie against the feed-board along its entire length. The board when re-

ciprocated agitates the stock and causes it to feed evenly along the entire length of the board, thereby insuring an even feed to the divider S. When, however, an unusual amount is received, the feed-gate is depressed, raising weight H and opening the throat between the gate and feed-board and allowing the surplus stock to pass without clogging. The gate will be returned to its normal position as soon as the surplus stock is disposed of by the action of weight H. Feed-board L is reciprocated by the revolution of shaft N, which may receive motion from any preferred source through the medium of the eccentrics and a pitman-connection, either direct, as shown in Fig. 1, or by bell-crank lever, as shown in Fig. 5, or in any suitable manner. The reciprocation of the fluted feed-board agitates the stock which is collected in a sufficient quantity upon the feed-gate to lie in contact with the feed-board along its entire width, thereby feeding evenly to the hoppers communicating with the divider S and insuring an equal amount to each, the quantity fed being determined by the opening between the feed-gate and feed-board, which may be regulated by the weight upon arm E.

It will be understood that I may substitute a spring for the arm and weight to control the operation of the feed-gate, and that the feed-board may be reciprocated through the medium of cranks upon shaft N in place of eccentrics.

The machine is inexpensive in construction, readily adjusted, and adaptable to all forms of roller-mills.

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

1. In a feed-regulator for roller-mills, the combination, with a hopper, of a supplemental hopper arranged above and communicating with the same and a divider arranged between the two, an automatic vertically-adjustable feed-gate journaled within the supplemental hopper and at an angle to the divider, an arm attached to the feed-gate, and an adjustable weight sliding upon the arm to vary the position of the feed-gate, and a vertically-reciprocating feed-board, located also within the hopper adjacent to and parallel with the free end of the feed-gate and moving past the same to feed the stock into the machine, substantially as shown and described.

2. In a feed-regulator for roller-mills, the combination, with the frame of a roller-mill, of a hopper, a shaft journaled within the hopper, and a feed-gate secured to said shaft, the feed-gate being vertically adjustable to vary the internal area of the hopper, an arm attached to the shaft without the hopper, and an adjustable weight sliding upon the same to vary the position of the feed-gate, and a vertically-reciprocating feed-board located within the hopper adjacent to and parallel with the free end of the feed-gate and reciprocating past the same, substantially as shown and described.

3. In a feed-regulator for roller-mills, the combination, with a hopper A, of a shaft D, journaled within the same, a feed-gate I, attached to the shaft, said shaft having an arm E, carrying an adjustable weight H, by means of which the vertical position of the free end of the feed-gate is varied, and a vertically-reciprocating feed-board L, corrugated as described, located within the hopper and working past the free end of the feed-gate to feed the stock to the rolls, all arranged and adapted to operate substantially as shown and described.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

CHARLES J. PILLIOD.

Witnesses:

WILLIAM WEBSTER,

CARROLL J. WEBSTER.