(No Model.)

J. M. CASE.

FEED BOX FOR ROLLER MILLS.

No. 297,754. Patented Apr. 29, 1884.

FIG. I.

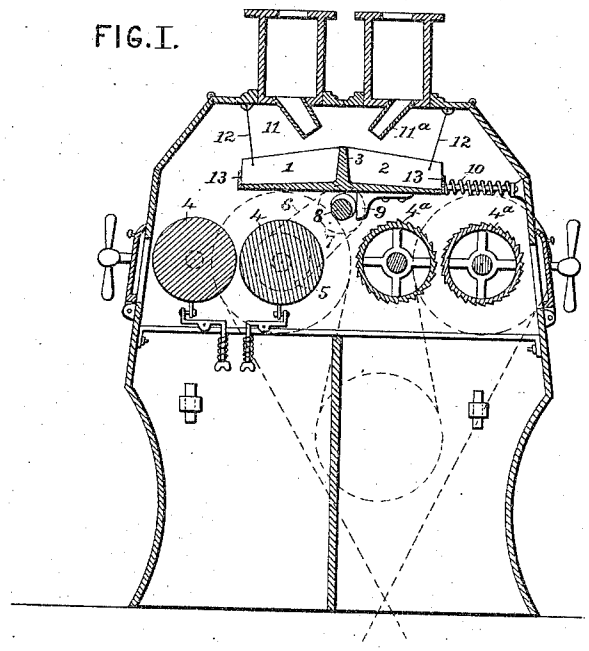


FIG. II.

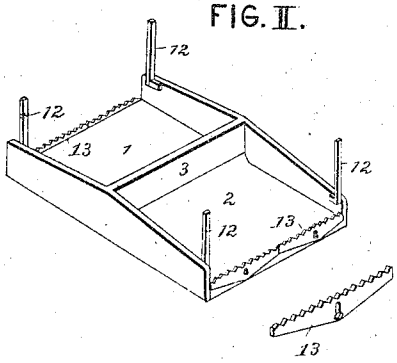
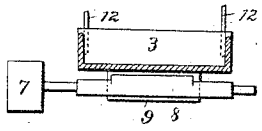


FIG. III.



ATTEST-

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UNITED STATES PATENT OFFICE.

JOHN M. CASE, OF COLUMBUS, OHIO, ASSIGNOR TO THE CASE MANUFACTURING COMPANY, OF SAME PLACE.

FEED-BOX FOR ROLLER-MILLS.

SPECIFICATION forming part of Letters Patent No. 297,754, dated April 29, 1884.

Application filed May 31, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN M. CASE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Feed-Boxes for Roller-Mills, of which the following is a specification.

The object of my invention is to provide a feed-box for roller-mills which will cause a uniform and even quantity of material to be fed to the rolls from end to end.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure I is a vertical section of a four-roller mill, showing my improved feed-box in position. Fig. II is a perspective view of said box, and Fig. III is a transverse section thereof, showing the cam-shaft for operating it in elevation.

1 and 2 represent the respective compartments of a duplex feed-box, and 3 the central partition thereof.

4 4^a represent two pairs of rolls over which the feed-box is hung, and 5 a pulley on the end of one of the roll-shafts.

6 is a belt which passes over the pulley 5, and over a second pulley, 7, on the end of the eccentric or cam-shaft 8, which is journaled in the case of the machine and passes through the same (under the feed-box) parallel with the rolls 4 4^a.

9 is a lug projecting from the bottom of the box, against which the eccentric 8 impinges, and thereby imparts motion thereto in one direction, which is counteracted by a suitable spring, 10. It will thus be seen that the spring, acting in opposition to the eccentric, will impart a motion to the box in a direction opposite to that produced by the said eccentric, and will also keep them constantly in contact with each other.

11 11^a are two hopper-spouts, which, in connection with the partition 3, enable the feeding of different classes of material to the respective pairs of rolls or the gradual reduction of the material, it being fed to the smooth pair 4 for the first break and to the corrugated pair 4^a for the second break, if so desired.

The box is suspended over the rolls by means of flexible hangers 12, which are preferably arranged as shown in Fig. II, one at each corner. The floor of the box is preferably formed sloping toward the edge, and provided with shallow bridges 13, over which the material sifts in equal and uniform quantities during the alternate motions of the box. As represented in Fig. II, these front boards are preferably corrugated and secured adjustably to the feed-box by screws, which are driven into said box and work in vertical slots in the front boards, their heads being made to impinge with any necessary friction against the faces of said boards.

I do not claim in this application a feed-box suspended by spring hangers which are adapted to counteract the effect of an eccentric by their own resilience, for the reason that I have made that the subject of my application No. 114,079, filed December 10, 1883.

Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

1. A double-vibrating feed-box provided with a central partition, in combination with two hopper-spouts, whereby a different class of material may be fed to each of two sets of rolls, as set forth.

2. A double-vibrating feed-box provided with a central partition and one common means whereby both are vibrated, in combination with two hopper-spouts and two sets of rolls, as and for the purpose set forth.

3. In a roller-mill, a duplex shaking box and elastic hangers for supporting the same from above, in combination with two sets of rolls, substantially as shown and described.

4. In a feed apparatus for roller-mills, a suspended box divided into two compartments, and a common eccentric shaft, in combination with suitable driving mechanism, as set forth.

5. In a roller-mill, the combination of two sets of rolls and a duplex feed-box with an eccentric or cam-shaft passed through the case of the machine parallel with the said rolls, as and for the purpose set forth.

6. In a feed apparatus for roller-mills, the combination of the pulley on the shaft of the roll 4, the pulley 7, the eccentric shaft 8, and

duplex feed-box 1 2, substantially as and for the purpose set forth.

7. In a feed apparatus for roller-mills, the combination of the box 1 2, the spring 10, and eccentric 8.

8. The combination, with two pairs of rolls, of a vibrating feed-box adapted to supply each pair of rolls from its respective sides with an equal and uniform quantity of material, as set forth.

9. A vibrating feed-box having shallow bridges over which the material sifts, in combination with means for imparting a lateral vibratory motion thereto, substantially as set forth.

10. A vibrating feed-box having adjustable bridges over which the material sifts, in combination with suitable means for imparting motion to said box, as set forth.

11. A duplex feed-box, in combination with two pairs of rolls and one common means whereby a lateral vibratory motion is imparted to said box, as set forth.

12. In a roller-mill, the combination of a feed-box, elastic hangers for supporting the same, and means for imparting a vibratory motion to said box, as set forth.

13. In a roller-mill, the combination of two sets of rolls and a duplex feed-box with an eccentric for imparting motion to said box in one direction, and a spring for returning it, substantially as set forth.

14. In a roller-mill, the combination, with a vibrating feed-box, of an eccentric shaft, a pulley on said shaft, a belt, and a pulley on one of the roll-shafts, as and for the purpose set forth.

15. In a roller-mill, the combination, with a feed-box, of an eccentric for imparting a horizontally-reciprocating motion thereto, and means for driving said eccentric from one of the crushing-rolls.

JOHN M. CASE.

Witnesses:
OCTAVIUS KNIGHT,
HARRY E. KNIGHT.