No. 775,350. PATENTED NOV. 22, 1904.

J. J. GERARD.

FEED MECHANISM FOR ROLLER MILLS.

APPLICATION FILED NOV. 2, 1903.

NO MODEL.

Fig 3.

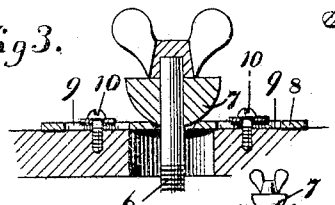
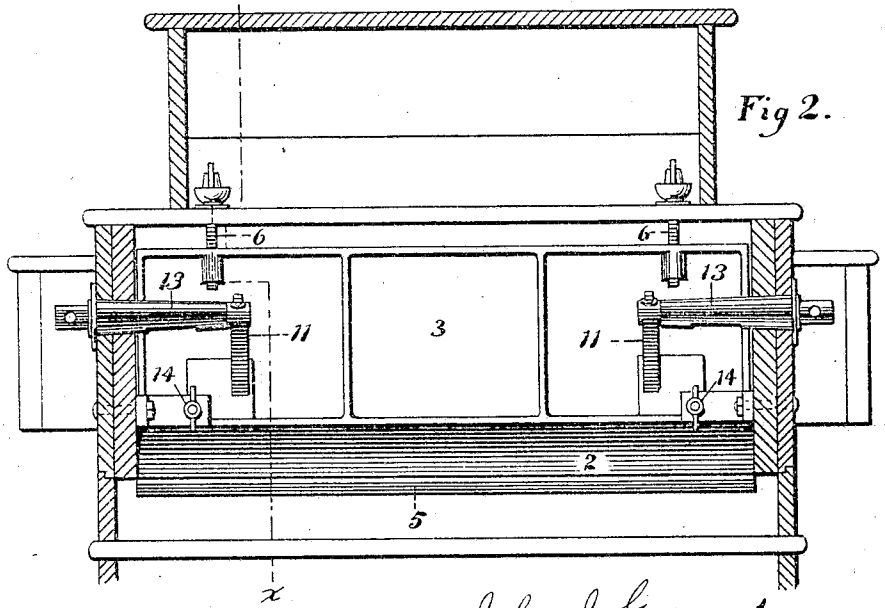


Fig 1.

Fig 2.



WITNESSES:

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No. 775,350. Patented November 22, 1904.

UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR ROLLER-MILLS.

SPECIFICATION forming part of Letters Patent No. 775,350, dated November 22, 1904.

Application filed November 2, 1903. Serial No. 179,542. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. GERARD, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Feed Mechanism for Roller-Mills, of which the following is a specification.

My invention relates to feed mechanism for roller-mills; and its object is to provide a construction in which the feed may be more accurately and rapidly adjusted, the wear diminished, a greater exposed feed-surface provided, and the possibility of the dropping through of the material between the feed-roll and the hopper-board more efficiently avoided than in the existing constructions. I also provide a double adjustment, automatic and positive, for the depth of feed.

Other objects of the invention will appear from the following specification and the accompanying drawings, in which—

Figure 1 is a sectional view on the line $x\,x$, Fig. 2, of the various parts of the feed. Fig. 2 is a sectional view on the line $y\,y$, Fig. 1. Fig. 3 is a detailed sectional view of the feed-gate adjustment.

Referring to Fig. 1, the material in the hopper 1 is fed to the rollers (shown diagrammatically) by the roll rotating in the direction of the arrow shown. The amount of feed is regulated by the adjustment of the feed-gate 3. The feed-roll 2 rotates in close proximity to the back hopper-board 4. In order to prevent the material from dropping through between said hopper-board and the feed-roll, a shield of sheet metal 5 is attached to the lower edge of the board and surrounds a part of the circumference of the roller, extending the full length of the roller. The edge of said shield is in line with the edges of the side hopper-boards, as shown, in order to form a tight joint everywhere. In previous constructions the joint between the back hopper-board and the roller has been formed by arranging said board radially or nearly radially to the feed-roll and touching the latter. As this feed-roll is corrugated, it will be understood that the wear is very rapid, and a space will soon form through which the material can drop on the rollers. By my construction the hopper-board is arranged tangentially to the feed-roll and in conjunction with the shield forms a perfectly tight joint, not depending upon close proximity of the roll and board. Besides this, because of the tangential arrangement of the hopper-board, there is a greater exposed feed-surface, giving less liability of stoppage of feed. The feed-gate 3 is made adjustable with relation to the feed-roll in two directions—laterally and vertically. The vertical adjustment consists of the adjusting-screws 6, provided with thumb-nuts, attached thereto, as shown. These adjusting-screws fit in corresponding sockets in the feed-gate. In order to allow the swinging of the gate away from the feed-roll, a semispherical block 7 is placed under the head of the adjusting-screw and rests on the edges of an opening in the plate 8. This plate 8 is provided with longitudinal slots 9 9, through which pass screws 10, which attach the plate to the hopper-cover. By means of these longitudinal slots the plate, and consequently the feed-gate, can be adjusted laterally. It will thus be seen that the position of the feed-gate with relation to the feed-roll may be adjusted to any point between the extreme outer and the highest point of the circumference of said feed-roll. In other words, the feed-gate may be adjusted from a tangential to a radial position, thus giving the widest possible range of adjustment of feed-surface. The space between the edge of the feed-gate and the roll may be automatically regulated by means of the arms 11, mounted on rock-shafts 12, passing through the casing and carrying rock-arms 13, provided with adjustable weights in the well-known manner. In order to positively determine this space, thumb-screws 14 are provided, so located that the feed-gate will abut against them. By adjusting these thumb-screws the space can be positively limited. The depth of the feed can thus be either automatically or positively regulated at will.

The construction described is duplicated on both sides of the mill, as shown.

Having thus described my invention, what I claim is—

1. In feeding mechanism for roller-mills, in combination with the feed-gate, a vertical adjustment and suspension therefor, consisting of plates provided with perforations, rounded blocks resting on the edges of the perforations, and adjusting-screws passing through the blocks and supported thereby.

2. In feeding mechanism for roller-mills, in combination with the feed-gate, a combined vertical and lateral adjustment and suspension therefor, consisting of plates provided with perforations and slots and adjustable laterally on fastening means passing through the slots, rounded blocks resting on the edges of the perforations, and adjusting-screws connected to the feed-gate, passing through the blocks and supported thereby.

3. In feeding mechanism for roller-mills, a feed-gate, a vertical adjustment for said feed-gate consisting of adjusting-screws, a plate pivotally supporting said adjusting-screws and gate, and means for laterally adjusting said parts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN J. GERARD.

Witnesses:
J. F. HARRISON,
MAMIE R. BACON.