(No Model.)

R. WILCOX.

FEEDER FOR ROLLER MILLS.

No. 402,049. Patented Apr. 23, 1889.

Fig. 2.

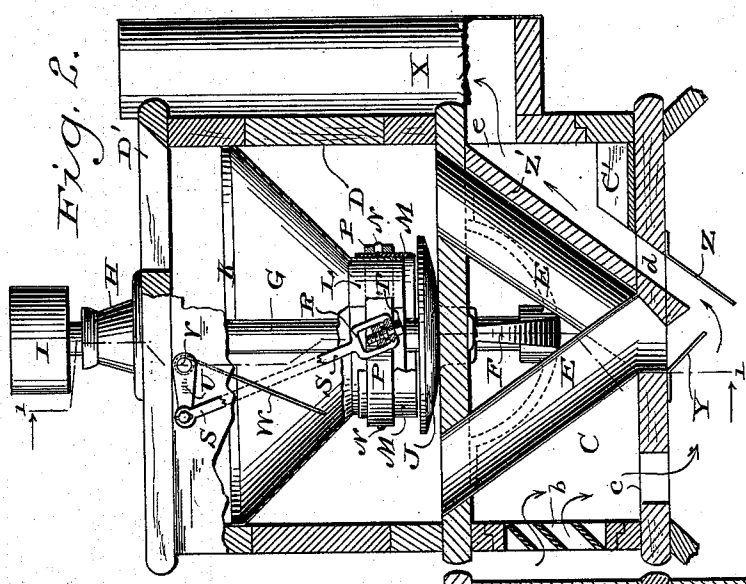


Fig. 3.

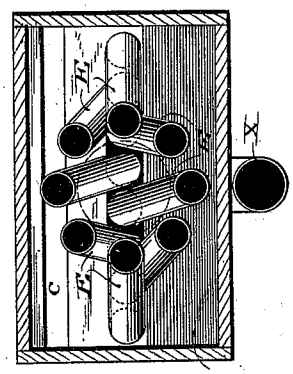
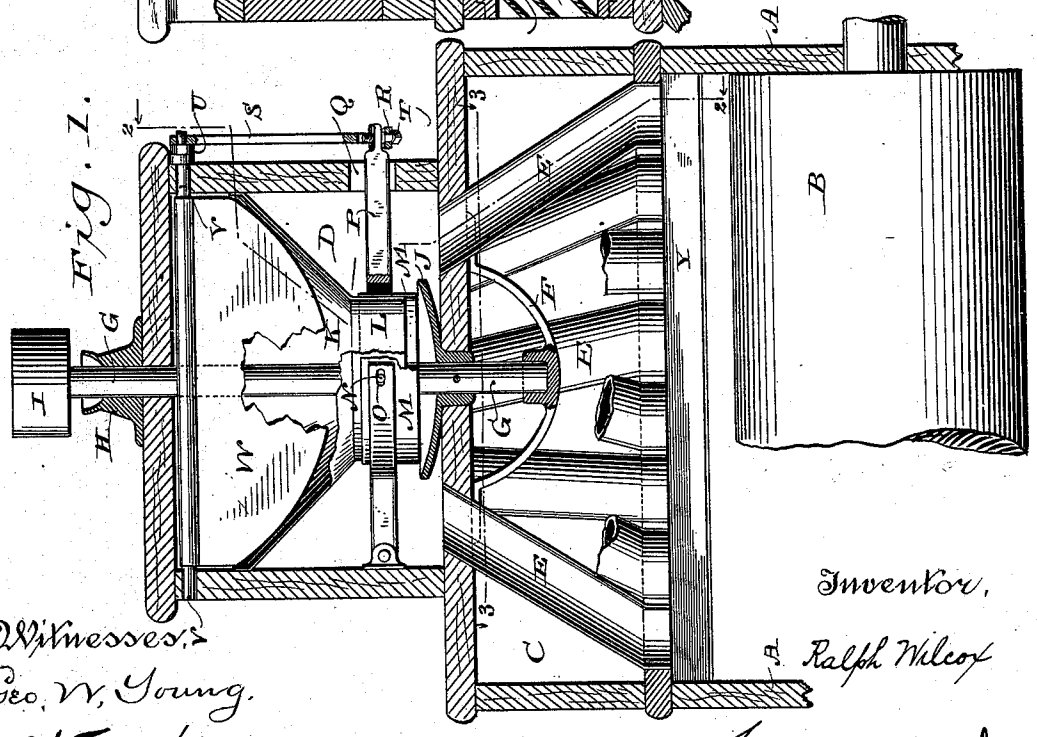


Fig. 1.



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UNITED STATES PATENT OFFICE.

RALPH WILCOX, OF MILWAUKEE, WISCONSIN.

FEEDER FOR ROLLER-MILLS.

SPECIFICATION forming part of Letters Patent No. 402,049, dated April 23, 1889.

Application filed May 24, 1888. Serial No. 274,942. (No model.)

To all whom it may concern:

Be it known that I, RALPH WILCOX, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Feeders for Roller-Mills, &c.; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to feeders for roller-mills, middlings-purifiers, &c.; and it consists in certain peculiarities of construction and combination of parts, to be hereinafter described with reference to the accompanying drawings, and subsequently claimed.

In the drawings, Figure 1 represents a vertical longitudinal section on line 1 1, Fig. 2, illustrating the application of my device to a roller-mill, parts being broken away; Fig. 2, a vertical transverse section on line 2 2, Fig. 1, parts being broken away; and Fig. 3, a horizontal section on line 3 3, Fig. 1.

Referring by letter to the drawings, A represents a portion of the frame, and B a portion of one of a pair of rolls belonging to a roller-mill of the ordinary construction.

Supported on the mill-frame A is a casing, C, and this casing in turn supports another casing, D, the latter being of less dimensions than the former. Arranged in the casing C, to extend through the top, and bottom thereof, are a series of flues, E, said flues being so arranged that their lower ends are on the same line above the rolls in the mill, while the upper ends of said flues come upon a circle adjacent to a disk, to be hereinafter described.

Centrally suspended from the top of the casing C is a step, F, for a vertical shaft, G, that has a bearing, H, on the top of casing D, and carries a driving-pulley, I, and disk J, the latter being arranged just above said top of casing C, and having a diameter approximately equal to the circle described by the inner sides of the upper ends of the flues E.

Arranged within the casing D is a hopper, K, that terminates at its lower end in a vertically-depending annular flange, L, that is surrounded by an automatically-adjustable ring, M. This ring is provided with pins N, that engage a band, O, that forms part of a lever, P, which is fulcrumed at one end to an inner side of said casing. The other end of the lever P is passed through a slot, Q, in the opposite side of the casing D, and enters a loop, R, in the lower end of a rod, S, said lever being adjustably secured in said loop by means of a set-screw, T. The upper end of the rod S is connected to a crank, U, on a horizontal shaft, V, that has its bearings in opposite sides of the casing C, said shaft being arranged near the shaft H. Fast on this shaft V is a wing, W, that extends down into the hopper K at an angle to its vertical center.

In one side of the casing C is an air-inlet, *b*, and the bottom of this casing is provided with longitudinal slots or air-passages *c d*, while that side of said casing opposite the air-inlet *b* is provided with an air-outlet, *e*, that communicates with a flue, X, designed to lead to a fan or other source of draft.

Secured to the bottom of the casing C, adjacent to the lower ends of the flues E, is a deflector, Y, and adjacent to the slot or air-passage *d* is a depending plate, Z, that, with a partition, Z′, extending up to the top of said casing, forms an air-chamber that, communicates through the outlet *e* with the draft-flue X. The casing C is also provided with a drawer, C′, arranged in the air-chamber adjacent to the longitudinal slot or air-passage *d*, as illustrated in Fig. 2.

In the operation of my invention the stock is introduced into the hopper K through an opening, D′, in the top of the casing D, and passes down through the outlet formed by the vertically-depending flange L of said hopper onto the continually-revolving disk J, from whence by centrifugal force said stock is distributed into the flues E and finds its way down to the mill-rolls. The stock passes out of the flues E at certain intervals, according to the arrangement of said flues, and before reaching the mill-rolls strikes the plates Y Z, and is thereby distributed into a thin sheet, thus causing an even distribution throughout the entire length of said rolls. Before the stock reaches the rolls it is met by the current of air drawn through the passages *b c* and out through the passages *d e* into the draft-flue X, and thus the lighter particles are separated and carried off. Any heavy particles that may escape through the pas-

sage *d* will deposit themselves in the drawer C′, and thus when the latter is drawn out the operator can readily determine whether or not the draft is too strong.

The feed from the hopper is regulated by means of the ring M and the wing W, connected thereto by the means above described. When a heavy charge is let into the hopper K, the wing W is forced back more or less, and thus the ring M is raised to increase the space between it and the disk I, thereby preventing any choking; but as the stock in the hopper becomes exhausted the pressure against said wing W is correspondingly decreased, and the latter gradually returns to its normal position, thereby lessening the space between it and said disk in proportion to the amount of stock in said hopper. By means of the set-screw T the lever P is actuated to secure a positive or normal adjustment of the ring M that surrounds the vertically-depending flange L of the hopper.

While I have described my invention in connection with a roller-mill, it is obvious that the same may be as readily employed in connection with a middlings-purifier, and as the operation of my device is the same in either case I have not considered it necessary to illustrate said device applied to said middlings-purifier.

By the construction above described I provide a feeding device for roller-mills, middlings-purifiers, &c., wherein I take the stock from a circle and deliver it in a straight line, thereby securing a uniform feed to the device to which my said invention may be applied.

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

1. A feeder for roller-mills, &c., that comprises a hopper, a rotating disk arranged beneath the hopper, and a series of flues arranged to have their upper ends in a circle adjacent to the disk and their lower ends in a straight line immediately over the device to which the material is fed, substantially as set forth.

2. A feeder for roller-mills, &c., that comprises a hopper, a rotating disk arranged beneath the hopper, a series of flues arranged to have their upper ends in a circle adjacent to the disk and their lower ends in a straight line immediately over the device to which the material is fed, and deflector-plates located below said lower ends of the flues, substantially as set forth.

3. A feeder for roller-mills, &c., that comprises a hopper, a rotating disk arranged beneath the hopper, a series of flues arranged to have their upper ends in a circle adjacent to the disk and their lower ends in a straight line immediately over the device to which the material is fed, and means, substantially as described, for regulating the flow of stock from the hopper to said disk, as set forth.

4. A feeder for roller-mills, &c., that comprises a hopper, a rotating disk arranged beneath the hopper, a series of flues arranged to have their upper ends in a circle adjacent to the disk and their lower ends in a straight line immediately over the device to which the material is fed, a casing surrounding the flues and having its bottom provided with longitudinal air-passages, an air-inlet in one side of the casing, and an outlet in the opposite side of said casing arranged to communicate with a source of draft, substantially as set forth.

5. A feeder for roller-mills, &c., having a hopper, a ring surrounding the hopper-outlet, a lever connected to the ring, a crank-shaft provided with a wing that depends into said hopper, and a rod connecting said lever and crank-shaft, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

RALPH WILCOX.

Witnesses:
N. E. OLIPHANT,
WILLIAM KLUG.