(No Model.)

N. W. HOLT.

ROLLER MILL.

No. 255,989. Patented Apr. 4, 1882.

Fig. 1.

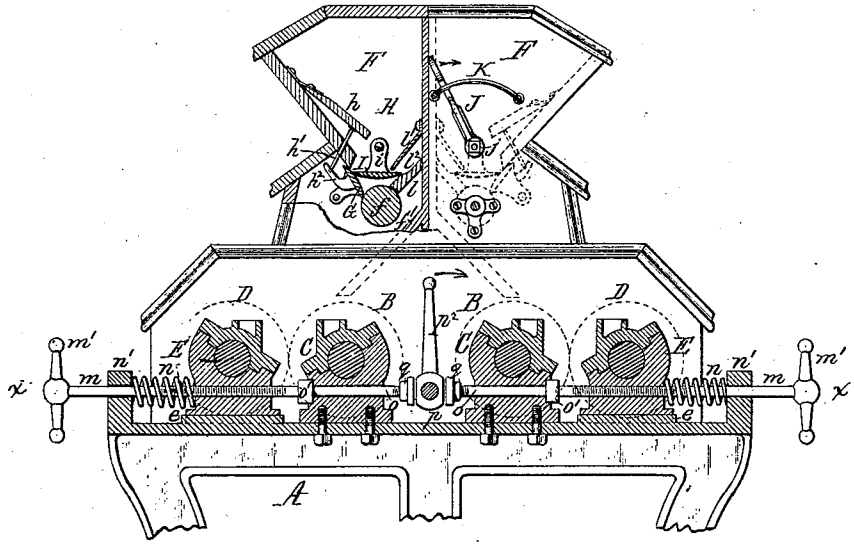
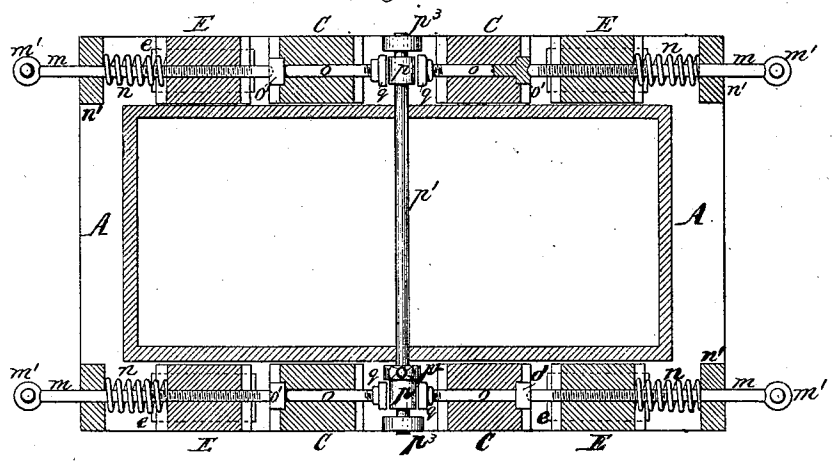


Fig. 2.



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UNITED STATES PATENT OFFICE.

NOAH W. HOLT, OF BUFFALO, NEW YORK, ASSIGNOR TO RICHARD K. NOYE AND E. HAYWARD NOYE, OF SAME PLACE.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 255,989, dated April 4, 1882.

Application filed November 8, 1881. (No model.)

To all whom it may concern:

Be it known that I, NOAH W. HOLT, of the city of Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Roller-Mills, of which the following is a specification.

This invention relates to improvements in that class of roller-mills which are employed for the reduction of grains, or of products derived from grain, and has for its object to enable the movable roller to return to its proper position when it has been separated from the stationary roller for the purpose of starting the mill. When the movement of the rollers is stopped before the feed is shut off the rollers become clogged and it is very difficult to again set them in motion; and when the two rollers of a pair are set very closely together, as is necessary to effect the last reductions of the material, they cannot be started without separating the rolls. When the rolls have been so separated it is a matter of some difficulty, and requiring great care and attention, to give them the same adjustment which they had before they were separated. The object of my invention is to obviate this difficulty.

My invention consists of mechanism whereby the movable roller can be separated from the stationary roller at desire, and whereby the movable roller is automatically returned to its former position when released, as hereinafter more fully set forth.

In the accompanying drawings, consisting of two sheets, Figure 1 is a sectional elevation of a roller-mill provided with my improvements. Fig. 2 is a horizontal section in line *x x*, Fig. 1.

Like letters of reference refer to like parts in the several figures.

A represents a stationary frame of a roller-mill provided with two pair of rollers arranged in the same horizontal plane.

B B represent the stationary rollers, journaled in bearings C, which are firmly secured in the frame A.

D D represent the movable rollers, journaled in adjustable bearings E E, which slide on horizontal ways *e* toward and from the fixed bearings C.

F F represent the feed-hoppers, into which the grain or material to be reduced is spouted in any suitable manner.

f represents the feed-roller arranged under the discharge-orifice of each feed-hopper, and *f'* is an inclined board or chute which guides the material from the feed-roll to the rollers.

The feed mechanism may be constructed in any suitable manner.

m represents a horizontal adjusting-screw, whereby each adjustable bearing E can be moved toward or from the adjacent stationary bearing C. The screws *m* work in threaded openings in the bearings E, and are each surrounded by a spiral spring, *n*, interposed between the bearing E and a lug, *n'*, that is cast on the frame A, and through which the screw-bolt *m* projects. The outer end of each screw-bolt is provided with a handle or wheel, *m'*, by which it may be turned.

o represents a horizontal sliding bolt passing through an opening in the stationary bearing C, and arranged on an axial line with the screw-bolt *m*, which latter bears with its inner end against an enlarged head or shoulder, *o'*, formed at the outer end of the sliding bolt *o*.

p p represent two cams or eccentrics, arranged on both sides of the machine between the inner ends of the two sliding bolts *o*, on the same side of the machine, and *p'* is a horizontal shaft on which the two cams *p* are mounted, and whereby they are actuated simultaneously. The shaft *p'* is provided with a hand-lever, p^2, whereby it is turned, and it is journaled in bearings p^3, secured to the frame A.

q represents an adjustable collar or head applied to the inner end of each sliding bolt *o* by means of a screw-thread or otherwise, and adapted to receive the thrust of the eccentrics *p*. The latter are so formed that by turning the shaft *p'* in one direction the sliding bolts *o* will be separated or moved outwardly, and by reversing the movement the sliding bolts will be permitted to approach each other or move inwardly. The movable bearings E, and the rollers D journaled therein, are adjusted with reference to the fixed bearings C, and the rollers B journaled in the same by the screws *m* and springs *n*, the screws *m* serving to

determine the respective distance between the respective bearings and rollers, and the springs *n* serving to hold the bearings and rollers as closely together as the screws *m* will permit, and at the same time allowing the movable roller to recede from the stationary roller when a hard object of improper size enters between the rollers. Upon turning the shaft *p'* in such a manner that the sliding bolts *o* move outward the screws *m*, which bear against the outer ends of the sliding bolts, take part in this movement, and cause the bearings E to move outward with the screws, thereby compressing the springs *n* and separating the rollers B and D, which latter are now free and can be easily set in motion. During this movement of the sliding bolts *o* the heads *o'* thereof move away from their seats in the outer sides of the bearings C. Upon turning the shaft *p'* and the eccentrics *p* back to their former position the movable bearings E are moved inwardly by the reaction of the springs *n* until the heads *o'* again come in contact with the bearings C, whereby the inward movement of the bearings E is arrested, all the parts having again assumed their former position. In this manner the movable rollers are readily separated from the stationary rollers, and when released are automatically returned to their former position, thereby doing away with the necessity of readjusting the movable rollers after having been separated from the stationary rollers. By adjusting the heads *q* toward or from the eccentrics *p* the distance to which the movable bearings are moved by the rotation of the eccentrics *p* is increased or reduced, as may be desired.

I do not desire to claim the feed mechanism herein shown, as it forms the subject of an other application for patent.

I claim as my invention—

1. The combination, with the stationary roller-bearings C and sliding roller-bearings E, of adjusting-screws whereby the sliding bearings are adjusted toward and from the stationary bearings, sliding bolts and eccentrics whereby the sliding bearings are separated from the stationary bearings without disturbing the adjustment, and springs whereby the sliding bearings are automatically returned to their former position when released, substantially as set forth.

2. The combination, with the fixed roller-bearings C, sliding roller-bearings E, and frame A, having lugs *n'*, of the adjusting-screws *m*, springs *n*, sliding bolts *o*, and eccentrics *p*, substantially as set forth.

3. The combination, with the fixed roller-bearings C and movable roller-bearings E, of eccentrics *p*, sliding bolts *o*, provided with adjustable heads *q*, and screw-bolts *m*, whereby motion is transmitted from the sliding bolts to the movable bearings, substantially as set forth.

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