No Model.)

U. H. ODELL.

ROLLER MILL.

No. 260,705. Patented July 4, 1882.

Fig. 1.

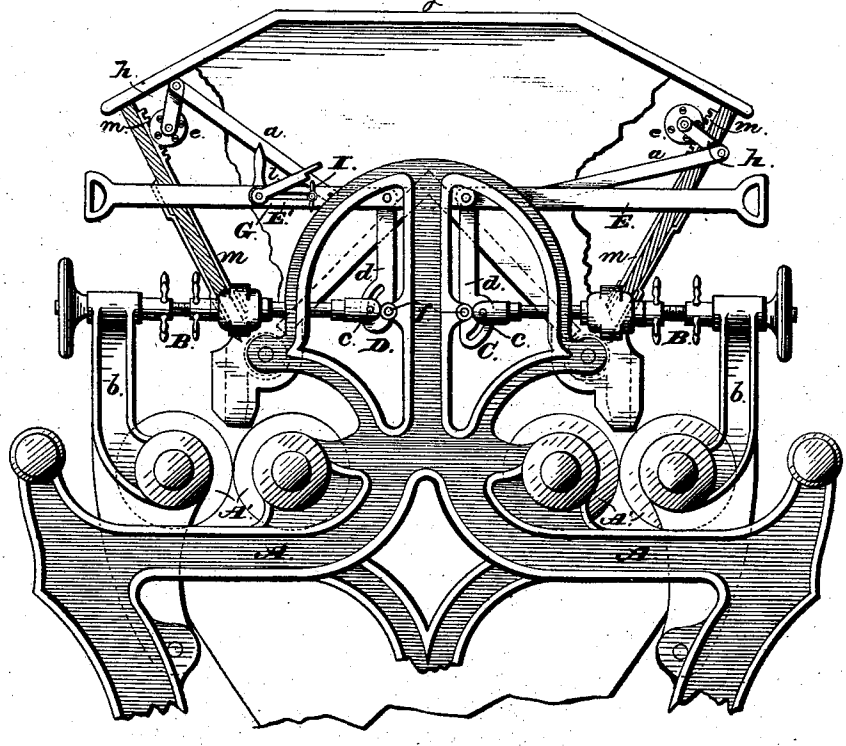


Fig. 2.

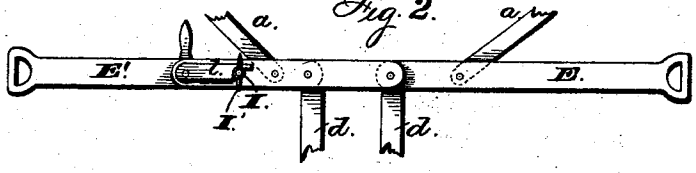


Fig. 3.

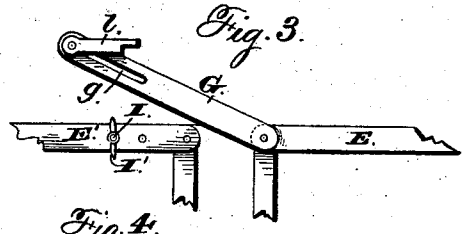
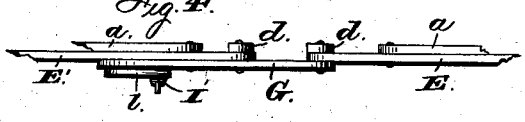


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

UDOLPHO H. ODELL, OF DAYTON, OHIO.

ROLLER-MILL.

SPECIFICATION forming part of [Letters Patent No. 260,705, dated July 4, 1882.

Application filed March 16, 1882. (No model.)

To all whom it may concern:

Be it known that I, UDOLPHO H. ODELL, a citizen of the United States, and a resident of Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Roller-Mills, of which the following is a specification.

This invention relates to improvements in roller grinding-mills, and has for its object to provide a double-roller mill with novel and efficient means for adjusting the hopper-gates and the laterally-movable rollers, and to provide an adjustable connection for the roller-adjusting mechanism at each side of the machine, whereby the two laterally-movable rollers can be adjusted simultaneously or independently, thereby permitting one side only of the machine to be operated, if desired. These objects I accomplish by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation of the upper portion of a double-roller mill embodying my invention, the hopper being broken away to show the hopper-gates; Fig. 2, a detached view of the levers for moving the roller-adjusting shafts, said levers being coupled together; Fig. 3, a detached view of the levers broken away, and showing their coupling device disconnected to permit their independent movement; Fig. 4, a top or plan view of Fig. 2.

The letter A indicates the frame of the double-roller mill; A′, the grinding-rollers, the outer ones of which are journaled in pivoted swinging arms *b;* B, the roller-adjusting shafts; *m*, the hopper-gates for opening and closing the channels which deliver the grain to the grinding-rollers; and *e* the pinions engaging the racks on the hopper-gates, and by which the latter are adjusted. These parts are substantially the same as shown in the Letters Patent issued to me December 13, 1881, No. 250,954.

The levers for shifting or moving the roller-adjusting shafts are composed of two horizontal rods or bars, E E′, each provided at its outer end portion with a suitable handle, the inner or adjacent ends of the bars or rods being each attached to the upper end of a vertically-arranged lever, *d*, having at their lower ends segmental or eccentric slots D and C, in which are arranged pins *c*, passed through the inner ends of the roller-adjusting shafts B, and by which the latter are connected with the lower ends of the levers *d*. I prefer to provide four of these upright levers *d*, two at each end of the machine, and each will be furnished with a segmental or eccentric slot, as shown in Fig. 1, in order that the arms carrying the laterally-adjustable grinding-rollers may be moved in parallel planes toward and from the rollers journaled in stationary bearings on the frame of the machine.

The levers *d* are rigidly secured to through-shafts *f*, journaled in bearings on the frame A, so that the levers at each end of the machine can be moved in unison by a single movement of the levers E E′.

The segmental or eccentric slots D and C are so arranged that the one D is above and the one C below the horizontal plane of their axes, the object of which is to cause both sets of roller-carrying arms *b* to swing in unison by the manipulation of the horizontal lever rods or bars E E′ when the latter are united.

The letter G indicates a link, one end of which is pivoted to the inner end of the lever rod or bar E, so as to be capable of swinging in a vertical plane, the other end of the link being provided with a slot, *g*, and a pivoted latch, *l*.

The inner end of the lever rod or bar E′ is provided with a stud or pin, I, having a head, I′, adapted to be turned so that the slotted end of the link G can be passed over said stud or pin and its head, then the latter turned, thus securely connecting the link with the lever rod or bar E′. To prevent the head of the stud or pin from turning when the parts are connected, the latch *l* is turned down to bear against the head, as shown in Fig. 2. When the lever rods or bars are coupled or united by the link, as described, a movement of either one will transmit motion to the levers *d*, and thereby simultaneously adjust both laterally-movable rollers through the medium of the shafts B and arms *b*.

The lever rods or bars may be disconnected by throwing up the latch *l* and disengaging the link G from the stud or pin I, as shown in Fig. 3, and when this is done each laterally-

movable roller can be independently adjusted, thereby permitting one side only of the machine to be operated when desired.

The hopper-gates *m* are provided with rack-teeth engaging pinions *e*, carried by crank-arms *h*, which are pivoted to one end of the lever-arms *a*, the other ends of said lever-arms being attached by pivots or otherwise to the lever rods or bars E E′, respectively. The crank-arms *h* are arranged to project in opposite directions from the horizontal plane of their axes, so that when the connected lever rods or bars E E′ are moved in either direction the hopper-gates will be simultaneously adjusted. The arrangement is such that when the lever rods or bars are operated to move the laterally-movable rollers outward to stop the grinding-operation the hopper-gates will be lowered to close the channels which deliver the grain to the grinding-rollers. By disconnecting the lever rods or bars E E′, as before explained, the hopper-gates can be separately adjusted in unison with one of the laterally-movable rollers.

It will be obvious that two through-shafts could be employed with a single upright pivoted lever rigidly attached to the end of one of said shafts and connected by a link with the other through-shaft or an eccentric slot provided thereon; further, that the two lever rods or bars, E E′, can be made in one piece or permanently united in case it is desired to operate both sides of the mill at all times; and, further, that the connecting devices between the hopper-gates and the lever-rods or bars can be variously modified without changing the principle of operation.

Having thus described my invention, what I claim as my invention is—

1. In a double-roller mill, the combination, with the roller-adjusting shafts, the swinging arms, and the grinding-rollers, of the upright levers provided with segmental or eccentric slots, a horizontal lever connected with the upper ends of the upright levers, and the hopper-gate mechanism connected with the horizontal lever, substantially as and for the purposes described.

2. In a double-roller mill, the combination of the laterally-movable grinding-rollers, the horizontal roller-adjusting shafts, the swinging journal-arms, the levers having segmental or eccentric slots, the through-shafts, the horizontal lever rods or bars connected with the slotted levers, the hopper-gates, and connecting devices between the hopper-gates and the lever rods or bars, substantially as described.

3. The combination, with the laterally-movable rollers, of the horizontal lever rods or bars, a coupling device for connecting and disconnecting the rods or bars, and connecting devices between the laterally-movable rollers and the horizontal lever rods or bars, substantially as described, whereby the rollers are capable of independent or simultaneous adjustment to permit one side only of the machine to be operated, as set forth.

4. The combination of the levers *d*, the lever rods or bars E E′, the connecting-link G, and the latch I with the laterally-movable grinding-rollers and devices connecting the same with the lever rods or bars, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

UDOLPHO H. ODELL.

Witnesses:
FRANK S. BREENE,
S. G. CAIN.