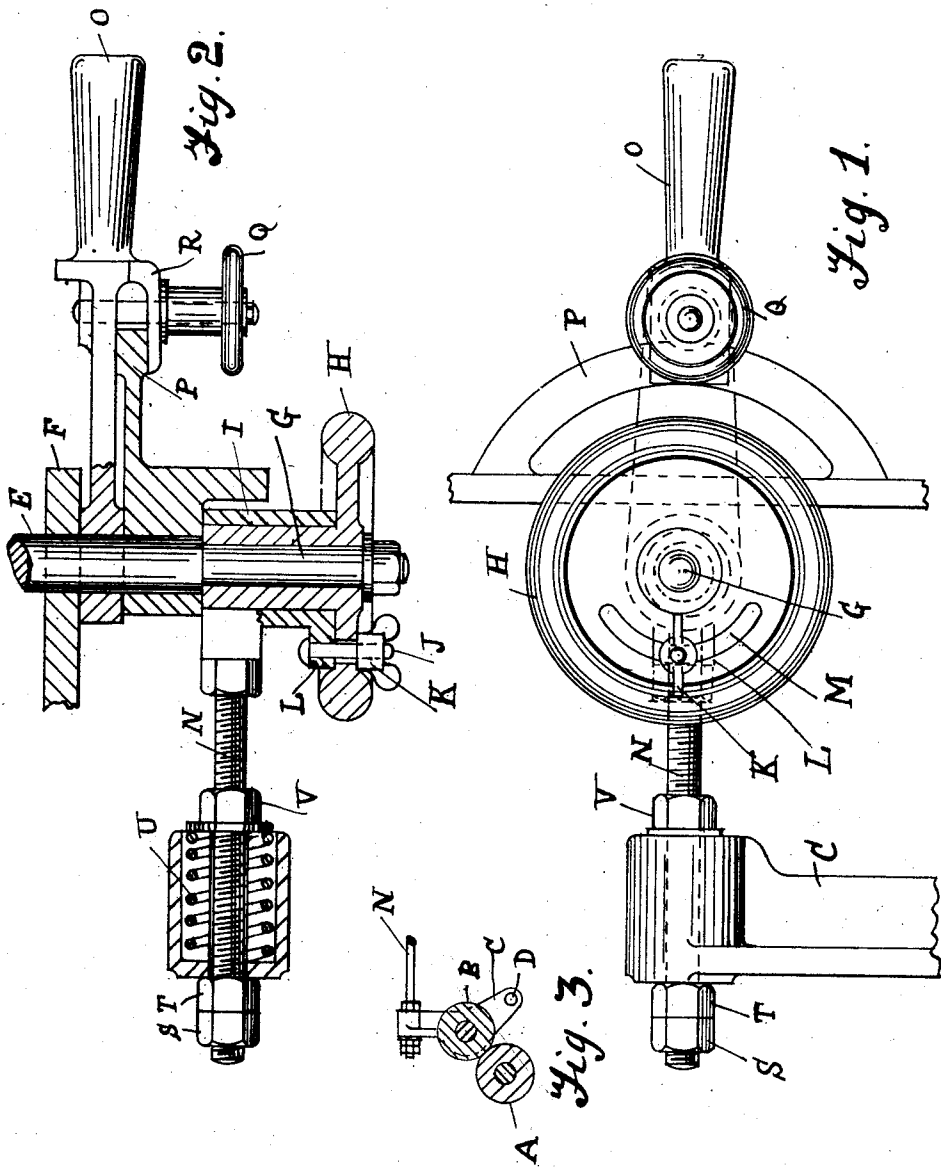


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 ROLL ADJUSTING DEVICE FOR ROLLER GRINDING MILLS.
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Witnesses
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UNITED STATES PATENT OFFICE.

ALFRED R. TATTERSALL, OF LONDON, ENGLAND.

ROLL-ADJUSTING DEVICE FOR ROLLER GRINDING-MILLS.

1,037,838.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ALFRED RISHWORTH TATTERSALL, a subject of the King of Great Britain, residing at 75 Mark Lane, in the city and county of London, England, have invented a new and useful Roll-Adjusting Device for Roller Grinding-Mills, of which the following is a specification.

This application is a divisional application with respect to the co-pending application Number 519594 filed 25th September 1909 for apparatus for making flour and meal.

My invention relates to an improved adjusting device for the rolls of gradual reduction roller mills for grinding wheat and other cereals of the type in which one roll of each pair is supported in fixed bearings and the other roll of each pair is supported in bearings in rocking levers, and the object of my improvement is to provide a simple means whereby the fixed and movable rolls may be set absolutely parallel to each other and may also be moved away from or toward each other by means of a single lever handle without disturbing the parallelism of the rolls. I attain these objects by the mechanism illustrated in the accompanying drawing in which:—

Figure 1 represents an elevation of a roll adjusting device constructed according to this invention. Fig. 2 is a section of same. Fig. 3 is a section through a pair of rolls showing the method of mounting the adjustable roll, to a reduced scale.

The same letters denote the same parts in all the figures.

A is the fixed or stationary roll which is of any approved type, adaptable for roller mills or other machinery employing rolls, and which is adapted to cooperate with a companion roll B, the latter being adjustable. The roll B is journaled at its opposite ends in the middle portions of a pair of rocking levers C, which are hinged upon any suitable fixed support D, carried by the machine to which the rolls A and B are attached. Although the disclosure in the drawing shows the improved adjusting mechanism in connection with only one of the rocking levers C, still it is to be understood that the mechanism is to be duplicated at each end of the adjustable roll B to effect its parallel movement with respect to the stationary or fixed roll A.

The rocking levers C are adapted for operation in parallel relation, and to effect this movement there is provided a shaft E extending in parallelism with and in spaced relation to the roll B. The shaft E is journaled adjacent to its opposite ends in suitable supports F carried by the machine. The shaft E is provided at its end with spindle portions G, which are reduced and formed eccentrically to the shaft, and which are fixed to rotatably support the hubs of hand wheels H, the hubs in turn supporting revoluble sleeves I having radial lugs L engaging against the inner sides of the hand wheels H and being held adjustable thereagainst by bolts J carrying winged nuts K binding the lugs L to the wheels H. The hand wheels H are provided with arcuate concentric slots M for the bolts J to admit of the circular adjustment of the lugs L and sleeves I upon the hand wheels.

Screw threaded rods N extend rearwardly in parallelism from the sleeves I, and engage loosely through the upper ends of the rocking levers C, the latter having sleeve portions for the reception of the rods N. The rods N carry adjusting nuts T and V, binding against the opposite ends of the sleeve portions to adjust the distances between the rocking levers C and the sleeves I, the inner nut T being held in adjusted position by a lock nut S on the rod N. The sleeve portions on the levers C are in the form of casings closed at their inner ends and housing springs U carried about the rods N. The outer ends of the springs U are engaged by washers abutting against the adjusting nuts V to yieldingly hold the levers C against the locked nuts T, thus admitting of the yielding of the roll B relative to the stationary roll A to prevent damage to the machine or rolls in case some hard substances of undue thickness fall between the rolls A and B. The springs U are adapted to be sufficiently strong to maintain the rolls in their proper positions for grinding in the usual manner. A hand lever O is fixed upon the shaft E at any convenient point, preferably adjacent one of the hand wheels H, and is adapted for swinging movement against a segment P and to be clamped in adjusted position thereto by a clip R binding against the outer side of the segment P under the action of a small hand wheel Q.

With this improved apparatus adjust-

ment of the roll B is effected as follows: The roll B is roughly set parallel to the roll A by the adjustment of the nuts V and T and S. The sleeves I are now loosened upon the hubs of the hand wheels H by slackening the winged nuts K to loosen the bolts J in the arcuate slots M. The hand wheels H are now rotated in the proper direction to move the roll B into parallelism against the roll A. The winged nuts K are now tightened to draw the bolts J through the slots M and bind the radial projections L of the sleeves against the hand wheels and from movement relative thereto. When this adjustment is effected at each end of the rolls B, the roll B may be moved toward and away from the roll A by turning the shaft E through the medium of the hand lever O. The binding hand wheel Q is turned to release the clip R from the segment P, whereby the hand lever O is swung into the desired position, the hand lever turning the shaft E and simultaneously revolving the eccentric spindles G within the hubs of the hand wheels H. As the eccentric spindles are moved outwardly they draw the hand wheels outwardly from the roll A and carry the adjustable roll B therewith. When the hand lever O is locked upon the segment B by the clip R and hand wheel Q, it is seen that the adjustable roll B is held firmly in such adjusted position, but that when undue strain is exerted against the rolls A and B to separate the same, the springs U give and admit of the yielding of the roll B.

I claim:—

1. In a roll adjusting device, the combination with a fixed roll, and a movable roll, of hinged levers arranged at the opposite ends of the movable roll and adapted to rotatably support the same, a shaft disposed in parallelism with and in spaced relation to the rolls and having eccentric spindles upon its ends, hubs mounted upon the spindles for rotation thereon, sleeves revolvably disposed upon the hubs, clamping means arranged between the hubs and the sleeves to interlock the same, rods adjust-

ably and yieldably connecting the levers at the ends of the adjustable roll to the sleeves, and a hand lever carried upon the shaft for turning the same. 50

2. In combination with a fixed roll and a movable roll, hinged levers arranged at the opposite ends of the movable roll and adapted to rotatably support the same, a shaft disposed in parallelism with and in spaced relation to the rolls and having eccentric spindles upon its ends, rods carried upon the outer ends of said levers adapted to swing the same, and adjustably connecting means associated with said eccentric spindle to adjustably connect said rods with said shaft. 55 60

3. In combination with a fixed roll and a movable roll, hinged levers at the ends of the rolls engaging the movable roll to support the same, rods extending outwardly from the levers adapted to swing the same, a shaft having eccentric portions registering with the rods, and adjusting means on said eccentric portions connecting said rods to the same whereby the relative movement of the rods with respect to the shaft may be adjusted. 65 70 75

4. In combination with a fixed roll and a movable roll, hinged levers connected to said movable roll for adjustably and rotatably supporting the same, a shaft associated with said rolls, and rods connecting said levers to said shaft, said rods having adjustable and eccentric connection with said shaft. 80

5. In combination with a fixed roll and a movable roll, hinged levers arranged at the ends of the movable roll for adjustably supporting the same, a shaft associated with the rolls, and rods coupling said levers to said shaft, said rods having eccentric and independently adjustable connection with said shaft whereby the ends of said movable roll may be independently adjusted. 85 90

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