

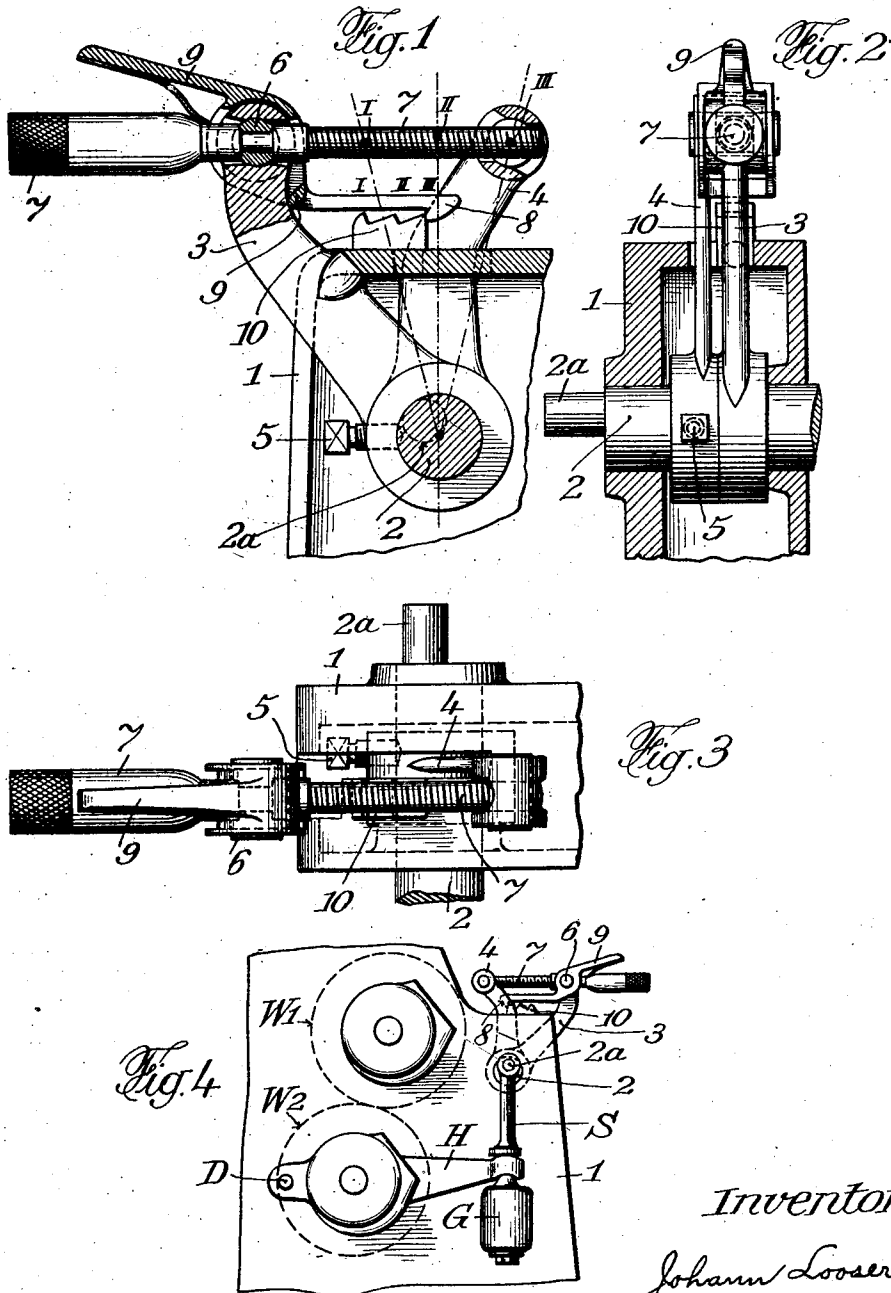
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ROLLER MILL

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Att.

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ROLLER MILL.

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The present invention relates to improvements in roller mills and has particular reference to a device for adjusting the rollers in roller mills relatively to each other.

5 With the known devices for effecting a parallel displacement of the rollers relatively to each other in roller mills, one roller of which is mounted in movable bearings operatively connected to an adjusting shaft provided with eccentrics, an adjusting lever is rigidly fixed to the eccentric shaft and a hand lever is rotatable on said shaft so that the angle determined by said levers may be altered until the hand lever is fixed to the frame by means of a spring loaded pawl. The hand lever is connected to the adjusting lever by means of an adjusting screw which is guided by a fixed pivot in the hand lever and by a pivot in the adjusting lever which latter pivot is displaceable relatively to the adjusting screw.

According to the present invention the fixed pivot of the hand lever and the displaceable pivot of the adjusting lever together with the adjusting screw are situated in the same plane which is at right angles to the axis of the adjusting shaft.

Owing to this arrangement it is rendered possible with rollers that are displaceable parallel to each other to prevent the disadvantageous forces occurring during the working and the moments of such forces from acting upon the adjusting device, so that an accurate working of the adjusting device is ensured.

Preferably the arrangement is such that the position of the adjusting screw permits the attendant to ascertain directly at a glance the degree of the adjustment of the rollers i. e. when the rollers are in the position nearest to each other, the adjusting screw is horizontal, whilst it takes up an inclined position towards the front in the intermediate position and in the initial position of the adjusting device when the rollers are distanced from each other. The possibility of ascertaining the degree of the adjustment of the rollers at a glance is of particular advantage with automatically working roller mills.

By means of a single grip the rollers can be put into and out of action or can be brought into one of three intermediate positions, whereby the control is much facilitated.

Further the reliable working of the roller mills is enhanced by the simplification of the lever gear.

An embodiment of the subject matter of the present invention is illustrated on the accompanying drawing, in which—

Fig. 1 is a side view with parts shown in section,

Fig. 2 is an end view,

Fig. 3 is a plan view of the device and

Fig. 4 shows on a smaller scale the device mounted on a roller mill.

Referring now to the drawings 1 denotes the frame of the roller mill, in which the eccentric adjusting shaft 2 is rotatably mounted. On the latter the hand lever 3 is loosely mounted and the adjusting lever 4 is fixed to the shaft 2 by means of the set screw 5. At the end of the hand lever 3 a pivot 6 for the adjusting screw 7 is arranged in which pivot the adjusting screw cannot be axially displaced and the other end of the adjusting screw is pivotally and displaceably guided in the free end of the adjusting lever 4. To the end of the hand lever 3 a spring actuated pawl 9 is attached, the tooth 8 of which is adapted to co-operate in three different positions I, II and III with teeth of the block 10 fixed to the frame 1. Any fine adjustment of the relative distance of the rollers can be obtained by turning the adjusting screw 7 for which purpose a milled head is provided thereon. As may be seen in the plan view (Fig. 3) the fixed pivot of the hand lever and the displaceable pivot of the adjusting lever and the adjusting screw are in the same plane which is at right angles to the adjusting shaft. Thereby all the forces acting upon the device during the working of the rollers are in this plane and only turning moments act on the adjusting shaft 2, which moments are taken up by the pawl and the block. All the other moments which would influence the device disappear as the arms of lever of the forces are equal to zero.

The manner in which the device is mounted in relation to the rollers of a roller mill is illustrated in Fig. 4. The upper roller W^1 is non-displaceably mounted in the frame 1 whilst the lower roller W^2 is mounted in the levers H which are pivoted at D. The free end of a lever H embraces loosely a rod S below a collar of the latter and above a weight G fixed to the lower end of the rod S.

The rods S are pivoted on the eccentric pins 2^a of the adjusting shaft 2 so that a turning of the adjusting shaft causes a parallel displacement of the lower movable roller. The manner in which the rollers 3 and 4 and the adjusting screw 7 with the pawl 9 are mounted may be seen in Fig. 4. The adjustment of the rollers may be seen at a glance as the angle of the inclination of the adjusting screw is a direct indication of the adjustment.

I claim:

1. A device for adjusting the rollers of roller mills comprising in combination an eccentric shaft adapted to be operatively connected to the rollers, an adjusting lever fixed to said shaft, a hand lever loosely mounted on said shaft, an adjusting screw pivotally mounted in said levers for connecting the latter to each other, a spring loaded pawl pivoted on said hand lever, and a stationary member having teeth with which said pawl co-operates for securing the levers in adjusted positions, the pivots on the hand lever and on the adjusting lever for mounting the adjusting screw and the latter are arranged in one plane which is at right angles to the axis of the eccentric shaft.

2. A device for adjusting the rollers of roller mills comprising in combination an eccentric shaft adapted to be operatively connected to the rollers, an adjusting lever fixed to said shaft, a hand lever loosely mounted on said shaft, an adjusting screw pivotally mounted in said levers for connecting the latter to each other, the adjusting screw being non-displaceable relatively to the pivot provided on the free end of the hand lever and displaceable in the pivot provided on the free end of the adjusting lever whereby the angle between said levers can be altered, a spring loaded pawl pivoted on said hand lever, and a stationary member having teeth with which said pawl co-operates for securing the levers in adjusted positions, the pivots on the hand lever and on the adjusting lever for mounting the adjusting screw and the latter are arranged in one plane which is at right angles to the axis of the eccentric shaft.

3. A device for adjusting the rollers of

roller mills comprising in combination an eccentric shaft adapted to be operatively connected to the rollers, an adjusting lever fixed to said shaft, a hand lever loosely mounted on said shaft, an adjusting screw pivotally mounted in said levers for connecting the latter to each other, a spring loaded pawl pivoted on said hand lever and a stationary member having teeth with which said pawl co-operates for securing the levers in adjusted positions, the pivots on the hand lever and on the adjusting lever for mounting the adjusting screw and the latter are arranged in one plane which is at right angles to the axis of the eccentric shaft, the arrangement being such that the adjustment of the rollers may be ascertained at a glance from the inclination of the adjusting screw.

4. In a roller mill, a frame, a roller mounted in bearings fixed to said frame, a second roller co-operating with the first mentioned roller, levers turnably mounted in said frame and carrying bearings in which said second roller is mounted, an eccentric shaft mounted in said frame and operatively connected to said levers, an adjusting lever fixed to said shaft, a hand lever loosely mounted on said shaft, an adjusting screw pivotally mounted in said levers for connecting the latter to each other, the adjusting screw being non-displaceable relatively to the pivot provided on the free end of the hand lever and displaceable in the pivot provided on the free end of the adjusting lever whereby the angle between said levers can be altered, a spring loaded pawl pivoted on said hand lever, and a stationary member having teeth with which said pawl co-operates for securing the levers in adjusted positions, the pivots on the hand lever and on the adjusting lever for mounting the adjusting screw and the latter are arranged in one plane which is at right angles to the axis of the eccentric shaft, the arrangement being such that the adjustment of the rollers may be ascertained at a glance from the inclination of the adjusting screw.

In testimony whereof I affix my signature.

JOHANN LOOSER.