ROLLER ADJUSTING MEANS FOR SUGAR CANE MILLS.

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Patented May 29, 1917.
To all whom it may concern:

Be it known that I, Hugh Wallace Aitken, a subject of the King of Great Britain and Ireland, residing at Richmond Chambers, 147 Bath street, Glasgow, Scotland, have invented certain new and useful Improvements in Roller-Adjusting Means for Sugar-Cane Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to sugar cane mills of the usual three-roller type. In such mills it is usual to provide means for adjusting the bearings of the side rollers in a horizontal direction. Alternatively, however, means have been provided, or proposed, for adjusting the side roller bearings in a vertical direction, or in a definite oblique direction (e., in a line joining the axes of the top and side rollers) instead of in a horizontal direction.

My present application is a division of my Patent No. 1,285,294, patented May 23rd, 1916, and filed March 16th, 1915.

It is, in my opinion, of immense advantage in a three-roller sugar cane mill to be able to adjust the side rollers with respect to the dumbturner without altering the clearances between the top roller and the side rollers, and to be able to adjust these clearances (between top roller and side rollers) without affecting the relationship between the side rollers and the dumbturner.

In my opinion it is only possible to obtain these effects and to derive the maxima of the advantages obtainable from adjustment of the side rollers by providing means for adjusting the positions of the bearings of these rollers in two directions approximately at right angles to each other, e., in a horizontal direction and in a vertical direction.

My invention—which will be described in the following specification and more particularly defined in the annexed claims—has for its object the securing of these advantages.

The accompanying drawing will serve to illustrate my invention. This figure is a vertical section through, and at right angles to, the journal of one of the side rollers of a sugar cane mill and shows the means, according to the present invention, for adjusting the bearing of this journal. a is the mill headstock or housing, b is a recess in this headstock to receive the journal bearing of one of the side crushing rollers, c is the journal of this roller, d is the bearing for this journal, e is the cap which holds in the bearing, and f, f are the bolts which secure this cap. The bottom of the recess in the headstock which receives the bearing is provided with an inclined surface g and, engaging with this inclined surface, is a wedge block h on which the bearing rests. This wedge block can be adjusted by means of the rod v which passes through an elongated hole p in the cap e and is threaded at its outer end to receive the nut q which bears on the boss m on the cap e; by this means the bearing can be raised and lowered as desired.

The horizontal adjustment of the bearing is effected by the wedge w which is adjusted by means of the rod v which passes through the elongated hole k in the headstock and is threaded at its upper end to receive the nut r which presses the washer t on the boss n on the headstock. The inclined surface of the nut bears on an inclined surface v formed on the cap e. A plate or bolster block q is preferably, but not necessarily, interposed between the wedge w and the bearing, and the wedge w either bears on this block or directly on the bearing d.

By means of the two wedges the bearing can be adjusted in any desired direction and, within certain limits, to any desired extent.

It will be obvious that a wedge employed either for vertical or horizontal adjustment could be arranged in any one of four different ways. For example, referring to the wedge for vertical adjustment, this could be arranged: (1) with the upper surface horizontal, the lower surface inclined, and the larger end at the inside (as shown on the drawing); (2) with the upper surface horizontal, the lower surface inclined, and the larger end at the outside; (3) with the upper surface inclined (the bush being then formed with an inclined lower surface); the bottom surface horizontal (the headstock being then formed with a horizontal
surface to receive the wedge), and the larger end at the outside; (4) same as 3 but with the larger end at the inside. Similarly, as will be obvious, four alternative arrangements of wedge are possible for horizontal adjustment.

By means of my invention it is possible to adjust the side roller at the inlet side of the mill for wear of the dumbturner, without altering the normal space or gap between this roller and the top roller. It is also possible to adjust and maintain the back of the dumbturner to be at the required distance from the megass roller (that is the roller at the outlet side of the mill). This point is of importance, especially in the last mills of a series, as too much space allows megass to fall through, and too little space allows inadequate area for the escape of juice. I have deemed it unnecessary to illustrate or describe in greater detail the location and function of the dumbturner, as this will be familiar to those skilled in the art.

It is not necessary that the two directions of adjustment should be exactly horizontal and exactly vertical respectively; and, in the case where the oblique side of the wedge is next the bearing, an exactly horizontal movement will not be obtained. Neither is it necessary that the two directions of adjustment should be exactly at right angles to each other, although an approximation to a right angle is advantageous, as, otherwise, adjustment by the one wedge may be partly counteracted by adjustment by the other wedge.

Although it is generally preferable to provide for adjusting the bearings of both side rollers as above described, my invention might be applied to the bearings of one side roller only.

What I claim as new and desire to secure by Letters Patent is:

1. In a mill adapted for the crushing of sugar cane, a headstock having a recess, a bearing in said recess for the journal of a side crushing roller, a wedge block adapted to slide on the bottom of said recess and to support said bearing, a threaded rod adapted to operate said wedge block to raise or lower said bearing, a second wedge block at the side of said bearing, and a threaded rod adapted to raise and lower said second wedge block to move said bearing laterally.

2. In a mill adapted for the crushing of sugar cane, a headstock having a recess, a bearing in said recess for the journal of a side crushing roller, a cap closing in said recess, a wedge block adapted to slide on the bottom of said recess and to support said bearing, a threaded rod adapted to operate said wedge block to raise or lower said bearing, said rod being provided with a nut engaging with said cap, a second wedge block arranged vertically between said bearing and said cap, and a threaded rod adapted to raise and lower said second wedge block to move said bearing laterally.

3. In a mill adapted for the crushing of sugar cane, a headstock having a recess, a bearing in said recess for the journal of a side crushing roller, a cap closing in said recess, a wedge block adapted to slide on the bottom of said recess and to support said bearing, a threaded rod adapted to operate said wedge block to raise or lower said bearing, said rod being provided with a nut engaging with said cap, a bolster block arranged vertically at the side of said bearing and between said bearing and said cap, a second wedge block between said bolster block and the inside of said cap and bearing on said bolster block and said cap, and a vertical threaded rod adapted to raise and lower said second wedge block to move said bearing laterally.

I hereby sign my name to this specification. HUGH WALLACE AITKEN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."