W. M. BANCROFT.

BEARING FOR MILL ROLLS.

APPLICATION FILED NOV. 13, 1911.

Patented Apr. 16, 1912.

1,023,355.

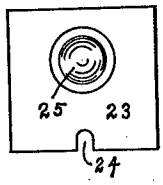


Fig. 4.

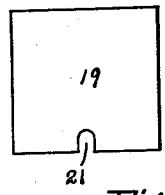
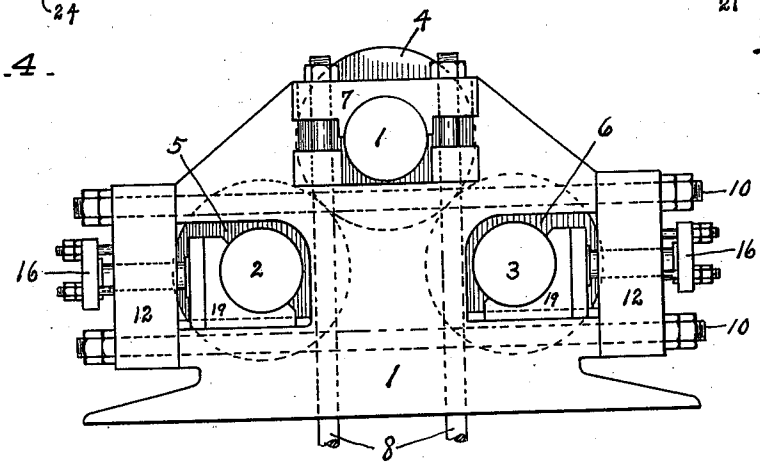


Fig. 5.

Fig. 1.



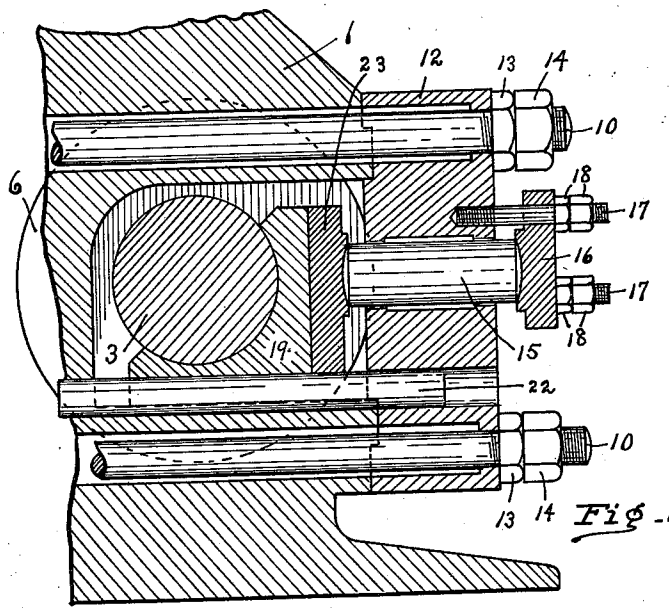
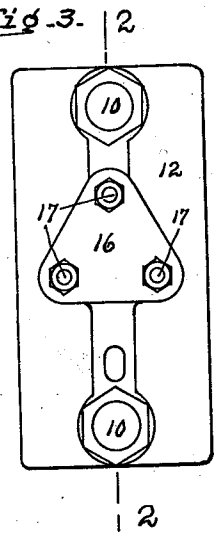


Fig. 2.

Fig. 3.



WITNESSES:

J. H. Perrault

Hugo W. Kreinbring.

INVENTOR

W. M. Bancroft.

BY

Edward N. Pagelsen,

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM M. BANCROFT, OF NEW ORLEANS, LOUISIANA.

BEARING FOR MILL-ROLLS.

1,023,355. Specification of Letters Patent. Patented Apr. 16, 1912.

Application filed November 13, 1911. Serial No. 660,094.

To all whom it may concern:

Be it known that I, WILLIAM M. BANCROFT, a citizen of the United States, and a resident of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Bearing for Mill-Rolls, of which the following is a specification.

This invention relates to means for supporting the bearings of the lower rolls of mills, and particularly the "quarter-boxes" of sugar-cane mills, and its object is to provide means whereby these bearings are adjustably supported in such a manner that the thrust upon them will always be central and will cause no binding, and which support will permit the bearing to adjust itself to the journal.

In the accompanying drawing, Figure 1 is a side elevation of a three-roll mill. Fig. 2 is a longitudinal section of one of the frames on the line 2—2 of Fig. 3. Fig. 3 is a view of a cap. Fig. 4 is an elevation of a pressure-plate. Fig. 5 is an elevation of a quarter-box.

Similar reference characters refer to like parts throughout the several views.

In the present mills for crushing and grinding sugar-cane, the pressure between the rolls is so tremendous that journals seventeen inches, and sometimes more, in diameter are necessary for rolls which are thirty-four inches in diameter and seven feet long between bearings. The frames 1 of the mill are very heavy castings, with deep pockets for the journals 1, 2 and 3 of the rolls 4, 5 and 6, and the bearings for the same. The rolls contact so that a bearing for but one side of each journal is necessary. Each bearing 7 of the upper roll is held down by the rods 8 which connect to a hydraulic ram in the usual manner.

Heavy rods 10 extend longitudinally through the frames and through the caps 12, and have nuts 13 and 14 to secure the caps to the frames. Each cap 12 has a central bore in which the ram 15 is loosely mounted. The ends of this ram are rounded, and the outer end engages in a spherical seat in the follower 16. Studs 17 screw into the cap 12 and the nuts 18 on the studs hold the follower in any desired position, being the adjusting means for the ram.

The quarter-boxes 19 are slidable in the lower pockets and are formed with grooves 21 so that they may be guided by the steel keys 22 mounted in proper grooves in the frame. These bearings receive the journals of the lower rolls, and the pressure-plates 23 lie flat against the outer sides of these boxes. These pressure-plates are preferably of steel and have grooves 24 for the keys 22, and concave seats 25 to receive the inner ends of the rams 15. The grooves in the quarter-boxes and pressure-plates are sufficiently larger than the keys 22 to permit the boxes and plates to adjust themselves to the journals of the rolls. Because of the ease of adjustment of the followers 16, the journals can be accurately positioned, and because of the peculiar form of the rams, the pressure on the pressure-plates and quarter-boxes will always be central so that neither end of the bearing will receive greater pressure than the other. While these bearings are peculiarly adapted to rolls of sugar-cane mills, it will be understood that they are not limited to such mills, but may be employed with any other class of "three-roll" mills of the same general character. It will be apparent that the studs 17 can be so proportioned as to be the weakest members in the structure. The threads of these studs can thus be counted upon to strip when any undue stress occurs, as when a piece of iron happens to pass between the rolls. It will be evident that the pressure-plate may be integral with the quarter-box.

I claim.

1. A bearing for the journals for the lower rolls of a three-roll mill, comprising a frame having a pocket to receive the journal, a quarter-box slidable therein, a pressure plate in contact with the rear side of the box, a cap extending over the pocket, a follower plate, bolts to adjustably secure the same in position, and a ram mounted in said cap and extending between the pressure-plate and follower.

2. In a grinding mill, a frame having pockets to receive the journal of a lower roll, a cap extending over a pocket and means to secure the same in position, a quarter-box for said journal and a pressure-plate bearing against the same, means to guide the plate and box, a follower, studs

and nuts carried by the cap to adjustably hold the follower in position, said follower and pressure-plate having spherical seats, and a ram extending between said seats to transmit pressure from the quarter-box to said follower.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

WILLIAM M. BANCROFT.

Witnesses:
A. B. PORTER,
K. W. HESS.