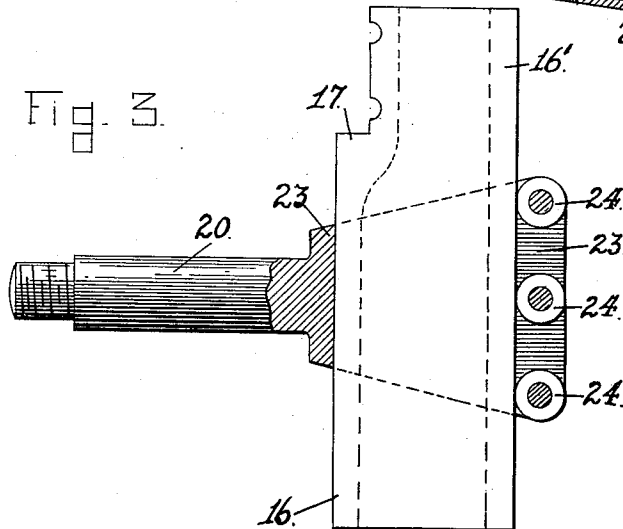
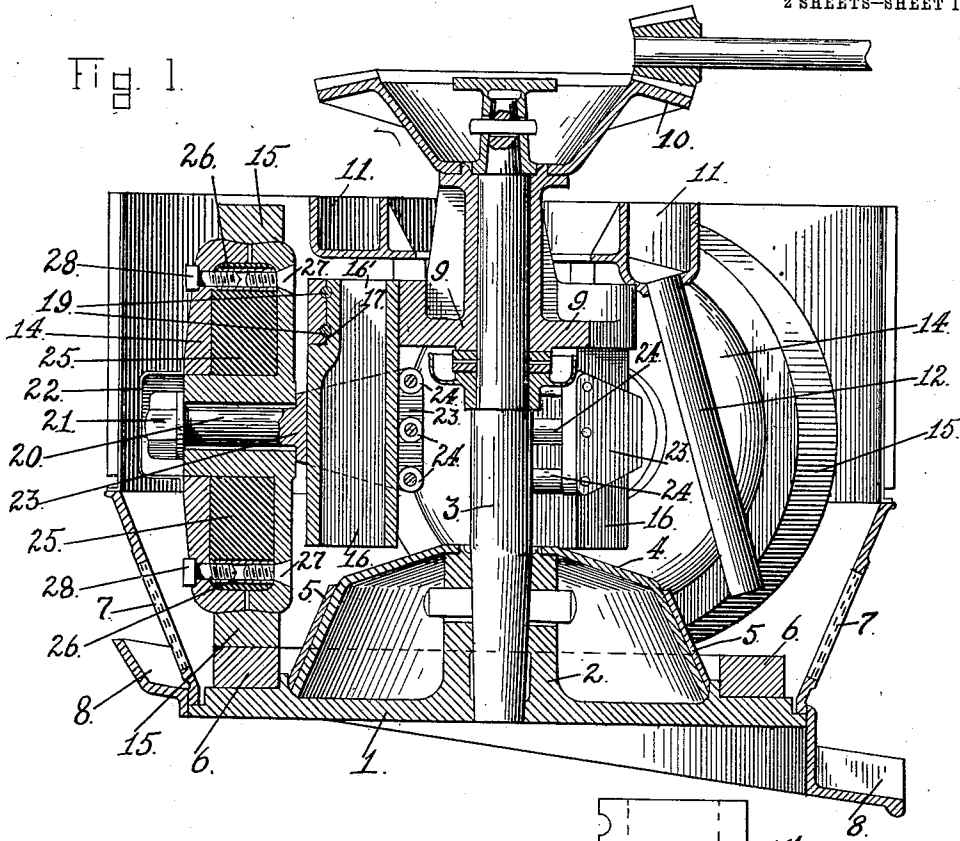


1,008,046.

Patented Nov. 7, 1911.
2 SHEETS—SHEET 1.



Witnesses
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Patented Nov. 7, 1911.
2 SHEETS—SHEET 2.

Fig. 2.

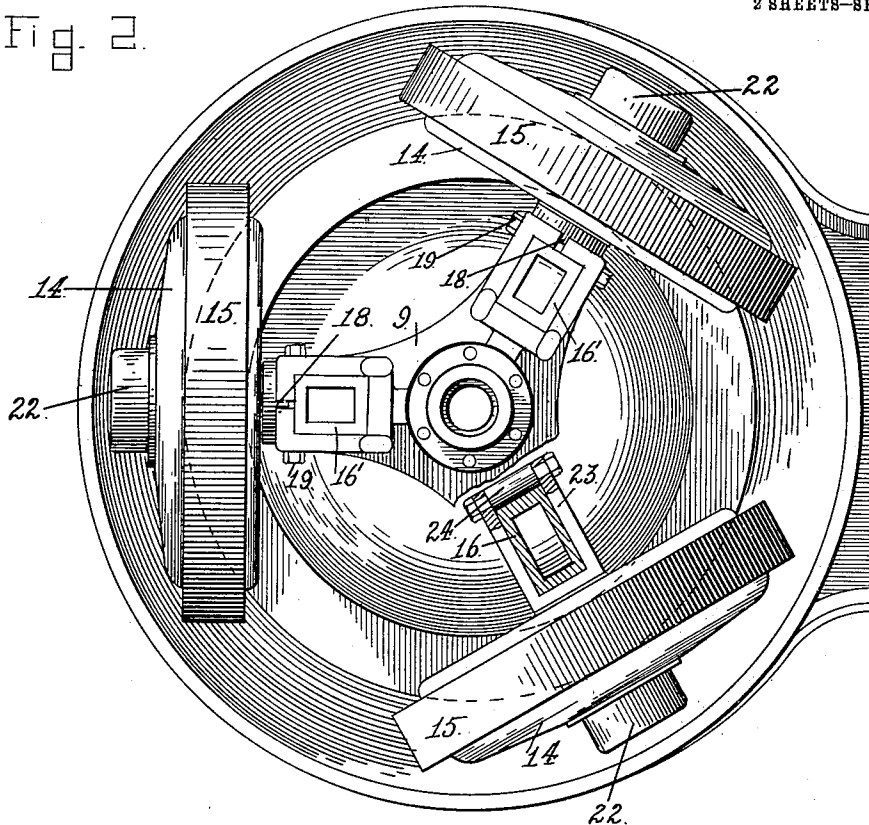
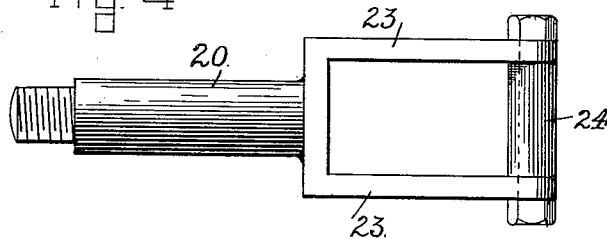


Fig. 4.



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UNITED STATES PATENT OFFICE.

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CHILIAN MILL.

1,008,046.

Specification of Letters Patent.

Patented Nov. 7, 1911.

Application filed January 13, 1911. Serial No. 602,379.

To all whom it may concern:

Be it known that I, ALEXANDER J. McCONE, a citizen of the United States, residing at Reno, in the county of Washoe and State of Nevada, have invented certain new and useful Improvements in Chilian Mills, of which the following is a specification.

My invention relates to the class of Chilian-mills.

10 The object of my invention is to provide, by simple and effective connections, for the necessary vertical movement of the crushing rollers under working conditions, independently of the driver and of each other; and
15 also to provide, by a simple and effective construction of the rollers themselves, for increased crushing weight without an increase of bulk.

20 To these ends my invention consists in the novel construction and arrangement of parts which I shall hereinafter describe and claim, reference being had to the accompanying drawings, in which—

25 Figure 1 is a vertical section of my mill. Fig. 2 is a plan of the same, partly broken, and the feed trough and driving gears omitted. Fig. 3 is a side view enlarged of the mounting connections for each roller, the yoke being in section. Fig. 4 is a top view
30 of the roller axle and yoke.

1 is the mill bottom with a central column 2 in which is keyed the non-rotating shaft 3.

4 is the center cone, with face liner 5.

6 is the die, 7 the screens and 8 the launder.

35 9 is the driver mounted to rotate about the shaft 3, and driven from above through the gear 10.

11, in Fig. 1, is the feed trough and 12 are the feed pipes.

40 14 are the crushing rollers. I have shown three in the present case. Each roller has a tire 15 to run on the die 6. The means for mounting each roller being the same, a description of one will apply to all.

45 The driver 9 has made in the extremity of each of its arms a rectangular hole in which is fitted the upper end 16' of a correspondingly shaped post 16. This upper end 16' is of smaller cross section on one side than
50 the post itself thus forming a shoulder at 17 which bears under the outer end of the driver arm. The end of the driver arm, which forms the outer wall of the post-receiving hole is split through to said hole as
55 shown in Fig. 2 at 18; and bolts 19 are passed horizontally through this end and lie

in seats formed in said end and the adjacent wall of the post. By tightening up these bolts the post is clamped securely in the arm. The bolts by seating partly in the arm and
60 partly in the post also resist endwise movement of the post, but the upward thrust which is likely to be the most severe is effectually resisted by the shoulder 17. Thus the post is well and rigidly secured
65 and will resist any strain put upon it, more certainly than if it were merely bolted to the arm.

20 is the roller spindle or axle, the outer end of which receives a nut 21 which is
70 covered by an oil guard 22. The inner end of the spindle or axle 20 is formed or provided with a yoke 23 angularly shaped to embrace with a sliding fit three sides of the driver post 16. The extremities of the yoke
75 are fitted with rolls 24 which lie upon the back or fourth side of the post. In order to better resist any canting strain, the yoke arms widen to their extremities and carry three rolls 24, as seen in Fig. 3. The effect
80 of these connections is that each crushing roller 14 can have its vertical movement under working conditions independently of the other rollers, and also independently of the driver, so that the strains and stresses of
85 one are not communicated to another, as in those cases in which the driver itself is intended to form part of the crushing weight. Each roller rises vertically parallel to its post, without tilting strain, its yoke sliding
90 true upon the post, thereby maintaining the proper relative position of its tire and the die. The construction is much simplified by having the yoke slide directly on the driver-post, and by this reduction in the number of
95 parts forming the mounting connection, a certain amount of weight is dispensed with which would cause wear in the journal. Also, as before noted, the post itself is firmly secured to resist strains. The crushing
100 rollers 14 are formed in two sections meeting in their circumference, as seen in Fig. 1, one section having the hub over which the other fits; and the periphery of these sections are oppositely beveled to their meeting
105 line as shown. This provides for securing the tire 15, the inner surface of which is complementally beveled, when the sections are clamped together, and thus avoids the use of independent wedges. The sections of
110 the rollers are hollowed out as shown and in the chamber thus formed is inserted a mass

25, as shown in Fig. 1, of lead or other relatively heavier metal, whereby the weight of the roller is increased without affecting its bulk. The sections of the roller and the inserted mass or filling 25 are securely clamped together by means of sleeves 26 secured by screws 27 to one section and receiving tap-bolts 28 from the other section. This provides convenient means for separating the roller sections to insert the filling and to clamp them together again to hold the tire.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is—

1. In a Chilian-mill, the combination of a driver, posts of rectangular cross section secured at their upper ends to the driver, crushing rollers, and a connection between each roller and its post consisting of an axle on which the roller is mounted, said axle having at its inner end a rectangular yoke which embraces the three sides of the post with a sliding fit, and rolls carried by the yoke arms and bearing upon the fourth side of the post.

2. In a Chilian-mill, the combination of a driver having an arm with a rectangular hole from which the arm is split outwardly to its extremity, a post of rectangular cross section fitted at its upper end in the hole in the driver arm, said post having near its

upper end a shoulder which bears against the underside of the arm, clamping bolts passing across the split extremity of the driver arm and engaging also the wall of the post, a crushing roll, and a connection between said crushing roll and the post.

3. In a Chilian-mill, the combination of a driver having an arm with a rectangular hole from which the arm is split outwardly to its extremity, a post of rectangular cross section fitted at its upper end in the hole in the driver arm, said post having near its upper end a shoulder which bears against the underside of the arm, clamping bolts passing across the split extremity of the driver arm and engaging also the wall of the post, a crushing roll, and a connection between said crushing roll and the post consisting of an axle on which the roller is mounted, said axle having at its inner end a rectangular yoke which embraces the three sides of the post with a sliding fit, and rolls carried by the yoke arm and bearing upon the fourth side of the post.

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

ALEXANDER J. McCONE.

Witnesses:

WM. F. BOOTH,
D. B. RICHARDS.