J. P. MOORE.

Millstone Balancing Device.

No. 199,088. Patented Jan. 8, 1878.

Fig. 1.

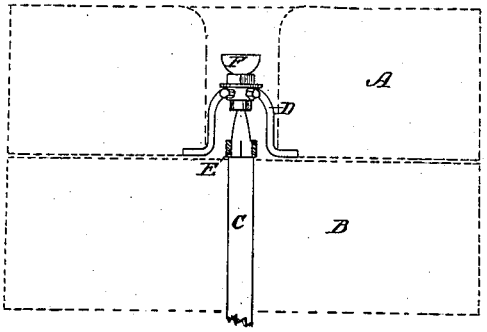

Fig. 2.

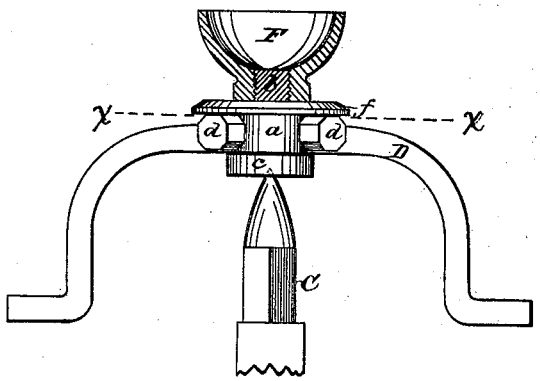

Fig. 3.

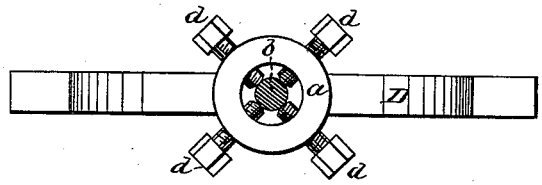

Fig. 4.

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IMPROVEMENT IN MILLSTONE-BALANCING DEVICES.

Specification forming part of Letters Patent No. **199,088**, dated January 8, 1878; application filed October 29, 1877.

To all whom it may concern:

Be it known that I, JOHN P. MOORE, of De Mossville, in the county of Pendleton and State of Kentucky, have invented a new and improved Millstone-Balance; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view, showing the application of the device to a pair of millstones, indicated in dotted lines. Fig. 2 is an enlarged side view, partly in section. Fig. 3 is a horizontal section through line *x x* of Fig. 2; Fig. 4, a detail of a modified form of nut.

The object of my invention is to provide an improved means of balancing millstones to make them run true and grind uniformly, and which shall permit an easy and accurate adjustment, and dispense with weights heretofore employed for the purpose.

The invention is an improvement upon that form of balance in which a removable block is stepped upon the spindle, and is adjusted in an opening of the balance-rynd by horizontal set-screws, to balance the millstone by shifting its center.

The improvements consist, first, in using in the place of the block a headed bolt, the head of which carries the weight of the millstone by resting against the under surface of the opening in the balance-rynd, and is itself supported upon the spindle, and employing, in connection with the threaded end of said bolt, a nut and washer, which not only holds the bolt firmly in the balance-rynd, but also rests against the flattened heads of the horizontal adjusting-screw, and acts as a nut-lock to the same.

The invention also consists in forming such nut directly upon the bottom part of the distributing-cup, all as hereinafter more fully described.

In the drawing, A represents, in dotted lines, the runner, and B the bed-stone, of any ordinary mill. C is the spindle, arranged in suitable bushings in the bed-stone; D, the balance-rynd affixed to the runner, and E the driving-iron, fastened rigidly upon the spindle, and arranged to engage with recesses in the under surface of the runner, or with the balance-rynd, to rotate the stone.

Now, instead of allowing the upward bend of the balance-rynd to be supported directly upon the spindle, I form an opening or eye, *a*, through the balance-rynd, and place in the same a steel bolt, *b*, having a head, *c*, and in the lower portion of said head I form an indentation to receive the spindle. This bolt I adjust in the opening of the balance-rynd by four set-screws, *d*, so as to change the center of the stone with respect to the stationary bolt and spindle, in order to balance the runner.

I am aware of the fact that it is not new to balance a millstone from the center upon the general principle of the employment of horizontal adjusting-screws and an independent block in the balance-rynd, the same being shown in the expired patent to J. H. Glover of December 1, 1857; but in this case the block has a horizontal groove in which the set-screws rest, and by which screws above it are supported. This arrangement not only brings the weight of the stone solely upon the set-screws, but, there being no locking device for the screws, they are forced out by the jar of the mill, so that they lose their adjustment and drop in between the stones, producing serious damage.

To remedy these defects, in the first place I employ a headed steel bolt, *b*, instead of a grooved block, and arrange it so that the weight of the stone and the balance-rynd rests upon its head, while the latter is stepped directly upon the spindle. This, it will be seen, relieves the horizontal adjusting-screws of the weight of the millstone.

Furthermore, I form the heads of the adjusting-screws with flat or angular sides, and arrange a washer, *f*, and a cup-shaped nut, F, upon the upper threaded end of bolt *b*, so that when screwed up they not only serve as a fastening for the bolt, but the lower edges of the wide washer fit against the flat sides of the heads of the adjusting-screws, and act as nut-locks to the same, to prevent them from ever turning or losing their adjustment from the jar of the mill.

I use an independent washer beneath the nut, instead of a flange of similar width formed

upon the nut, so that the washer may be placed upon the set-screws, and the nut then turned without abrading the set-screws, which might loosen their adjustment. I may, however, if found desirable for any reason, form the washer and the nut of one and the same piece, as in Fig. 4.

The nut F, I may also make plain, or in any other form, if desired; but I prefer to make it cup-shaped, as in Fig. 2, for the reason that it serves then as a distributing-cup to receive the grain and distribute it circularly from centrifugal action, thus dispensing with the necessity of a separate distributing-cup, and combining two functions in one device.

To prevent the nut F from becoming loose and rising, I make the upper face of the balance-rynd dished, so that the washer is supported only at its edges, and may spring slightly in the center, which permits the nut to be jammed and held more securely.

In arranging the thread of the bolt *b* and nut F the latter is designed to screw on in the reverse direction from the rotation of the millstone, so that the contact of anything against the cup when the stone is running will have a tendency to tighten instead of loosening the same.

Having thus described my invention, what I claim as new is—

1. The headed bolt *b*, in combination with the spindle, the adjusting-screws, the perforated balance-rynd, and the clamping-nut, arranged upon the threaded stem of said bolt upon the opposite side of the balance-rynd from its head portion, substantially as and for the purpose described.

2. The combination, with the headed bolt *b*, the perforated balance-rynd, and the horizontal set-screws, having angular heads, of a fastening-nut adapted to secure the bolt and lock the adjusting-screws, substantially as and for the purpose described.

3. The nut F, made in cup shape, and combined with the bolt *b*, the perforated balance-rynd, and the angular-headed horizontal adjusting-screws, as described.

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Witnesses:
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