C. F. WALTERS.

Bushing-Attachment to Mill-Spindles.

No. 195,910. Patented Oct. 9, 1877.

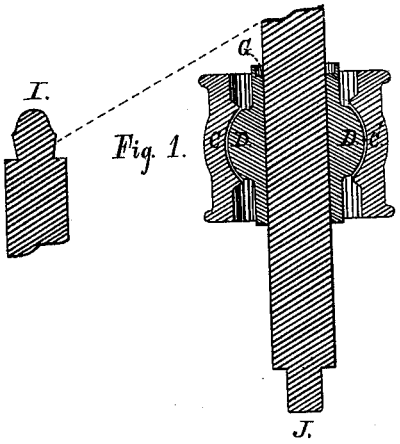


Fig. 1.

Fig. 4

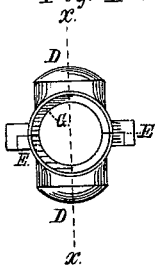


Fig. 2.

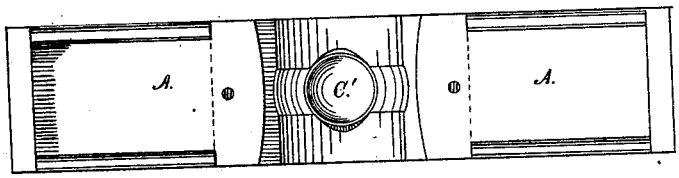
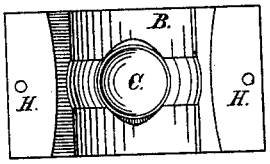


Fig. 3.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES F. WALTERS, OF RICHMOND, INDIANA.

IMPROVEMENT IN BUSHING ATTACHMENTS TO MILL-SPINDLES.

Specification forming part of Letters Patent No. **195,910**, dated October 9, 1877; application filed March 24, 1877.

To all whom it may concern:

Be it known that I, CHARLES F. WALTERS, of Richmond, county of Wayne, and State of Indiana, have invented certain Improvements in Collar-Beams for Grinding-Mills, of which the following is a specification:

The object of my invention is to furnish a self-adjusting bearing for the spindle of a grinding-mill, as will be hereinafter fully explained.

Figure 1 is a vertical longitudinal section of the spindle and a vertical cross-section of the collar-beam, also a section in the line *x x*, Fig. 4, of the self-adjusting bearing. Fig. 2 is a side elevation of the collar-beam. Fig. 3 is an inside view of the cap attached to the collar-beam, by which the adjustable bearing or box for the spindle is held in place. Fig. 4 is a top view of the self-adjusting bearing.

A is the collar-beam for an under-runner portable grinding-mill. B is a cap, attached to the collar-beam by means of bolts through the holes H H.

The cap and collar-beam have spherical chambers C C′, into which the rounded trunnions D D of the self-adjusting bearing, Fig. 4, are placed, and in which it vibrates, according to circumstances, when the lower end J of the spindle is adjusted by means of a step in the ordinary way.

The stone is attached to the upper end I of the spindle in the usual manner.

The journal-box, Fig. 4, has a spherical outline of nearly the same diameter as the spherical chamber formed inside of or between the collar-beam and cap. In this journal-box the upper end of the mill-spindle revolves on its axis. It being necessary to have the spindle exactly at right angles with the face of the stone, the lower end J is placed in a step or bearings susceptible of being moved in any direction by the necessary appliances.

It will be readily seen that if the lower end of the mill-spindle is moved in any direction from a vertical line with the collar-beam it will cause the box or journal-bearing to follow the spindle without undue strain or friction; the practice heretofore having been to employ a rigid journal-box bolted to a collar-beam, instead of using a self-adjusting journal-box.

My improvement differs from ball-and-socket bearings as employed in shaft-bearings, hangers, &c., as in all of that class of bearings it is of no consequence where the center of the ball is located, and it is the practice to make the radius less than the distance from the bearing to the center of the journal, and to allow lateral slip of the cap and box proper to compensate for want of sphericity in the bearing in relation to the axis of the shaft. But it will be seen by reference to the drawings that in my bearing the center of the spindle or axis of the same is the true center from which the sphere is described, thus enabling me to vibrate the bottom end of the spindle for the purpose described, the journal-box rolling in its seat in the operation, thus obviating all friction or strain.

A distinctive feature of my invention is the manner in which the self-adjusting journal-box shown in Fig. 4 is held in place and adjusted to compensate for wear without any bolts of its own, but is adjusted as to tightness and wear by means of the bolts which hold the cap B to the collar-beam A, the whole operating conjointly, the journal-box being simply locked together, as shown at E E, Fig. 4, and held in place by the outer cap B by means of bolts through the same.

G is a recess in the upper end of the journal-box for the reception of the oil.

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

The combination of the self-adjusting journal-box, formed in two sections, and having the rounded trunnions D D and the collar-beam A, and cap B, having recesses C C′, the several parts constructed and arranged to operate substantially as and for the purpose specified.

CHARLES F. WALTERS.

Witnesses:

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JOSEPH G. LEMON.