

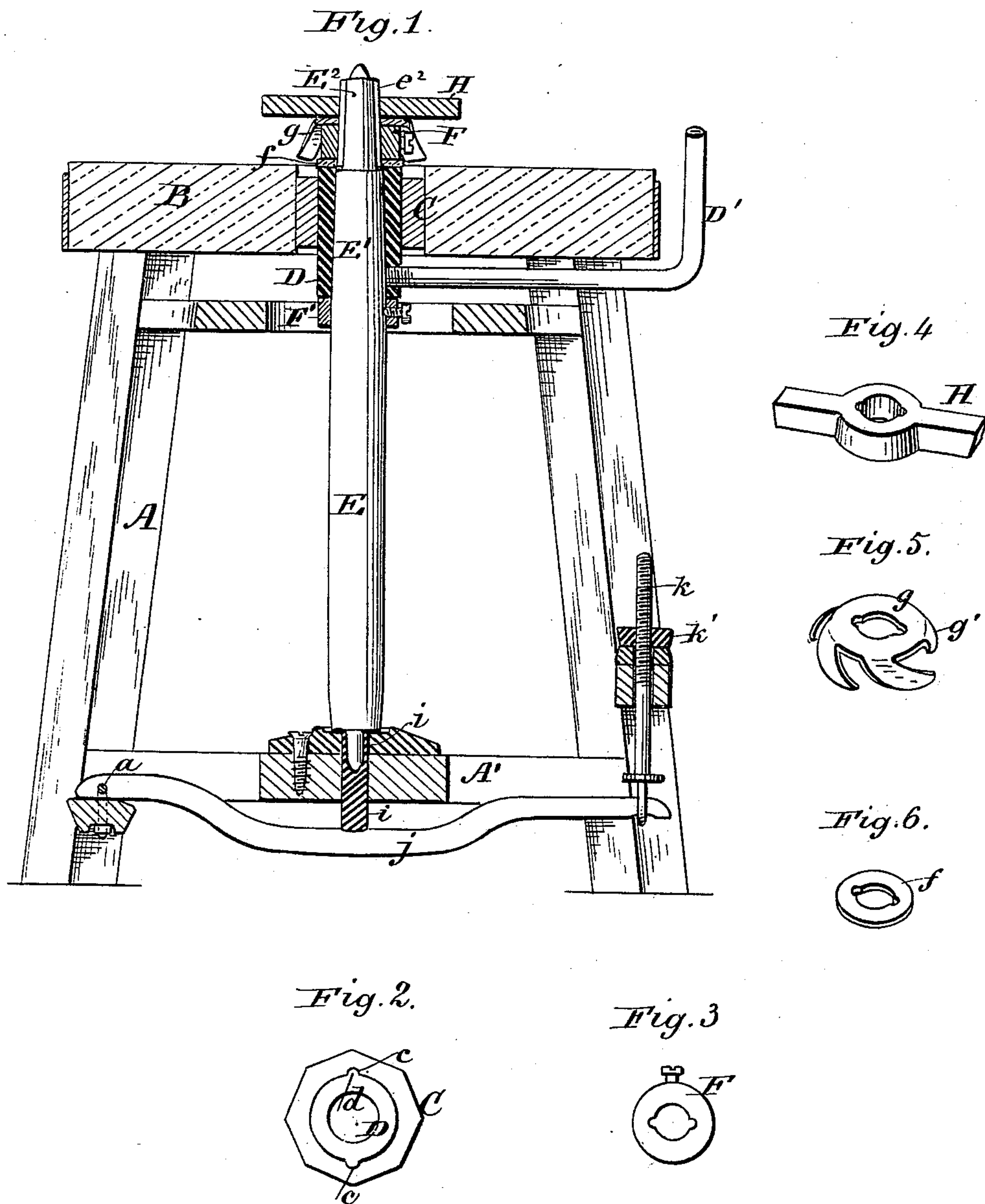
(No Model.)

C. A. MILNER & L. W. WOODWARD.

MILLSTONE BUSH.

No. 250,940.

Patented Dec. 13, 1881..



Witnesses:  
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# UNITED STATES PATENT OFFICE.

CHRISTIAN A. MILNER AND LELAND W. WOODWARD, OF AUGUSTA, GA.

## MILLSTONE-BUSH.

SPECIFICATION forming part of Letters Patent No. 250,940, dated December 13, 1881.

Application filed August 8, 1881. (No model.)

*To all whom it may concern:*

Be it known that we, CHRISTIAN A. MILNER and LELAND W. WOODWARD, citizens of the United States, residing at Augusta, in the county of Richmond and State of Georgia, have invented certain new and useful Improvements in Millstone-Bushes, of which the following is a specification.

The objects of our improvements are to produce simple, durable, and efficient means for holding mill-spindles, which will be capable of vertical adjustment, and also insure freedom of motion to the spindle. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a vertical section of a portion of a mill provided with our adjustable bushing. Fig. 2 is a top view of the inner and outer bush, the latter of which is to be secured to a millstone. Fig. 3 is a top view of one of the adjustable collars. Fig. 4 is a perspective view of the millstone-driver. Fig. 5 is a perspective view of the clearer for the eye of the millstone. Fig. 6 is a perspective view of a leather or elastic washer used with the bushing.

Similar letters refer to similar parts throughout the several figures.

A represents the frame supporting the stationary millstone B. In the eye of said stone there is permanently secured, with its axis exactly at right angles to the face of the stone, a bushing, C, having its periphery polygonal and its interior made with a cylindrical opening and two vertical grooves, *c*, to receive the upper bushing, D, of the spindle E. The periphery of the bushing D is cylindrical, with two vertical wings or feathers, *d*, made to fit the grooves *c* in the stationary bushing. The central opening in the bushing D is slightly tapering, being smaller at the top, and the part E' of the spindle E entering said bushing is made with a corresponding taper. The bushing D is properly adjusted upon the tapering portion of the spindle, and is thus kept by means of two collars, F and F', secured with screws to said spindle, the collar F being above the bushing D, and the collar F' immediately thereunder. To prevent flour or meal from entering between the spindle and its bushing D there is placed immediately above said bushing a washer, *f*, of leather or other partly

yielding and elastic substance that effectively covers the joint.

Over the collar F there is placed a sheet-metal fender, *g*, having a series of inclined wings, *g'*, to rotate with the spindle and prevent the packing of feed at the eye of the stone while regrinding grain, and above said fender is placed the millstone-driver H; and to cause said driver and fender to rotate with the spindle E the upper portion, E<sup>2</sup>, of said spindle is provided with wings *e*<sup>2</sup>, to enter corresponding grooves formed in the sides of their central opening. To oil the spindle in its bushing D the latter is provided with an oil-tube, D', extending to the side of the millstone. The lower end of the spindle E rests within a tubular step, *i*, retained vertically by the cross-pieces A' of the frame and supported upon an arm, *j*, hinged at one end to the frame at *a*, and retained at any desired height at the other end by means of a screw-rod, *k*, and nut *k'*, connected with the frame of the machine.

The adjustable sleeve or bushing D is made of bronze, or of cast-iron lined with bronze or Babbitt metal. The central opening being made tapering to correspond with the spindle enables the miller or operator to easily adjust the spindle to its bearing, and thus compensate for wear, prevent vibration of the spindle, and consequent unsteady running of the millstone, the latter remaining steady and in tram; and as the introduction of flour or feed between the spindle and its bushing is effectually prevented by the washer *f*, the spindle does not become heated while running, and may be made of less diameter than heretofore, and consequently less friction be produced.

Having now fully described our invention, we claim—

1. The combination of a polygonal bushing secured to a millstone and having internal grooves, *c*, an adjustable and internally-tapering bushing, D, and adjustable collars above and under said bushing, with the spindle of a millstone, substantially as and for the purpose described.

2. The combination of a millstone-spindle, an adjustable bushing, adjustable collars above and under said bushing, and above the upper collar a fender provided with wings, substantially as and for the purpose described.

3. The combination of the spindle of a millstone, an adjustable bushing having a conical central opening, adjustable collars above and under said bushing, and a yielding washer, *f*,  
5 interposed between the top of the bushing and the upper collar, substantially as and for the purpose described.

4. The combination of a millstone-spindle, an adjustable and internally-tapering bushing,  
10 adjustable collars above and under said bushing, and an oil-tube entering the side of said bushing between the adjustable collars, substantially as and for the purpose described.

5. The combination of a millstone-spindle, adjustable collars secured thereto, an inter- 15  
nally-tapering and adjustable bushing between said collars, and a tubular step, *i*, with an arm, *j*, and screw *k*, substantially as and for the purposes described.

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