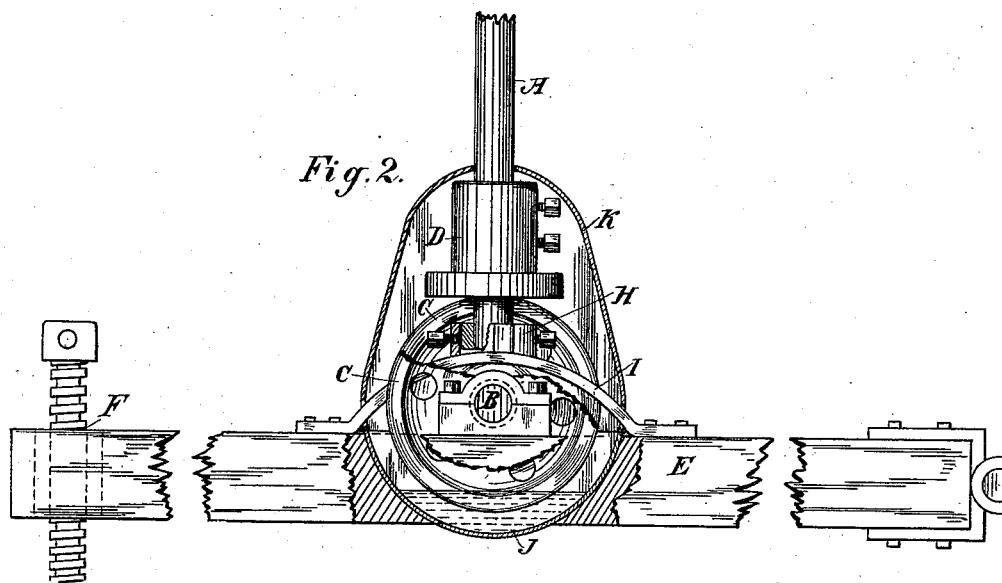
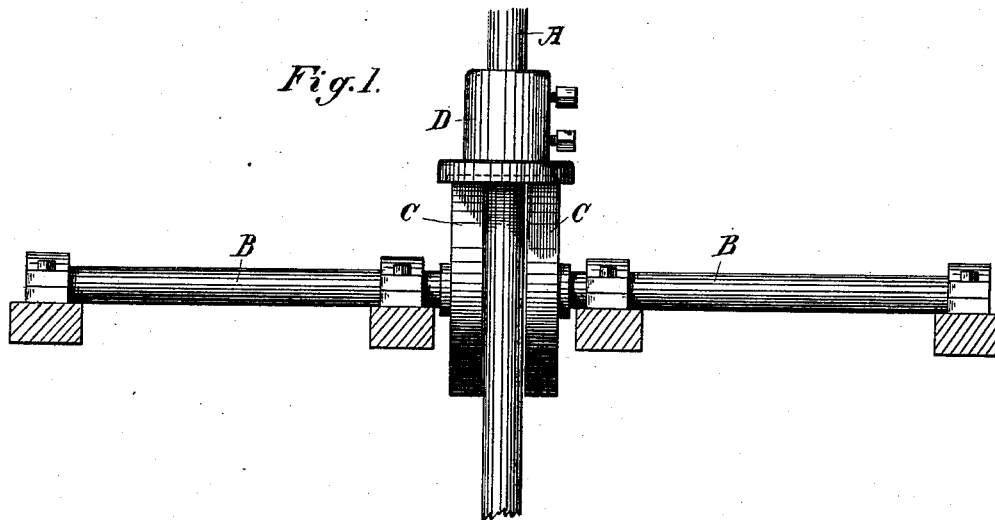


(No Model.)

I. P. LAMBING.
VERTICAL SHAFT BEARING.

No. 347,431.

Patented Aug. 17, 1886.



Witnesses,
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UNITED STATES PATENT OFFICE.

ISAAC P. LAMBING, OF IONE, CALIFORNIA.

VERTICAL SHAFT-BEARING.

SPECIFICATION forming part of Letters Patent No. 347,431, dated August 17, 1886.

Application filed February 27, 1886. Serial No. 193,521. (No model.)

To all whom it may concern:

Be it known that I, ISAAC P. LAMBING, of Ione, Amador county, State of California, have invented an Improvement in Vertical Shaft-Bearings; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a device for relieving the step or bearing of vertical shafts from weight; and it consists of a cylindrical flange or collar adjustably secured to the shaft, and in combination therewith of wheels mounted upon horizontal shafts so that their peripheries will travel beneath the flange or collar which rests upon them, so that they carry the weight of the vertical shaft and relieve its bearing or step from wear.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a view showing the vertical shaft, the collar or flange, and supporting-wheels. Fig. 2 is a view of my device applied to the lower end of a shaft in place of a step.

A is a vertical shaft having boxes and step, within which it revolves in the manner usual to this class of shafts. When they are employed to run centrifugal pumps, flour-mills, and for other heavy or rapid work, it is very difficult to prevent the spindles from wearing in the step.

In my invention I employ a horizontal shaft or shafts, B, turning in suitable boxes, so that the ends of the shafts stand close to the vertical shaft at any convenient or suitable point where it is desired to apply the relieving device. Upon the inner ends of the horizontal shaft B are keyed or secured the wheels C, so that they stand close to the vertical shaft. Above these wheels, upon the vertical shaft, is fixed a collar, flange, or tappet, D, the lower end of which is of sufficient diameter so that it may rest upon the edge tops of the wheels C. This collar D is secured to the vertical shaft by set-screws, keys, or other suitable devices. It has its lower face chambered to receive a steel disk, which forms the wearing-surface. The shaft is first raised slightly from its step, and the collar D is dropped down until it rests upon the tops of the wheels C, when it is secured firmly to the shaft A.

When the shaft is set in motion, the collar D travels upon the tops of the wheels C, which revolve very slowly and take all the weight off the step at the lower end of the shaft. When this device is to be used in connection with vertical millstone-shafts, it will be found more convenient to fix the tappet D at or near the lower end of the shaft, as shown in Fig. 2. The vertical shaft is guided by suitable boxes, H, in which it turns, the lower box being preferably supported upon the arch I, which curves over the horizontal shaft B, as shown. The horizontal shaft B extends across just below the bottom of the vertical shaft and is supported in boxes upon the bridge-tree E.

The wheels C are preferably bushed with Babbitt metal, brass, phosphor-bronze, or other similar suitable bushing, and turn loosely upon the shaft, the lower face of the tappet resting upon them, as before described.

The bridge-tree extends horizontally beneath the vertical shaft in the usual manner, and in the present case has slots cut through it to allow the wheels C to turn. One end of this bridge-tree is fulcrumed or hinged and the other is raised, lowered, or adjusted by a vertical screw passing through a nut at F.

It will be seen by this construction that it will be easy to adjust the shaft at any time by changing the position of the collar or flange, and the lower end may be relieved to any desired extent.

In order to lubricate the parts automatically, I fix an oil-containing vessel or chamber, J, below the bridge-tree, so that the rims of the wheels C will dip into the oil, carrying it up to the collar or flange D, from which it drips down, so as to lubricate the bearings of the horizontal shaft B, and also the guiding box or step H of the vertical shaft A, which box is supported upon the top of the arch I, as before described. The whole of this portion of the device is inclosed in a casing, as shown at K, which prevents the oil escaping and returns it constantly to the receiver J below. A small quantity of oil will thus serve to lubricate the device for a long time.

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

A vertical shaft with a collar or flange secured to it, in combination with a horizontal shaft or shafts, with wheels or rollers upon which the collar or flange of the vertical shaft
5 rests, a step or box for the lower end of the vertical shaft, an oil-chamber below the bridge-tree, into which the wheels dip, and an inclos-

ing casing, substantially as herein described.

In witness whereof I have hereunto set my hand.

ISAAC P. LAMBING.

Witnesses.

GEO. H. STRONG,

S. H. NOURSE.