No. 679,078. Patented July 23, 1901.

P. L. KIMBALL.

VERTICAL SHAFT BEARING.

(Application filed Apr. 22, 1901.)

(No Model.)

Fig. 1

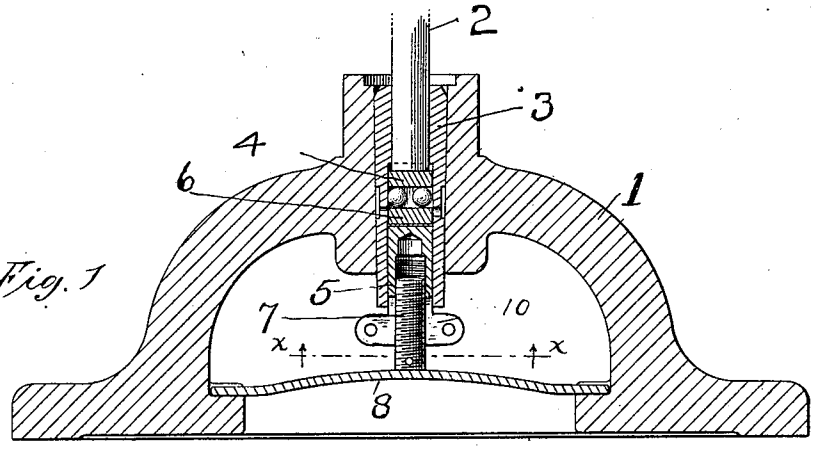


Fig. 2

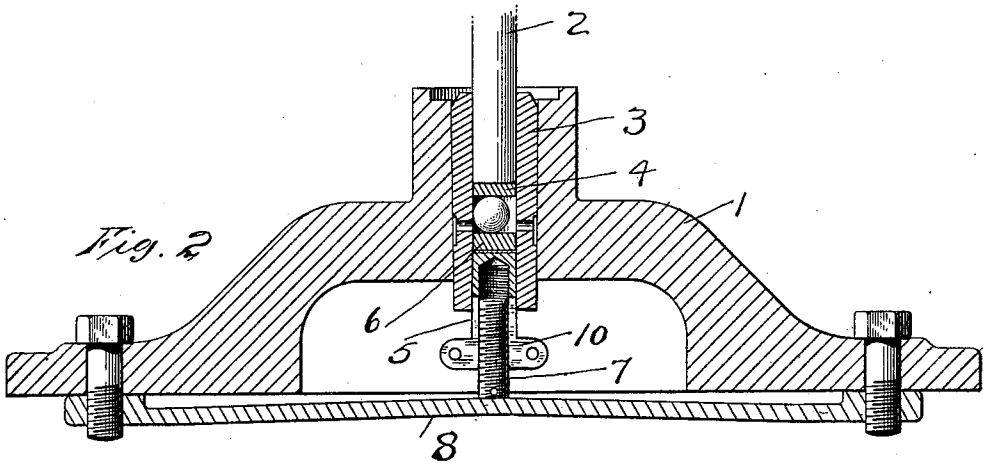


Fig. 3

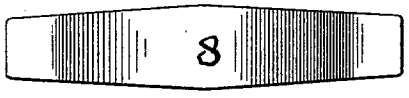
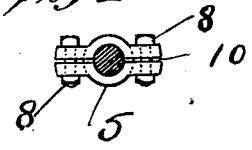


Fig 4



Witnesses

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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

UNITED STATES PATENT OFFICE.

PERLEY L. KIMBALL, OF BELLOWS FALLS, VERMONT, ASSIGNOR TO THE VERMONT FARM MACHINE COMPANY, OF SAME PLACE.

VERTICAL-SHAFT BEARING.

SPECIFICATION forming part of Letters Patent No. 679,078, dated July 23, 1901.

Application filed April 22, 1901. Serial No. 56,854. (No model.)

To all whom it may concern:

Be it known that I, PERLEY L. KIMBALL, a citizen of the United States of America, residing and having post-office address at Bellows Falls, in the county of Windham and State of Vermont, have invented certain new and useful Improvements in Vertical-Shaft Bearings, Specially Useful in Centrifugal Separators, of which the following is a specification, whereby any one skilled in the art may make and use the same.

The object of my invention is to provide a support for the end of a vertical shaft which shall absorb vibration and furnish a somewhat yielding support for the lower end of the shaft, and means whereby this object is accomplished are shown in the drawings, of which—

Figure 1 is a sectional side view of the lower part of the frame of a centrifugal separator, showing my invention embodied therein. Fig. 2 is a central vertical section of a modification of my invention. Fig. 3 is a top view of the spring. Fig. 4 is a sectional view on the line x x of Fig. 1 looking in the direction of the arrows.

Referring to the drawings, 1 denotes the frame. 2 is the shaft carrying the separator-bowl, having a bearing in the bushing 3 and having at the lower end the step 4. The plug 5 is inserted in the bushing 3, at the bottom thereof, and carries the step 6. The opposing faces of the steps 4 and 6 are hardened, and between them are located balls to form a bearing on which the shaft may turn. The plug 5 is split, as at 10, recessed and screw-threaded interiorly, and the bolt 7 is threaded to engage the threads on the interior of said plug, its lower end resting on the spring 8, which is a flat spring arched slightly at its center and having its ends resting in sockets formed in the base of the frame. These centrifugal separators are revolved at a very high rate of speed on a vertical shaft, and I have found that the introduction of the ball-bearing, and especially of the yielding support for the end of the shaft, very materially increases the even and quiet running of this machine. The spring which I use is a vast improvement over spiral springs, which have sometimes been used under the ends of the vertical shafts, for the reason that the direct up-and-down movement which it allows the shaft is very inconsiderable, and it acts rather as a diaphragm, absorbing the up-and-down vibration of the shaft. This is a very important improvement over the spiral spring. The construction is extremely simple and inexpensive, and the spring can readily be put in place and removed. The threaded bolt 7 is screwed into the split block 5, its lower end bearing against the spring. By this construction the strength of the spring may be varied or any wear in the parts may be taken up and the bolts 7 locked into position by the screws 88.

I claim as my improvement—

1. In combination the frame of a machine of the class specified, the vertical load-bearing, rotating shaft and a flat spring located in the base of the machine and supporting the lower end of said shaft.

2. The combination, with the frame of a machine of the class specified and a flat spring arched toward its center located in the base of the machine, of a vertical load-bearing, rotating shaft supported laterally by said frame and at its lower end by said spring.

3. The combination in a machine of the class specified, with the frame, a vertical load-bearing shaft supported at its lower end, of an antifriction-bearing located in said frame, of a spring located in the base of the frame and adjustable supporting devices located between said antifriction-bearing and the spring, substantially as described.

PERLEY L. KIMBALL.

Witnesses:
LEON J. BALL,
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