No. 640,059. Patented Dec. 26, 1899.

F. WHITNEY.

ROLLER BEARING.

(Application filed Mar. 2, 1899.)

(No Model.)

Fig. 1.

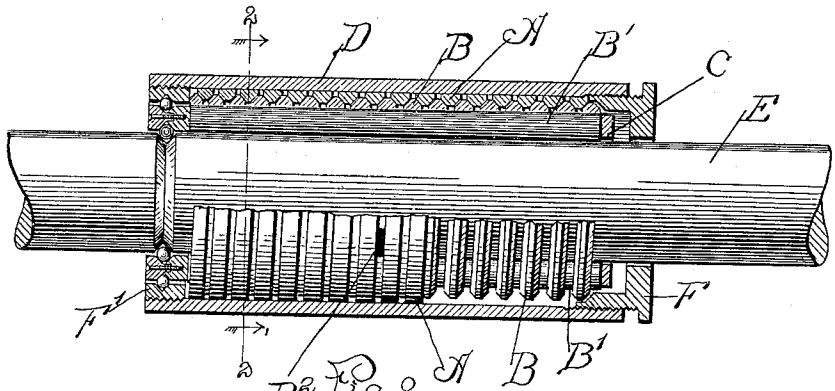
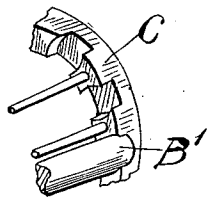


Fig. 2.

Fig. 4



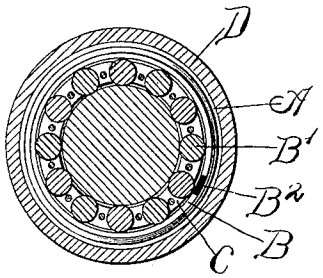


Fig. 3.

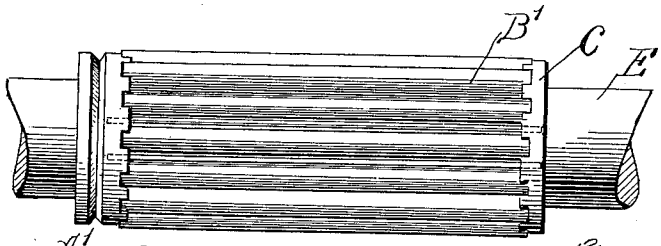


Fig. 5.

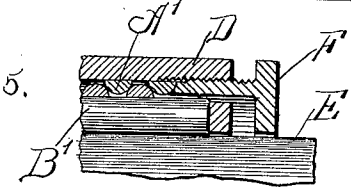
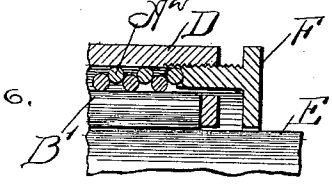


Fig. 6.



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UNITED STATES PATENT OFFICE.

FRANK WHITNEY, OF WINNETKA, ILLINOIS.

ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 640,059, dated December 26, 1899.

Application filed March 2, 1899. Serial No. 707,497. (No model.)

To all whom it may concern:

Be it known that I, FRANK WHITNEY, a citizen of the United States, residing at Winnetka, in the county of Cook and State of Illinois, have invented new and useful Improvements in Roller-Bearings, of which the following is a specification.

My invention relates to roller-bearings for shafting; and the object of my improvement is to provide a slack take-up or tightener for roller-bearings. I attain this object by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 represents a shaft with roller-bearings and cross-section of tightener-coil with end-thrust ball-bearing; Fig. 2, a cross-section at 2 of Fig. 1. Fig 3 represents a shaft having ends broken away and a set of rollers forming roller-bearings for same. Fig. 4 is a detail of cage and roller. Figs. 5 and 6 are modifications of the roller-bearing and take-up.

Similar letters refer to similar parts throughout the several views.

My tightener for roller-bearings consists as I use and prefer it of a double or two-ply coil of wire having flat surfaces next the outer casing or bearing and also next the rollers, with beveled edges overlapping each other as the coil is wound or run together, as shown by A B, Fig. 1.

A′ and A^2 in Figs. 5 and 6 represent modifications of my tightener. However, I use and prefer that shown in Fig. 1.

B represents the inner coil of my bearing-tightener, and may be made of two or more sections having blank spaces B^2.

B′ is the roller, and C the cage for holding or steadying the rollers.

D is the main or outer support, at one end of which a groove and ball support is provided for steadying the bearing longitudinally.

F is the tightener-nut, which is turned outward or inward for loosening or tightening the shaft-bearing.

In the operation of the roller-bearing as it is used in the journal-box for the support of journals running at considerable speed much power is saved over the ordinary methods of friction-bearings. However, I have found by actual experience and tests that there is much gained by proper adjustment and by being held in proper position. My tightener or take-up overcomes one of the principal difficulties met with in the use of the roller-bearings.

In construction and use the bearing or journal-box is made of inside dimensions large enough to contain the cage of rollers and the take-up coils closely fitted around the rollers. This bearing is placed upon the journal in the usual manner and slid against the stop F′ in the journal-box. In this position the tightener-cap F is screwed into the other end of the journal-box and against the tightener-coils. These coils coming against the stationary stop F′ at one end and the movable screw-stop F at the other end may be compressed by screwing in the cap F, and this lengthwise compression of the coils produces, by the wedge-shaped edges of the wire coils, sidewise expansion, and in this way any degree of tightness may be obtained. When the pressure on the coils is released by withdrawing the screw-cap F, the coils are sidewise contracted by the elongation of the coils through the coil-spring redundancy. Therefore roller-bearings provided with my tightener may be kept at all times sufficiently tight to prevent the troubles incident to the use of loose boxes.

Deeming the above a sufficient description, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a roller-bearing, a slack take-up consisting of a series of coils of beveled or wedge-shaped wire adapted to be expanded and means for expanding the coils, substantially as described.

2. In roller-bearings, a take-up consisting of two coils of wire, a cross-section of which is pyramidal in form, the inner coil wound with the flat surface next the rollers and the outer coil with the flat surface next the boxing with the two beveled sides matching and overlapping each other, and means for compressing said coils longitudinally and thereby expanding said coils laterally, substantially as specified.

3. A roller-bearing tightener composed of coils of wire and means for expanding said coils laterally, substantially as described.

4. A roller-bearing composed of the following elements: the usual cage and rollers and

wound thereon one or more coils of wire, a boxing having a permanent stop at one end and an adjustable holder at the other, substantially as described.

5. In a roller-bearing, the combination of the rollers, an outer casing, and series of annular wedges having their wedging-surfaces reversely arranged and interposed between the rollers and casing.

6. In a roller-bearing, the combination of the rollers, an outer casing, and two series of wedges surrounding the rollers and having their wedging-surfaces reversely arranged.

7. In a roller-bearing the combination of the rollers, an outer casing, two series of wedges surrounding the rollers having their wedging-surfaces reversely arranged, and means to move the wedges relatively to each other.

8. In a roller-bearing, the combination of the rollers, an outer casing, two series of spirally-wound wedges surrounding the rollers and having their wedging-surfaces opposed to each other, and means to move the spirals relatively to each other.

FRANK WHITNEY.

Witnesses:
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LOUISE WHITNEY.