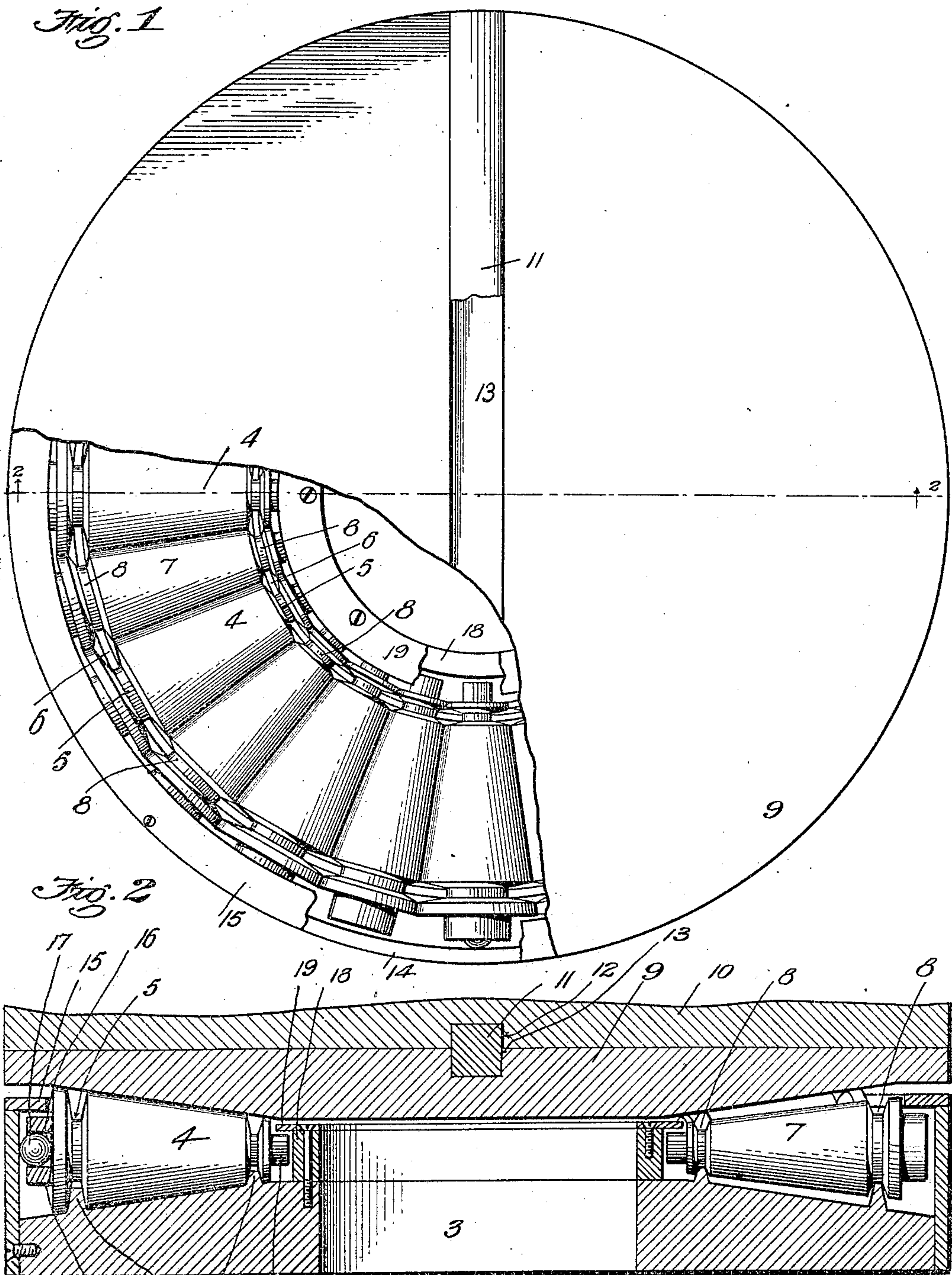


No. 830,985.

PATENTED SEPT. 11, 1906.

W. T. FLEMING.
ROLLER BEARING FOR THE ENDS OF SHAFTS.

APPLICATION FILED JAN. 10, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

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ANTI-FRICTION JOURNAL BOX CO., OF LOS ANGELES, CALIFORNIA,
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ROLLER-BEARING FOR THE ENDS OF SHAFTS.

No. 830,985.

Specification of Letters Patent.

Patented Sept. 11, 1906.

Application filed January 10, 1906. Serial No. 295,479.

To all whom it may concern:

Be it known that I, WILLIAM T. FLEMING, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Roller-Bearings for the Ends of Shafts, of which the following is a specification.

My invention relates to a roller-bearing for a vertically-mounted shaft or to take the end thrust of a horizontally-mounted shaft; and the object thereof is to reduce the friction on the shaft and bearing. I accomplish this object by the bearing described herein and illustrated in the accompanying drawings, in which—

Figure 1 is a plan of the facing-plate which is secured to the end of the shaft, (not shown,) which plate is partly broken away, and of a part of a key in the keyway of said plate, and of the bearing-rollers and retaining-frame of the rollers, a part of the retaining-frame being broken away for clearness of illustration. Fig. 2 is a section on the line 2 2 of Fig. 1 with a portion of the shaft shown.

In the drawings, 3 is the base-plate, which is preferably hollow in the center. The upper and outer portion of the surface of this plate slopes downwardly and provides a runway for the bearing-rollers 4, which rest thereon and are supported thereby. At each end of the bearing-rollers are grooves 5, which straddle tracks 6, preferably formed integral with the base-plate. Spacing-rollers 7 are provided intermediate the bearing-rollers. These spacing-rollers are provided with grooves 8 at each end of the roller, which are not as deep as the grooves in the bearing-rollers, and the spacing-rollers rest upon and are supported by the tracks 6 within these grooves. The spacing-rollers are enough smaller than the bearing-rollers so that they do not touch the base-plate; neither do they touch the facing-plate 9, which is secured upon the end of shaft 10 by key 11, said key being received in the keyway 12 in the shaft and a keyway 13 in the facing-plate. This facing-plate rests upon and is supported by the bearing-rollers, and the under surface or surface which contacts with the bearing-rollers slopes upwardly and outwardly at the same angle that the base-plate slopes downwardly and outwardly where the same con-

tacts with the bearing-rollers. The base-plate is preferably circular and has secured thereto an annular ring which projects upwardly to just above the reduced outer ends 4' of the bearing-rollers, as best shown in Fig. 2.

To the top of this annular ring is secured an annular rim 15, which projects over the reduced outer ends of the rollers. In the reduced outer end of each of the bearing-rollers is a chamber 16, in which is received a ball 17, which bears against the annular ring 14 and takes the end thrust of the bearing-rollers, it being understood that the grooves in the outer ends of the bearing-rollers are a little wider than the tracks which they straddle. The inner ends 4'' of the bearing-rollers are likewise reduced in size, and near these reduced ends and secured to the base-plate is an annular ring 18, to which is secured an annular rim 19, which rim projects over the end of the rollers and with the rim over the outer end keeps the rollers in place when it is desired to handle the base-plate and rollers as a unitary body. The outer and inner ends of the spacing-rollers are likewise reduced and project under the rims 15 and 19, which hold them from separation when the base-plate and rollers are handled.

If desired, facing-plate 9 could be omitted and the end of the shaft turned to fit the bearing-rollers; but as the wear comes at this point I prefer to make a facing-plate which can be easily renewed when worn out. The center of the base-plate is preferably hollow, so that it may be slipped upon a stud in the foundation (not shown) to keep the base-plate in place. The pitch of the bearing-rollers is governed by the size of the shaft to be supported, taken together with the number of rollers to be used.

By this construction a very heavy shaft may be provided with the bearing, which requires no lubrication and which reduces the friction thereon to the minimum.

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

1. A bearing for the end of a shaft comprising a base-plate having two upwardly-projecting concentric annular tracks on the upper face thereof, said upper face sloping downwardly and outwardly; tapered bearing-rollers having grooves near the ends

thereof, said grooves being deeper than the height of the tracks on the base-plate and receiving said tracks in said grooves; and tapered spacing-rollers intermediate said bearing-rollers, said spacing-rollers being smaller than the bearing-rollers and having grooves near the ends thereof in which are received the tracks of the base-plate, said tracks supporting said spacing-rollers at and within said grooves.

2. A bearing for the end of a shaft comprising a circular base-plate having two upwardly-projecting concentric annular tracks on the upper face thereof, said upper face sloping downwardly and outwardly; an annular ring surrounding said base-plate and secured thereto; tapered bearing-rollers having reduced ends and having grooves near the ends thereof, said grooves being deeper than the height of the tracks on the base-plate and receiving said tracks in said grooves; a chamber in the outer end of each of said bearing-rollers; balls in said chambers; and tapered spacing-rollers having reduced ends intermediate said bearing-rollers, said spacing-rollers being smaller than the bearing-rollers and having grooves near the ends thereof in which are received the tracks of the base-plate, said tracks supporting said spacing-rollers at and within said grooves.

3. A bearing for the end of a shaft comprising a circular base-plate having two upwardly-projecting concentric annular tracks on the upper face thereof, said upper face sloping downwardly and outwardly; an annular ring surrounding said base-plate and secured thereto; an annular rim secured to said ring and projecting inwardly therefrom; tapered bearing-rollers having reduced ends and having grooves near the ends thereof, said grooves being deeper than the height of the tracks on the base-plate and receiving said tracks in said grooves; a chamber in the outer end of each of said bearing-rollers; balls in said chambers; tapered spacing-rollers having reduced ends intermediate said

bearing-rollers; said spacing-rollers being smaller than the bearing-rollers and having grooves near the ends thereof in which are received the tracks of the base-plate, said tracks supporting said spacing-rollers at and within said grooves; an annular ring secured to said base-plate within said rollers; and an annular rim secured to said ring and projecting outwardly therefrom over the reduced ends of said rollers.

4. A bearing for the end of a shaft comprising a circular base-plate having two upwardly-projecting concentric annular tracks on the upper face thereof, said upper face sloping downwardly and outwardly; an annular ring surrounding said base-plate and secured thereto; an annular rim secured to said ring and projecting inwardly therefrom; tapered bearing-rollers having reduced ends and having grooves near the ends thereof, said grooves being deeper than the height of the tracks on the base-plate and receiving said tracks in said grooves; a chamber in the outer end of each of said bearing-rollers; balls in said chambers; tapered spacing-rollers having reduced ends intermediate said bearing-rollers, said spacing-rollers being smaller than the bearing-rollers and having grooves near the ends thereof in which are received the tracks of the base-plate, said tracks supporting said spacing-rollers at and within said grooves; an annular ring secured to said base-plate within said rollers; an annular rim secured to said ring and projecting outwardly therefrom over the reduced ends of said rollers; and a facing-plate having its lower face provided with a slope of the reverse angle of the base-plate.

In witness that I claim the foregoing I have hereunto subscribed my name this 12th day of December, 1905.

WILLIAM T. FLEMING.

Witnesses:

G. E. HARPHAM,
HENRY T. HAZARD.