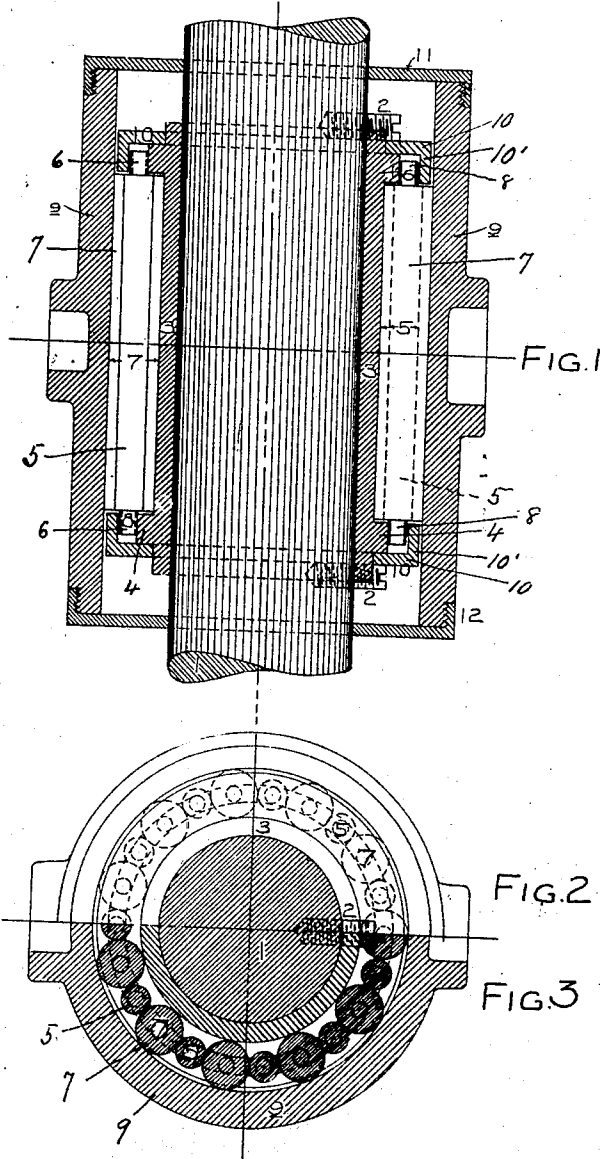


931,931.

A. T. KILLIAN.
ROLLER BEARING.
APPLICATION FILED NOV. 12, 1908.

Patented Aug. 24, 1909.



WITNESSES:
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UNITED STATES PATENT OFFICE.

ALBERT T. KILLIAN, OF BUFFALO, NEW YORK, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO NATIONAL ANTI-FRICTION ROLLER-BEARING COMPANY, OF BUFFALO, NEW YORK, A CORPORATION OF NEW YORK.

ROLLER-BEARING.

931,931.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed November 12, 1908. Serial No. 462,271.

To all whom it may concern:

Be it known that I, ALBERT T. KILLIAN, a citizen of the United States of America, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Roller-Bearings, of which the following is a full and clear specification.

My invention relates to improvements in the construction of an antifriction bearing, and has for its object to provide a bearing which will be inexpensive and simple in construction, and in which, at the same time, the friction shall be reduced to a minimum.

It is also an object of this invention to provide a roller bearing in which the bearing rollers will be evenly held, and in which the parts can be assembled and handled as a unitary body.

A further object of this invention is to provide end-caps which will do away with the use of retaining rings, and which, when the outer box or casing member is removed, will retain the rollers in position on the bearing sleeve or shaft and thus prevent their disarrangement.

With these and other objects in view, the invention may be embodied in the form described in this specification and shown in the accompanying drawing, in which—

Figure 1 is a horizontal sectional view through a box for a shafting; Fig. 2 is an end view of rollers with dust-cap 11 removed; and Fig. 3 is a transverse section through the center of the box.

Referring to the drawings by reference characters, 1 designates a shafting with radial holes drilled and tapped therein to receive set-screws 2 for holding removably but rigidly the sleeve 3 which is provided near each end with an annular rib 4 to form guides and supports for the reduced ends 6 of the spacing-rollers 5. These ends 6 are small enough in diameter to prevent the spacing-rollers having an endwise motion, but large enough to prevent the body of the spacing-rollers from engaging the sleeve 3. The bearing-rollers 7, are provided near the ends thereof with reduced ends 8 which are small enough in diameter to avoid contact with the ribs of the sleeve. The bearing-rollers have a greater diameter than the spacing-rollers in those portions of their length which bear against the sleeve and the box or outer member 9, while the re-

duced portions of the bearing-rollers, at the ends, are of less diameter than the reduced end-portions of the spacing-rollers, so that the reduced ends of the bearing rollers do not engage the ribs of the sleeve while the ends of the spacing rollers do engage the ribs. These ribs, therefore, form supporting tracks for the spacing-rollers and guides for both rollers. Inclosing the reduced ends of both sets of rollers are the end-caps 10 which are pressed over the respective ends of the sleeve 3 and abut against the outer sides of the track-flanges 4 but do not contact with the end-faces of the reduced journals of the rollers. Each end-cap consists of a ring-like plate having an inwardly extending flange 10' which overhangs the reduced ends of the rollers and forms, in cooperation with the track-flange 4, a continuous annular channel opening inwardly. Each end-cap is removably but tightly held on the sleeve by means of one of the fastening screws 2, this screw being placed in a notch in the end of the sleeve in order that it may abut against the outer end of the end-cap and thus hold it tightly against the track-flange. These screws, therefore, serve to not only fasten the sleeve to the shaft but also to lock the end-caps removably in position.

It will be observed that the reduced ends of the load-rollers do not contact with the end-caps or the track-flanges while the journal is in use; these reduced ends of the load-rollers simply serve to hold the parts in assembled relation when the bearing is removed from the box or the sleeve from the shaft. It will be observed, however, that the reduced ends of the spacing-rollers run on the track-flanges 4 while they are passing over the center of the shaft and upon the inner faces of the end-cap flanges while they are passing underneath the shaft, so that the track-flanges and end caps serve with respect to the spacing-rollers not only as guides and supports while the journal is in use but also as retaining devices while the journal is out of the box.

It will be observed that I do away with all suspended retaining-rings and the many disadvantages attendant upon their employment in a bearing of this type, and it will be observed further that my invention renders it a very simple operation to assemble the parts of the bearing. It will be ob-

served also that the rollers will be held in place with the utmost exactness and that, therefore, the friction will be reduced to such a minimum that a lubricant is not only rendered unnecessary but would tend to increase friction.

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

- 10 1. In combination, a shaft, a sleeve fitted thereon and provided with annular track-flanges and a notch in each outer end, an end-cap removably placed on each end of said sleeve and forming in conjunction with
- 15 the adjacent track-flange an annular channel, a fastening screw at each end of the sleeve, said screw engaging said notch in the end of the sleeve and abutting against the adjacent end-cap, antifriction rollers

having their reduced ends working in said channels, and an inclosing box.

2. In combination, a shaft, a sleeve provided with annular track-flanges, an end-cap on each end of the sleeve forming in conjunction with the adjacent track-flange an annular channel, a single device at each end for fastening the sleeve to the shaft and the end-caps against the track-flanges, an inclosing box, and antifriction rollers whose reduced ends are confined in said channels.

In testimony whereof I hereunto affix my signature in the presence of two witnesses this 26th day of October 1908.

ALBERT T. KILLIAN.

Witnesses:

FREDERICK D. TRACY.
THOS. M. DILL.