

(No Model.)

B. BEAUPRE.
ANTI-FRICTION JOURNAL.

No. 422,903.

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Fig. 1.

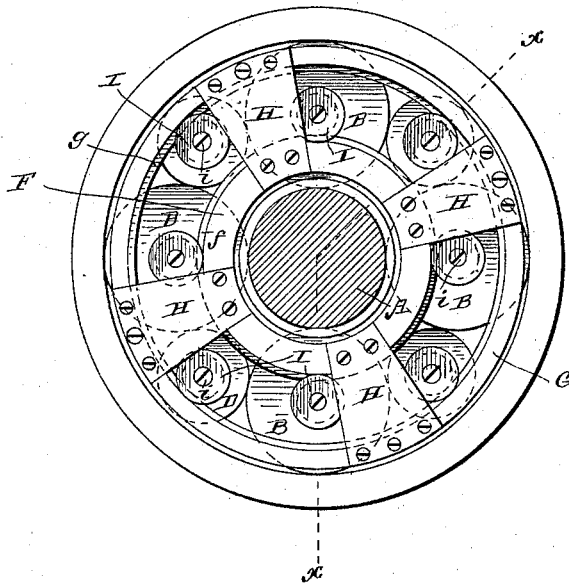


Fig. 2

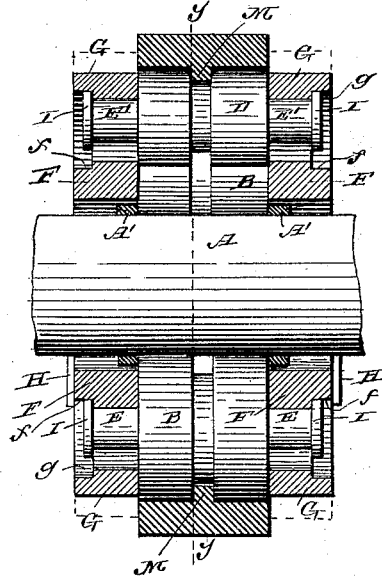


Fig. 4.

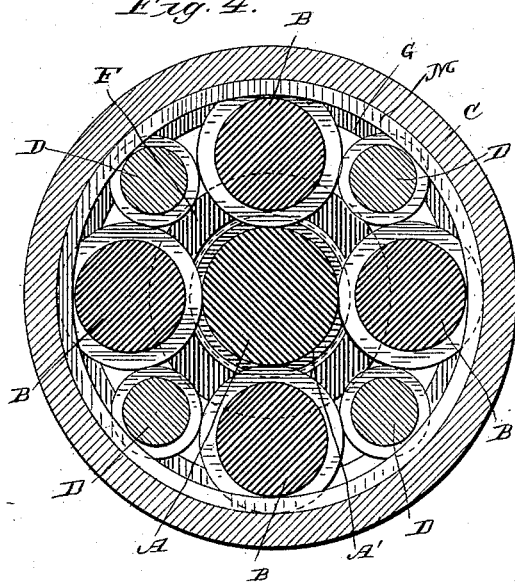
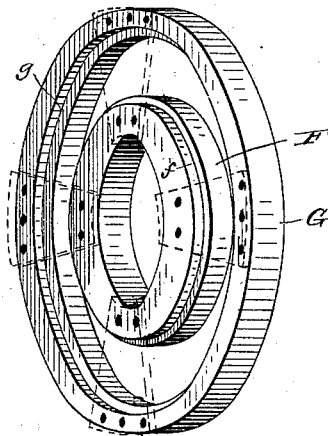


Fig. 3.



Witnesses

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ANTI-FRICTION JOURNAL.

SPECIFICATION forming part of Letters Patent No. 422,903, dated March 11, 1890.

Application filed June 14, 1889. Serial No. 314,220. (No model.)

To all whom it may concern:

Be it known that I, BRUNO BEAUPRE, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain new and useful Improvements in Anti-Friction Journals; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

This invention relates to that class of anti-friction bearings in which there is combined a series of bearing-rollers co-operating with the shaft and a series of separating-rollers arranged between the bearing-rollers and inner and outer connected rings, with which the journals of the bearing-rollers and the journals of the separating-rollers respectively co-operate; and it consists in certain improved details of construction, which will be hereinafter described, and pointed out particularly in the clauses of claims at the end of this specification.

In the accompanying drawings, Figure 1 is an end elevation of a bearing constructed in accordance with my invention. Fig. 2 is a sectional view on the line *x x*, Fig. 1. Fig. 3 is a perspective view of one set of the retaining-rings. Fig. 4 is a section on the line *y y*, Fig. 2.

Similar letters of reference in the several figures indicate the same parts.

On the shaft *A* are preferably arranged two collars *A' A'*, between which run the bearing-rollers *B*, the casing *C* and separating-rollers *D* being arranged outside the bearing-rollers in the ordinary well-known manner. At each end of the bearing-rollers and separating-rollers are formed journals *E E'*, preferably of somewhat reduced diameter, against which the retaining-rings are adapted to bear. Said rings *F* and *G* are preferably two in number at each end, connected rigidly together, the inner one *F* fitting inside of and taking its bearing against the journals *E* of the bearing-rollers, and the outer one *G* lying outside of and taking its bearing against the journals *E'* of the separating-rollers, thus confining all the journals within the comparatively limited space between the two rings, with which construction it will be seen that

the bearing-rollers only come in contact with the periphery of the inner ring, and as they all travel in one direction will tend to move said ring in one direction, and that the separating-rollers come in contact only with the inner surface of the outer ring, and as they all move in the same direction will tend to move said ring in but one direction also; but as said separating-rollers rotate on their axis in the opposite direction from the bearing-rollers, the two rings are caused to travel in the same direction. Thus by properly proportioning the size of the rollers and journals all friction on either ring is overcome, the bearing-surfaces in every instance making rolling contact only. Although said rings may be made in one piece, they are preferably separate, as before mentioned, and connected by removable cross-pieces or segments *H*, which pass outside of the journals on the rollers, as clearly indicated in Fig. 1.

For the sake of convenience in the manufacture and efficiency in the running of the bearing, each of said rings is preferably provided near the outer edge with a groove or cut-away portion, as at *f g*, in which are adapted to run small disks or plates *I*, preferably removably secured on the ends of the roller-journals by means of screws *i*, thereby retaining the rings in position on the journals and permitting the same to be removed or applied after the rollers are put in position, the spaces between the segments *H* permitting the screws *i* to be readily removed or inserted. As an additional security against lateral motion of the rollers, they may be provided with central grooves, in which works a projection or rib *M*, formed upon or secured to the inner side of the casing, and, if desired, instead of employing two collars on the shaft, one at each side of the roller, a single collar may be arranged thereon and adapted to work in the groove of the bearing-rollers, as indicated in dotted lines, Fig. 4.

By connecting the two retaining-rings rigidly together, as described, it will be seen that an exceedingly strong and rigid structure is formed, and as such rings are employed at each end of the bearing there is no liability or chance of the rollers being misplaced or getting out of their relative positions, so as to produce undue friction or grind, tend-

ing to wear the bearings unevenly and cause undue friction.

The construction particularly described herein, while exceedingly simple and efficient, is not the only form of bearing in which the essential features of my invention may be embodied, as it is obvious that the same may be applied to any and all bearings in which two series of rollers of the character described are employed.

Having thus described my invention, what I claim as new is—

1. In a roller-bearing, the combination, with the shaft A, of the collars A' A', secured thereon, the series of bearing-rollers B, bearing between the collars, the series of separating-rollers D, and the connected inner and outer rings F G, all constructed and arranged substantially as described.

2. In a roller-bearing, the combination of

the series of bearing-rollers and the series of separating-rollers with the connected inner and outer rings, grooved or cut away, as at f g, and the disks or plates I, removably secured to the ends of the roller-journals and projecting into the said grooves or cut-away portions, whereby the rings are retained in position on the roller-journals, and whereby also the rings are enabled to be removed or applied after the rollers are placed in position without disturbing the rollers, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

BRUNO BEAUPRE.

Witnesses:

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