No. 785,662. PATENTED MAR. 21, 1905.

C. H. CHAPMAN.

BEARING.

APPLICATION FILED AUG. 13, 1903. RENEWED FEB. 24, 1905.

Fig. 1.

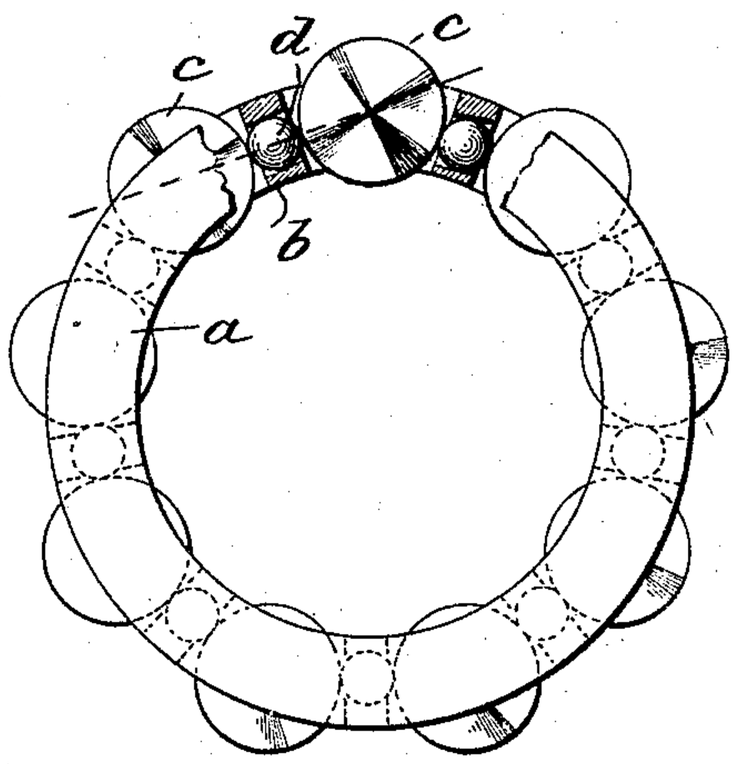
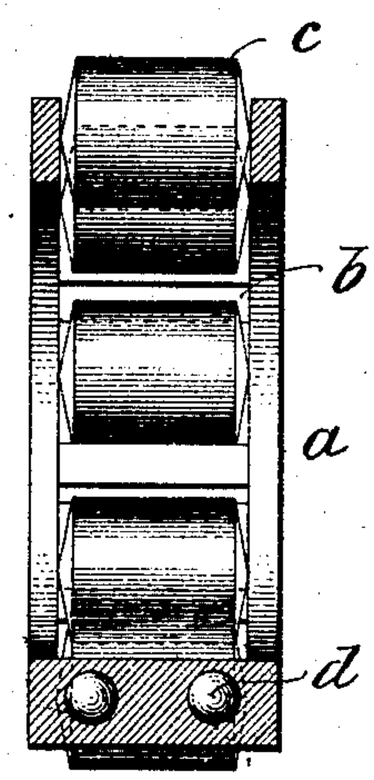


Fig. 2.



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No. 785,662. Patented March 21, 1905.

UNITED STATES PATENT OFFICE.

CHARLES H. CHAPMAN, OF GROTON, MASSACHUSETTS.

BEARING.

SPECIFICATION forming part of Letters Patent No. 785,662, dated March 21, 1905.

Original application filed February 28, 1900, Serial No. 6,859. Divided and application filed March 21, 1901, Serial No. 52,250. Again divided and this application filed August 13, 1903. Renewed February 24, 1905. Serial No. 247,141.

To all whom it may concern:

Be it known that I, CHARLES H. CHAPMAN, a citizen of the United States, residing at Groton, in the county of Middlesex and State of Massachusetts, have invented a certain new and useful Improvement in Bearings, of which the following is a full, clear, and exact description.

This invention relates to the "retainers" and "spacers" of ball-bearings, so officially designated in the classification of the United States Patent Office, and it is divided out in accordance with the requirement of the Patent Office of the case filed by me on March 21, 1901, Serial No. 52,250, which in turn is a division of an application filed by me on February 28, 1900, Serial No. 6,859.

The invention herein consists of a roller-carrier composed of two rings adapted to receive between them load-supporting devices, such as balls or rollers, and connected by apertured cross-ties with separating-balls or roller-spacers interposed between and engaging such load-supporting devices and held radially within the apertures in the cross-ties and at or near the dead-center line of the load-supporting devices, all as I will proceed to set forth and finally claim.

I wish to state, once for all, that while my invention is preferably embodied in a device using balls or spheres for the load-supporting devices, sometimes and herein called "bearing-rollers," I may use rollers or cylinders instead, and to include both balls or spheres and cylinders I use the generic term "rollers."

In the accompanying drawings, illustrating my invention, in the two figures of which like parts are similarly designated, Figure 1 is a front elevation, partly broken away, showing one embodiment of my invention. Fig. 2 is a vertical sectional elevation.

In the specific illustration of the invention herein shown the load-supports are cylinders, and the construction is as follows: The roller-carrier *a* is constructed of two rings connected together by cross-ties *b*. These cross-ties are arranged to come between the bearing-rollers *c* and are apertured to receive and to radially inclose the separating-balls *d* and hold them on the center line of the bearing-rollers when in the bearing. Two separating-balls are used in each cross-tie, one at each end of the roller, as shown in the lower part of Fig. 2. The holes for the several balls or rollers may be drilled. Considering the small points of contact of the rollers with the shells or cups and cones a positive revolution of the rollers should at all times be maintained, since any slipping or sliding of the rollers when under a heavy load will cut the surfaces of the rollers or the surfaces of the cones or cups, either of which will destroy the bearing in a very short time. As herein shown, a separating-ball is retained at or near the dead-center line of the load-carrying roller, thereby preventing any rubbing together of the load-carrying rollers and also causing the separating-balls to act as transmitters of the revolution of the load-carrying rollers one with the other when crowding together.

Rolls instead of balls may be used as the separating devices, but balls are preferred.

Since it is old in the art to make the retainer of a ball-bearing of parallel rings forming its sides and connected by cross ties or rods and also to make the sides and cross ties or rods as an integral casting, I wish to be understood as stating that my invention in its broader aspect is applicable to either form of retainer and desire so to claim it.

What I claim is—

1. In a roller-bearing, the combination of the bearing-rollers, retaining-rings for the bearing-rollers, apertured cross-ties for holding the retaining-rings relatively to the bearing-rollers, and spacing-rollers radially inclosed in the apertures of the cross-ties to engage the bearing-rollers, substantially as specified.

2. In a roller-bearing, the combination of the bearing-rollers, parallel retaining-rings for the bearing-rollers, apertured cross-ties

for holding the retaining-rings relatively to the bearing-rollers, and separating-rollers radially inclosed in the apertures of the cross-ties to engage the bearing-rollers, and serving to sustain the separating-rollers at or near the dead-center line of the bearing-rollers.

In testimony whereof I have hereunto set my hand this 11th day of August, A. D. 1903.

CHARLES H. CHAPMAN.

Witnesses:
B. A. GOODMAN,
A. I. KENDALL.