(No Model.)

F. MOSSBERG.

ANTIFRICTION BEARING.

No. 543,262. Patented July 23, 1895.

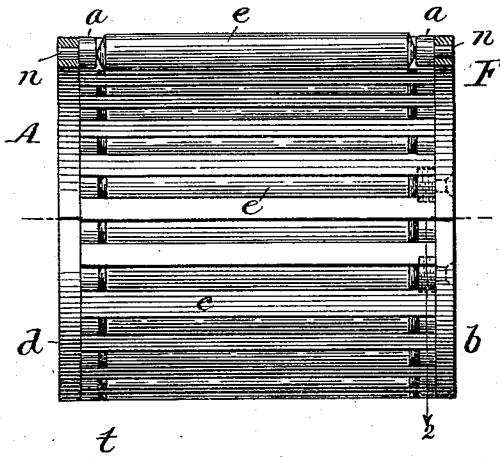


Fig. 1.

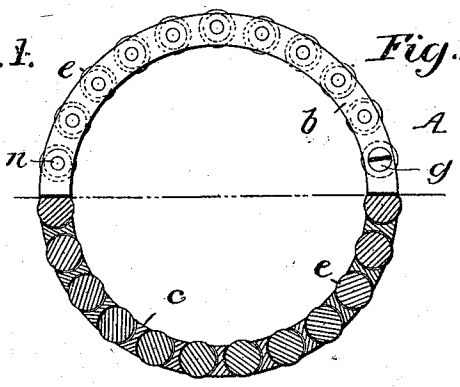
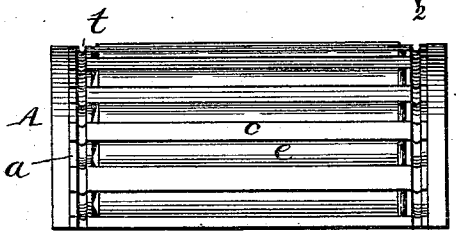


Fig. 2.



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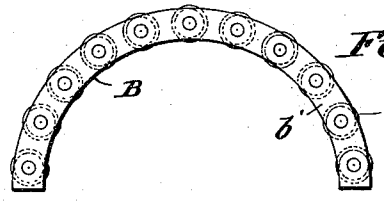
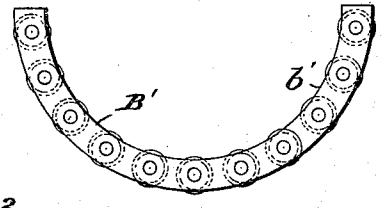


Fig. 9.



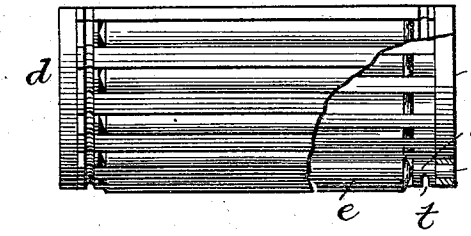


Fig. 3.

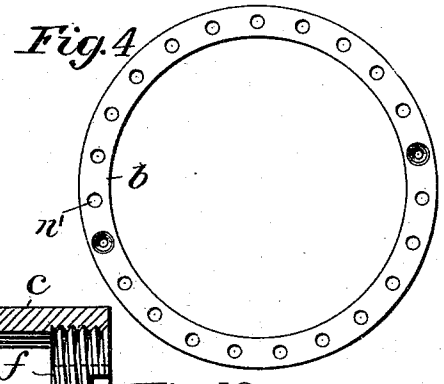


Fig. 4.

Fig. 12.

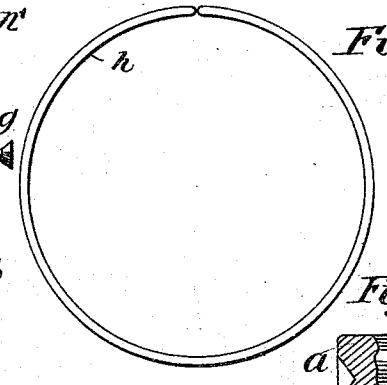
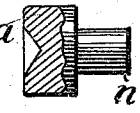


Fig. 10.

Fig. 11.



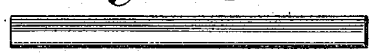


Fig. 5.

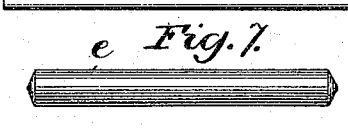


Fig. 7.

Fig. 6.

Witnesses
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Inventor
Frank Mossberg
by Foster Freeman
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UNITED STATES PATENT OFFICE.

FRANK MOSSBERG, OF ATTLEBOROUGH, MASSACHUSETTS.

ANTIFRICTION-BEARING.

SPECIFICATION forming part of Letters Patent No. 543,262, dated July 23, 1895.

Application filed January 5, 1895. Serial No. 533,938. (No model.)

To all whom it may concern:

Be it known that I, FRANK MOSSBERG, a citizen of the United States, residing at Attleborough, in the county of Bristol and State of Massachusetts, have invented certain new and useful Improvements in Antifriction-Bearings, of which the following is a specification.

My invention relates to that class of roller-bearings in which parallel cylindrical rollers are carried by a circular or hollow cylindrical cage; and my invention consists in constructing the parts so as to save stock, secure more accurate fitting, and reduce the cost of manufacture.

In the accompanying drawings, Figure 1 is a side view in part section of my improved roller-bearing; Fig. 2, an end view, one-half in section, on the line 2, Fig. 1. Fig. 3 is a detached sectional view of one of the rings, showing also one of the distance-pieces and connecting block and screw. Fig. 4 is a face view of one of the rings. Fig. 5 is a side view of one of the bars. Fig. 6 is an end view of one of the bars. Fig. 7 is a side view of one of the rollers. Fig. 8 is a side view in part section, showing a divided bearing. Fig. 9 is an end view of Fig. 8. Fig. 10 is a connecting-ring; Fig. 11, an enlarged section of an end bearing; Fig. 12, an enlarged section showing a screw-receiving block and its connection with the bars.

The antifriction-rollers *e* are round rods or cylinders accurately shaped to uniform dimensions and arranged in a circle between the revolving journal or shaft and the inner face of its bearing, and in order to preserve their relative positions a cage A is provided consisting, generally, of circular heads or rings and bars extending from one ring to the other and between the rollers and with curved sides corresponding to the curvature of the rollers. Heretofore such cages have been made in many instances by boring and turning a hollow sleeve or cylinder of metal, such boring and turning requiring nice workmanship by skilled operators and being attended with considerable expense.

To avoid the expensive workmanship heretofore required, I form the cage of rings and bars, which are shaped separately and then secured together, thus permitting the bars to be milled to the proper shape and formed to the rollers and avoiding the necessity of expensive boring heretofore required. The cage may thus be constructed with these features in different ways. I prefer, however, to cast the bars *c*, and then by means of a milling-machine with a circular cutter accurately groove the opposite sides of each bar, as illustrated in Fig. 6, and I cast the end rings *b d*. The ends of all the bars are preferably first secured to one of the rings by brazing or otherwise, leaving spaces between the bars which are larger in diameter than the rolls, and the other ring may then be brazed to the opposite ends of the bars after inserting the rollers in place, but I prefer to connect one of the rings detachably to the bars. This may be done by screws passing through the ring into threaded openings into the ends of the bars; but to secure a better bearing for the screws I prefer to make use of a threaded cylindrical block *f*, adapted to screw into threads in the opposite curved faces of adjacent bars, as shown in Fig. 12, the said block *f* having a threaded opening to receive a screw *g*, which passes through an opening in the ring and into the block. Two or three of these blocks and screws therefor will serve to secure the ring firmly in position. If desired, the rollers may have conical ends bearing directly in conical recesses in the inner faces of the rings. In order, however, to avoid the necessity of replacing the rings whenever the bearings become worn I prefer to make use of separate bearing-blocks *a*, each secured to one of the rings at a point to bring it between the ends of adjacent bars *c*. Preferably the blocks *a* are circular and fit nicely the curved faces of the bars *c*, so as to constitute distance-blocks between them. The blocks *a* may be secured to the rings in any suitable manner—for instance, each block may have a stud *n* adapted to an opening *n'* in the ring and the inner end of each block has a conical opening to receive the corresponding end of one of the rollers.

Sometimes difficulty is experienced in applying the rollers with their supporting-cage—as, for instance, where it is difficult to get access to the end of the shaft or journal—and to meet this difficulty I make the cage of two or more sections. Thus, as shown in Figs. 8 and

9, the cage consists of two sections B B′, each section consisting of a series of bars and rollers and end curved pieces b', the pieces of the two sections together constituting a ring. When necessary, there may be three or more sections, the cage thus consisting of two or more frames supporting two or more series of rollers.

Different means may be employed for connecting the sections together after they have been applied to the journal. One means consists of grooves t, formed in the faces of the bars c and blocks a, as shown in Fig. 8, and after the sections are put together upon their journals a split ring of wire h is placed in each groove, and, if desired, the ends of the ring may be soldered, brazed, or otherwise secured together.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. A roller bearing consisting of a series of rollers and a frame composed of a series of intermediate bars, end rings and separate distance pieces secured fixedly between the ends of the bars and the ends of the rollers, and serving as bearings for the latter substantially as set forth.

2. The combination in a roller bearing, of a series of rollers, separate end rings and bars, and blocks a fitting between the bars and connected to the rings, substantially as set forth.

3. The combination of the rollers, end rings, bars with grooved sides, blocks fitting the said grooved sides between the bars and provided with studs projecting into openings in the rings, substantially as described.

4. In a roller bearing comprising end rings, and a series of grooved bars and intermediate parallel rollers, the combination of threaded cylindrical blocks adapted to screw into threads in opposite curved faces of adjacent bars, and means for uniting or securing the rings to the blocks, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK MOSSBERG.

Witnesses:
THOMAS W. WILLIAMS,
CHARLES M. ROBBINS.