

M. SCHLUSS.
 ROLLER BEARING.
 APPLICATION FILED APR. 27, 1907.

943,570.

Patented Dec. 14, 1909.

Fig1

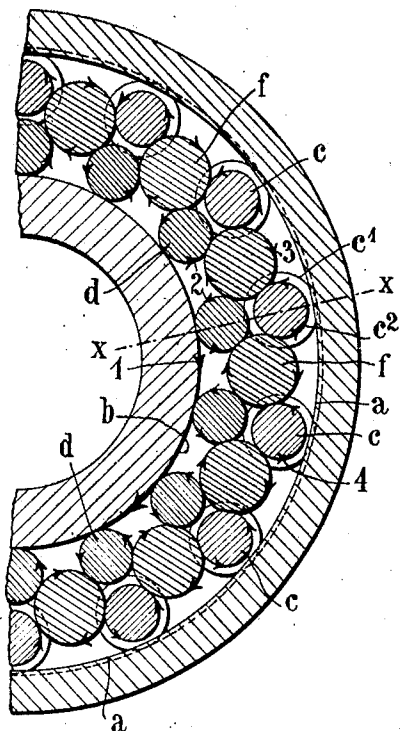
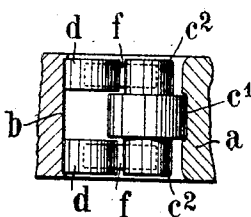


Fig2



Witnesses:

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MAX SCHLUSS, OF BREDENEY, GERMANY.

ROLLER-BEARING.

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To all whom it may concern:

Be it known that I, MAX SCHLUSS, of Bredeney 210, near Essen-on-the-Ruhr, in the German Empire, have invented new and useful Improvements in a Roller-Bearing, of which the following is a specification.

This invention relates to roller bearings, and has for its object to obviate or at all events to minimize the disadvantage which invariably attaches not only to roller bearings as heretofore constructed, but also to ball bearings and which has proved extremely prejudicial to their general adoption; the above mentioned disadvantage consisting in the fact that the ball or roller is subject to sliding friction on the one hand against a track running at a lower speed, and on the other hand against adjacent balls, with the result that in consequence of the sliding of the balls a considerable portion of the force employed is wasted while the durability of the rollers or balls and of their bearing surfaces is at the same time considerably impaired.

Now this invention, which relates solely to roller bearings, has for its object to eliminate this defect by the employment of two sets of rollers so arranged that the rollers of the one set run on the one track while those of the other set run on another track; the rollers moreover being of such diameter that the peripheral speed of each set corresponds to that of the track over which it runs. Between the two sets of rollers there are arranged intermediate rollers which prevent each roller of a set from coming into contact either with another roller of the same set or with any of the rollers of the other set. In order that the number of rotations may correspond with the peripheral speed, the rollers running over the outer track may have two bearing surfaces, of which that of greater diameter rolls over the outer track, while that of lesser diameter comes in contact with the intermediate rollers. For the purpose of equalizing the different peripheral speeds one roller running over the inner track and two rollers running over the outer track, or vice versa, may be mounted on a common shaft and contact between the pairs of rollers may be prevented by means of intermediate rollers, the diameter or breadth of these latter rollers being less than the distance between the two tracks.

The accompanying drawings illustrate by

way of example, one form of the invention, wherein—

Figure 1 is a vertical section through a portion of a roller bearing; and Fig. 2 is a section on the line $x-x$ of Fig. 1.

Within the outer track a , Fig. 1, which either remains stationary or rotated at a very low speed, there rotates the inner track b . Upon the track a bear the rollers c , and upon the track b the rollers d . The rollers c are kept apart from each other and from the rollers d by means of the intermediate rollers f . The shape of the rollers c is that shown in Fig. 2, that is to say they are furnished with a rolling surface c' of a larger diameter which rolls over the track a and with two rolling surfaces c'' of lesser diameter against which bear the intermediate rollers f which are also in contact with the rollers d .

As the track b (Fig. 1) moves in the direction indicated by the arrows 1, the rollers d , as indicated by the arrows 2, move in the same direction, thus causing the intermediate rollers to rotate in the opposite direction as indicated by the arrows 3; while to the rollers c there is imparted by means of their lesser rolling surfaces a movement in the direction of the arrows 4 with the result that these rollers are able to run in the same direction over the track a . It is consequently rendered impossible that sliding friction should arise either mutually between the rollers c and d or between these rollers and the track.

Having thus declared the nature of my said invention and in what manner it is to be performed I declare that what I claim is:—

1. A roller bearing comprising a journal element and an outer bearing element, said elements being provided with inner and outer tracks, sets of inner and outer rollers cooperating with the respective tracks, the rollers of one set having portions of different diameters and a set of intermediate rollers cooperating with the peripheries of the rollers of one set and the relatively smaller portions of the other set of rollers for transmitting motion between the inner and outer sets of rollers, and maintaining the rollers of each set separated relatively to each other.

2. A roller bearing comprising a journal element and an outer bearing element, said elements being provided with inner and

outer tracks, sets of inner and outer rollers cooperating with the respective tracks, the rollers of one set being provided with portions of relatively smaller diameters than
5 other portions thereof, and a set of intermediate rollers cooperating with the relatively smaller portions of the outer rollers and with the peripheries of the inner rollers, the said intermediate rollers serving to
10 transmit motion between the inner and outer sets of rollers, and also maintaining the rollers of each set in separated relation.

3. A roller bearing comprising a journal element and an outer bearing element, said
15 elements being provided with inner and outer tracks, a set of inner rollers cooperating with the inner track, a set of outer rollers cooperating with the outer track, the

outer rollers being each provided with portions of smaller diameter than other portions thereof arranged at its opposite ends, and two sets of intermediate rollers cooperating with the reduced or smaller portions of the outer set of rollers and with the inner set of rollers, the intermediate sets of rollers serving to separate the inner and outer sets of rollers and to transmit rotary motion between them. 20 25

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses. 30

MAX SCHLUSS.

Witnesses:

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