

P. BRÜHL.
SUPPORT BALL BEARING.
APPLICATION FILED OCT. 17, 1908.

1,022,531.

Patented Apr. 9, 1912.

Fig. 1.

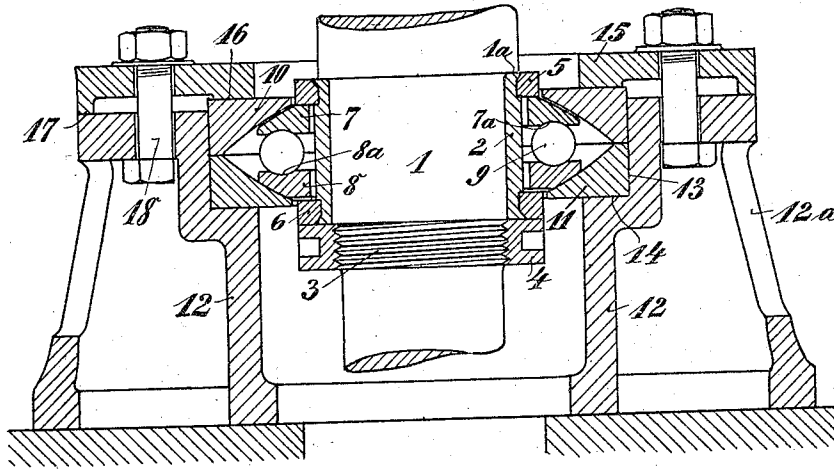
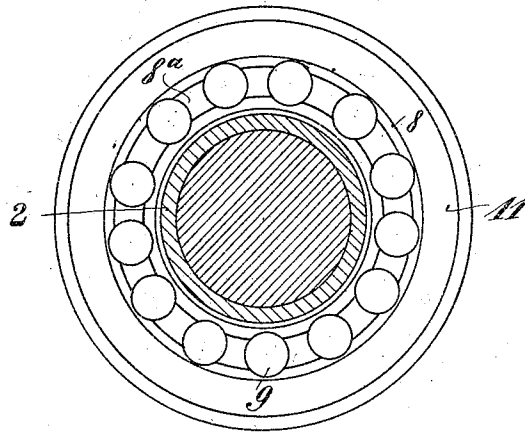


Fig. 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

PAUL BRÜHL, OF DUSSELDORF, GERMANY.

SUPPORT BALL-BEARING.

1,022,531.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed October 17, 1908. Serial No. 458,308.

To all whom it may concern:

Be it known that I, PAUL BRÜHL, a subject of the German Emperor, and resident of 19/29 Zimmerstrasse, Dusseldorf, Germany, have invented certain new and useful Improvements in and Relating to Support Ball-Bearings, of which the following is a specification.

My present invention relates to improvements in support ball-bearings.

The purpose of my improved support ball-bearing is to support the shaft to both directions by but a single row of balls. I attain this result by an arrangement as shown in the accompanying drawing in which like letters refer to like parts throughout the different views.

In said drawings, Figure 1 shows a vertical axial section of the ball-bearing and its support. Fig. 2 shows a plan-view upon the lower half of the essential bearing, the same being partly in section.

A sleeve 2 is firmly mounted on a shaft 1. The sleeve rests with its top-side against a projection 1^a of said shaft, the lower end of the same being provided with a screw thread 3 on which a nut 4 presses the sleeve against the projection 1^a. The sleeve 2 is provided with a recess at each end for the reception of rings 5 and 6, which are arrested by the edges of the sleeve. Between the rings 5 and 6 I arrange two running rings 7 and 8 providing race ways 7^a and 8^a between which the balls 9 are placed. The running rings 7 and 8 being convex at their outside are surrounded by the concave rings 10 and 11 which are pressed toward each other by screws not shown in the drawing. The inner rings 7 and 8 have free play not only with the outer rings 10 and 11 and with the projecting rings 5 and 6 of the sleeve 2, but also with the convex surface of this sleeve.

The rings 10 and 11 can be supported in any suitable manner *e. g.* as shown in Fig. 1. The annular shaped body 12 provides projections 13 and 14. The projections 13 correspond to the outer diameter of the rings 10 and 11. The ring 11 is supported on its bottom by the face 14 while the ring 10 is held on its top by a cover 15. The latter one provides on its bottom two projecting faces 16 and 17. Several screws 18

press said faces 17 against the body 12 and said faces 16 against the ring 10. In order to mount the screws 18 the outer wall of the body 12 is provided with openings 12^a.

The effect of the bearing is as described hereafter.

Assumed the axial pressure is produced from above corresponding to the drawing; then the ring 5 of the sleeve 2 will rest against the upper running-ring 7, while the lower running-ring 8 presses itself against the lower ring 11. In consequence thereof the shaft 1 with its fixed sleeve 2 and the running-ring 7 rotate together as all three parts form so to say one whole. The balls 9 running along the running grooves 7^a and 8^a transfer the axial pressure to the ring 8 and from here to ring 11 and to the main body 12. If the pressure is effected from below the ring 6 of the sleeve 2 is pressed against the running ring 8 and the ring 7 against the ring 10. Consequently the shaft again rotates with the sleeve 2 and the ring 8. In this case the pressure is taken up by the cover 15 and the body 12 is claimed for draft.

The bearing can just as well be used for horizontal shafts.

What I claim as new and desire to secure by a United States Letters Patent is:—

In a ball bearing the combination of a shaft, a sleeve fixed immovably to said shaft, projecting rings fixed immovably on the ends of said sleeve, two inner rings located between the said projecting rings, a single row of running balls between the facing surfaces of said inner rings, two outer rings surrounding said inner rings, the inner rings being ballfaced on their adjacent surfaces and having free play with the outer rings, with the projecting rings of said sleeve and with the cylindrical surface of this sleeve, and means for retaining said outer rings, substantially as described and for the purpose set forth.

In testimony whereof I have hereunto signed my name this 1st day of October, 1908, in the presence of two subscribing witnesses.

PAUL BRÜHL.

Witnesses:

LOUIS VANDORY,
H. C. A. CARPENTER.