

No. 616,094.

Patented Dec. 20, 1898.

A. FARNELL.
BEARING.

(Application filed Sept. 2, 1897.)

(No Model.)

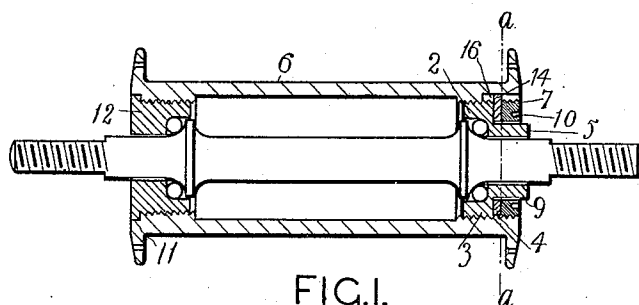


FIG. I.

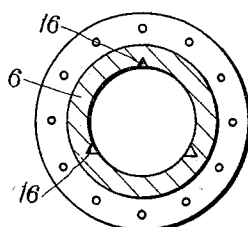


FIG. II.

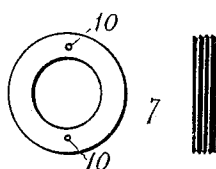


FIG. IV.

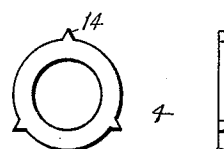


FIG. III.

Witnesses:

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UNITED STATES PATENT OFFICE.

ALBERT FARNELL, OF BRADFORD, ENGLAND.

BEARING.

SPECIFICATION forming part of Letters Patent No. 616,094, dated December 20, 1898.

Application filed September 2, 1897. Serial No. 650,347. (No model.)

To all whom it may concern:

Be it known that I, ALBERT FARNELL, a subject of the Queen of Great Britain, residing at Bradford, Yorkshire, England, have invented a new and useful Improvement in Bearings, (for which I have obtained patents in Great Britain, No. 2,819, dated February 3, 1897; in Belgium, No. 129,812, dated August 2, 1897, and in France, No. 256,911, dated August 2, 1897,) of which the following is a specification.

My invention relates to adjustable ball-bearings, and is especially applicable to "cup-adjusting" ball-bearings, such as are commonly fitted to the hubs and other bearing parts of velocipedes and the like.

It has for its object to provide improved means for locking the adjustment of such bearings; and it consists, essentially, in a washer of irregular external configuration and an externally-screw-threaded ring, which washer and ring are adapted to engage with both the adjusting-cup and the case of the bearing, so as to lock the said adjusting-cup to the said case.

In order that the said invention may be properly understood and readily carried into effect, I will describe the same with the aid of the accompanying drawings.

Figure I shows a longitudinal section through the cup-adjusting hub of a velocipede. Fig. II shows a transverse section of the hub-case on the line *a a* in Fig. I. Fig. III shows a certain washer in front and side elevation separate from the hub, and Fig. IV shows similar views of a certain locking-ring separate from the hub.

Corresponding parts are marked with the same reference-numerals in all the figures.

In carrying out my invention as applied to the cup-adjusting hub-bearing of a velocipede the adjusting-piece or bearing-cup 2 is made externally of two diameters. The larger part 3 contains the ball-race and the smaller part forms a sleeve 5, projecting from the back of the cup around the central aperture there-through. The larger part is screw-threaded externally. The smaller part is left plain. The end of the case 6 is suitably screw-threaded internally, and the cup 2 is adapted to be screwed so far thereinto that the larger part 3 is buried and the end of the sleeve 5 stands

approximately flush with the end of the case 6. The end of the case is also provided with one or more longitudinal grooves or recesses 16, formed in the internally-screw-threaded part thereof. A washer 4 of suitable dimensions and having one or more projections 14, adapted to enter the said grooves or recesses 16, is passed onto the sleeve 5 of the cup and lies against the back of the larger part 3 of the said cup. Behind the washer a ring lock-nut 7 is screwed into the end of the case. The internal diameter of the nut 7 is sufficiently large to allow the nut to clear the sleeve part 5 of the cup, and the external diameter thereof is equal to that of the larger part 3 of the cup, and it is similarly externally screw-threaded. When the bearing has been adjusted by rotating the cup 2 in the case 6, the washer 4 is pressed against the back of the larger part 3 of the cup by the ring 7 being screwed tight into the case 6. The screw-threads of the cup 2 are thereby forced so hard against the screw-threads of the case 6 that the said cup cannot rotate relatively to the said case and the adjustment of the bearing is consequently locked. The projections 14 on the washer 4, engaging with the grooves or recesses 16 in the case 6, prevent the washer rotating independently of the case. Hence the rotation of the nut 7 in locking the adjustment is prevented from being communicated to the cup 2.

To facilitate the rotation of the cup when required, the end of the sleeve 5 may be provided with horizontal holes adapted to receive the pegs of a peg-spanner, or the said end may be adapted to project somewhat beyond the end of the case, as shown, the projecting part being provided with flats 9 or the like. Similarly the nut 7 may be provided with horizontal holes 10, a hexagonal sleeve, or the like, whereby it may be rotated.

The invention may be applied to either or both ends of the bearing; but as a rule it will be found convenient to fix one (12) of the two cups in some simpler manner, as by screwing it tight up to a shoulder 11 and to leave the adjustment to be effected by the remaining cup.

From the above description the application of my invention to other suitable bearings will be readily understood, modifications be-

ing made to suit special circumstances, as may be required.

What I claim, and desire to secure by Letters Patent, is—

- 5 1. In "cup-adjusting" bearings, the combination of, first, an adjusting-piece having an external screw-thread; secondly, a case having a part internally screw-threaded to receive the adjusting-piece, and having also
10 one or more longitudinal grooves adapted to receive the washer next hereinafter referred to; thirdly, a washer adapted to pass into the end of the case behind the adjusting-piece and having one or more projections adapted
15 to enter the groove or grooves in the case and prevent rotation of the said washer, said washer being entirely disconnected from the

adjusting-piece, and fourthly, an externally-screw-threaded ring adapted to screw into the case behind the washer and, by pressing the washer against the adjusting-piece, lock the said adjusting-piece to the case, substantially as set forth.

2. In a bearing, the combination of an adjusting-cup 2, and case 6, with a washer 4 having projections 14 entering grooves 16 in the case and a ring 7 screwing into the case behind the washer, said washer being entirely disconnected from the cup, substantially as and for the purpose set forth.

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Witnesses:

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