

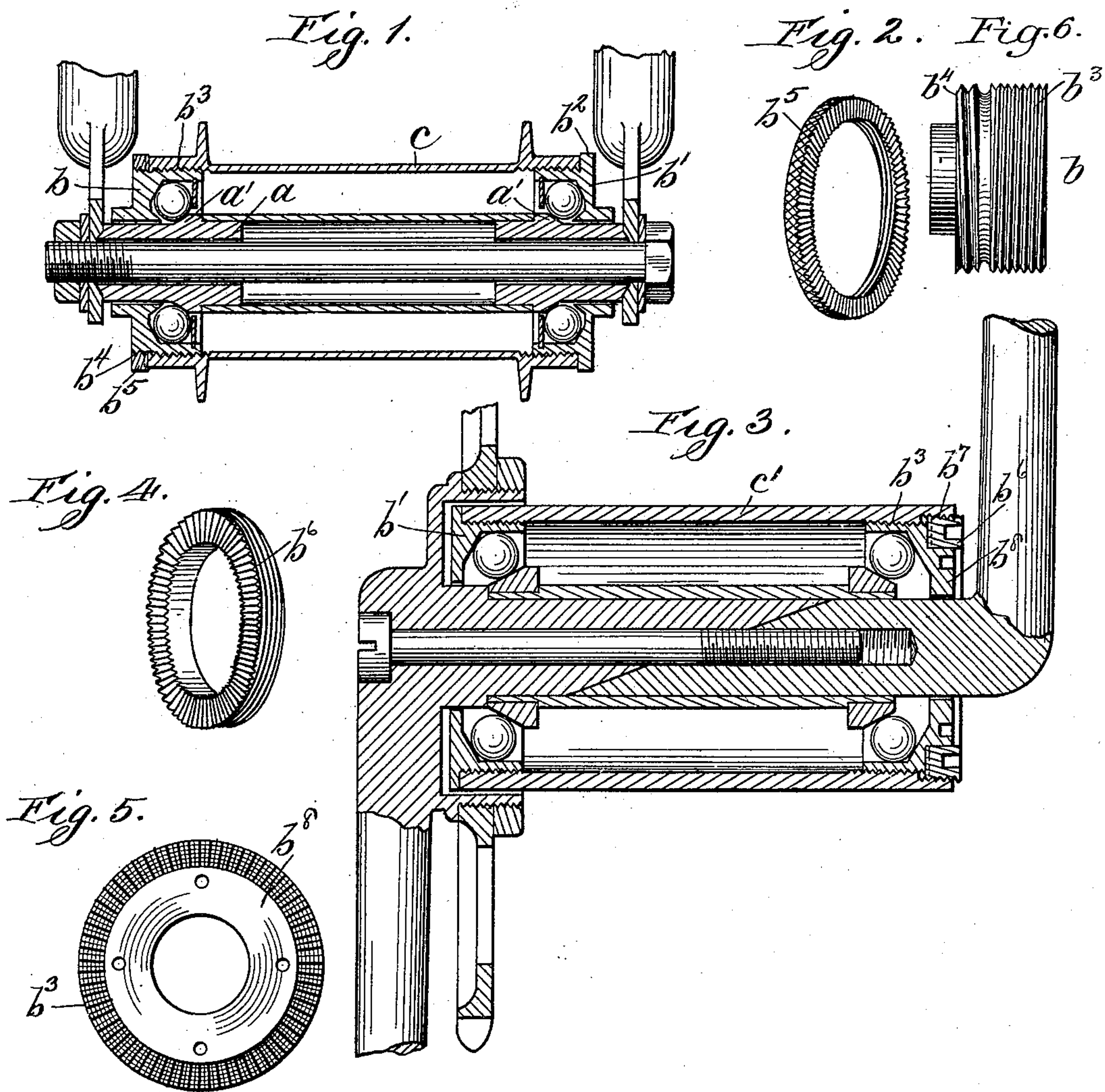
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Patented Mar. 21, 1899

A. M. PRICE.
BICYCLE BEARING ADJUSTMENT.

(Application filed Jan. 31, 1898.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

ALBERT M. PRICE, OF CHICAGO, ILLINOIS.

BICYCLE-BEARING ADJUSTMENT.

SPECIFICATION forming part of Letters Patent No. 621,582, dated March 21, 1899.

Application filed January 31, 1898. Serial No. 668,685. (No model.)

To all whom it may concern:

Be it known that I, ALBERT M. PRICE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bicycle-Bearing Adjustments, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to improved bicycle adjustments, my object being to provide improved means for adjusting the ball-bearings of the wheel-hubs and of the crank-shaft.

In accordance with my invention I provide a shell or barrel having screw-threads on the inner surface, with which engage the threads on the periphery of a cup, the balls of the bearing being interposed between the face of the cup and a shoulder or cone carried upon the journal, and in order to lock the cup in any adjusted position a locking-ring is provided which is independent of the bearing and out of contact with the balls thereof and which engages one of said parts—that is, the shell or cup—by a thread reverse to the thread between the shell and the cup and having a toothed or other form of positive interlocking face to engage the other of said parts. By this construction and arrangement the cup may be moved along the shell and locked in any adjusted position.

I have illustrated my invention in the accompanying drawings, in which—

Figure 1 is a sectional view of the bicycle-hub embodying my invention. Fig. 2 is the locking-ring thereof. Fig. 3 is a sectional view of a modified form of the invention as applied to the crank-shaft. Fig. 4 is a view of the locking-ring thereof. Fig. 5 is a view of the adjustable cup for the ball-bearing. Fig. 6 is a view of the cup screwing into the end of the barrel.

Like letters refer to like parts in the several figures.

The axle a of the wheel is provided with shoulders a' a' , between which and the cups b b' the balls of the bearings are held, one of said cups b' on the right-hand side of the wheel or hub being preferably non-adjustable and screwing into the end of the shell c and hav-

ing a shoulder b^2 , adapted to engage the end of the shell. The other cup b on the left of the wheel is adjustable and is provided upon the periphery with a series of threads b^3 , adapted to engage corresponding threads provided on the interior of the shell c . The periphery of the cup b also carries a second series of threads b^4 , upon which the locking-ring b^5 is adapted to screw, the inner face of the locking-ring being knurled or notched and adapted to engage the correspondingly knurled or notched end of the shell c to prevent the locking-ring from turning when in position. The threads b^3 should preferably be such that the cup b in its tendency to turn, due to the forces to which it is subjected, is caused to tend to move the locking-ring inward. In a hub the cup tends to turn relatively to the hub, due to the forces to which it is subjected, in the same direction that the shell of the hub is rotated—that is, it moves faster than the hub in the direction of rotation—and therefore in order to impart to the cup a tendency to turn the locking-ring inward the threads b^3 should be left-hand threads, considering that in Fig. 1 we are looking at the hub from the rear of the wheel. The threads b^4 , engaged by the locking-ring b^5 , should be reversed—that is, opposite to the threads b^3 —and the threads b^3 being in the present instance left-hand threads the threads b^4 should be right-hand threads. In adjusting the bearings the cup b is turned until the desired adjustment is secured, and the locking-ring is then turned until the teeth on the locking-ring touch the teeth on the shell, and then the cup is turned in a direction to move the teeth on the locking-ring firmly into engagement with the teeth on the shell, the engagement of the teeth preventing the turning of the locking-ring relative to the shell during this final movement of the cup.

In order to secure a delicate adjustment and in order that the screwing of the locking-ring into position may not disturb the adjustment, I preferably form the threads b^4 of greater pitch than the threads b^3 , so that after the cup b has been turned to secure the proper adjustment the ring b^5 may be held stationary and the cup b turned slightly to take up the backlash between the threads and at the same

time move the ring b^5 firmly into engagement with the end of the shell c . By thus forming the threads b^3 of less pitch than the threads b^4 I am able to readily secure a very delicate
5 adjustment for the ball-bearings.

In Fig. 3 I have illustrated a modification of the adjustment and have illustrated the same as applied to the crank-shaft, although either of the forms of adjustment may be ap-
10 plied to both the hubs and the crank-shaft, making the proper changes to adapt the adjustment to the particular use.

In the modification shown in Fig. 3 the cup b^8 is provided upon the periphery with threads b^3 , which engage corresponding threads on the shell c' of the crank-hanger. The locking-ring b^6 instead of having threads on the inner periphery is provided with threads b^7 upon the outer periphery, which engage corre-
15 sponding threads on the shell c' . The inner face of the locking-ring b^6 and the outer face of the cup b^8 are correspondingly knurled or notched in order that the same may be held in engagement. The threads b^3 are such
20 that the forces to which the cup b^8 is subjected tend to move the same outward, and by the construction shown in Fig. 3 are formed as left-hand threads. The threads b^7 on the locking-ring b^6 are formed as right-hand
25 threads. The tendency of the cup b^8 to work outward, due to the forces to which the same is subjected, thus causes the cup and locking-ring to engage more closely along their engaging faces. In adjusting the bearings the cup
30 b^8 is moved into the desired position, and then the locking-ring is turned until the notched face thereof meets the notched face of the cup, and then the locking-ring and the cup
35 are turned together to take up the backlash of the threads, and this turning brings the

opposite faces of the cup and locking-ring firmly into engagement.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a shell or barrel having screw-threads on the inner surface, of a cup having threads on the periphery to en-
45 gage the same, a journal having a shoulder between which and the cup the balls of the bearing are placed, and a locking-ring inde-
50 pendent of the bearing and out of contact with said balls and engaging one of said parts by a thread reverse to the thread between the shell and the cup and having a toothed or
55 other form of positive interlocking face to engage the other part, whereby the cup may be moved along the shell and locked in any ad-
justed position, substantially as described.

2. The combination with a shell or barrel, 60 of an axle or shaft therein provided with a shoulder, an adjustable cup between which and the shoulder the balls of the bearing are placed and provided upon the periphery at
65 one end with threads for engaging threads on the shell, and with reverse threads on the other end, and a locking-ring screwing upon
said latter threads, said shell and locking-ring being provided upon their engaging faces with
70 teeth or other positive interlocking means to interlock the same and normally prevent the rotation of the cup and locking-ring relative to said shell, substantially as described.

In witness whereof I have hereunto sub-
scribed my name in the presence of two wit-
75 nesses.

ALBERT M. PRICE.

Witnesses:

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M. R. ROCHFORD.