

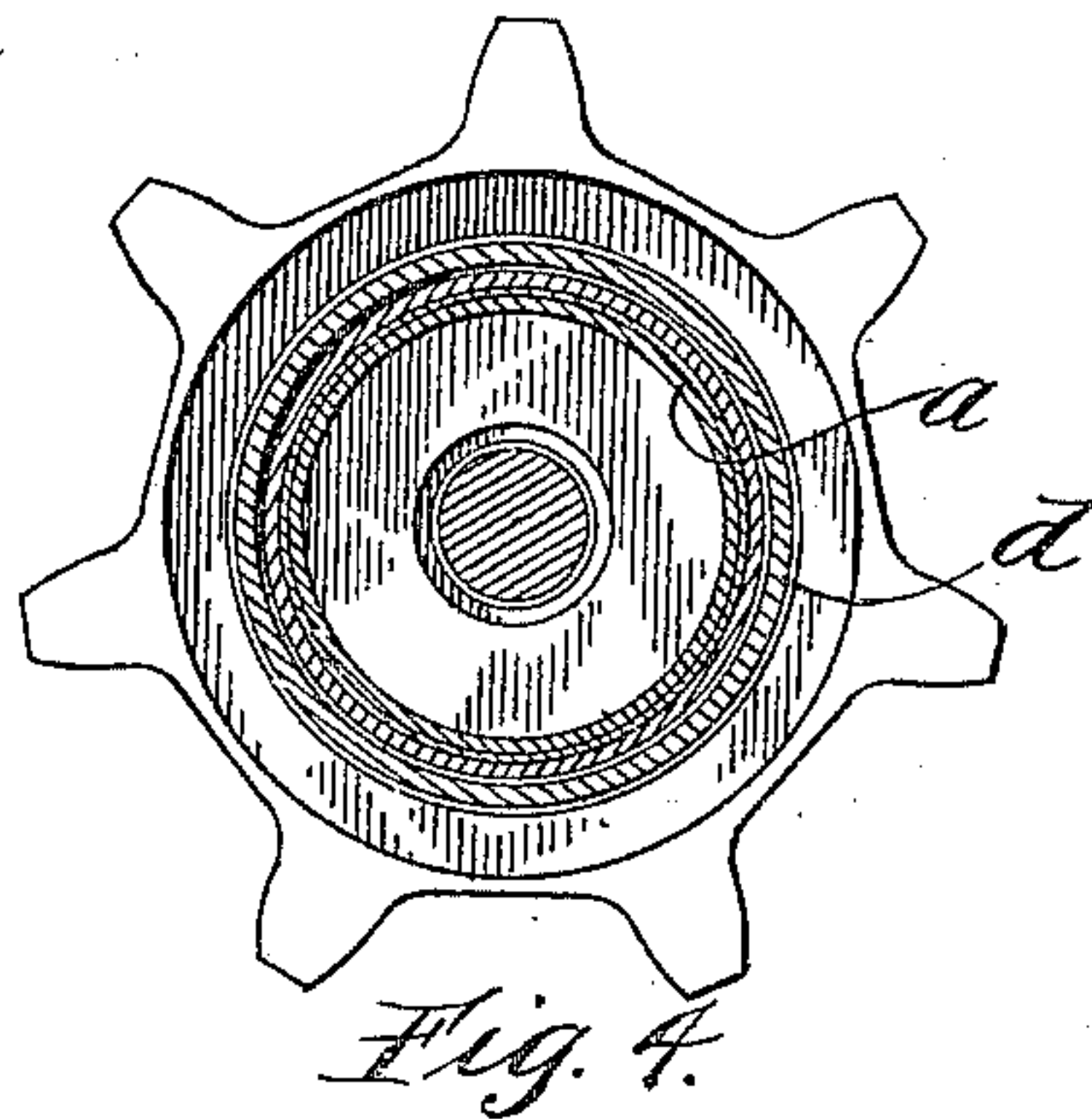
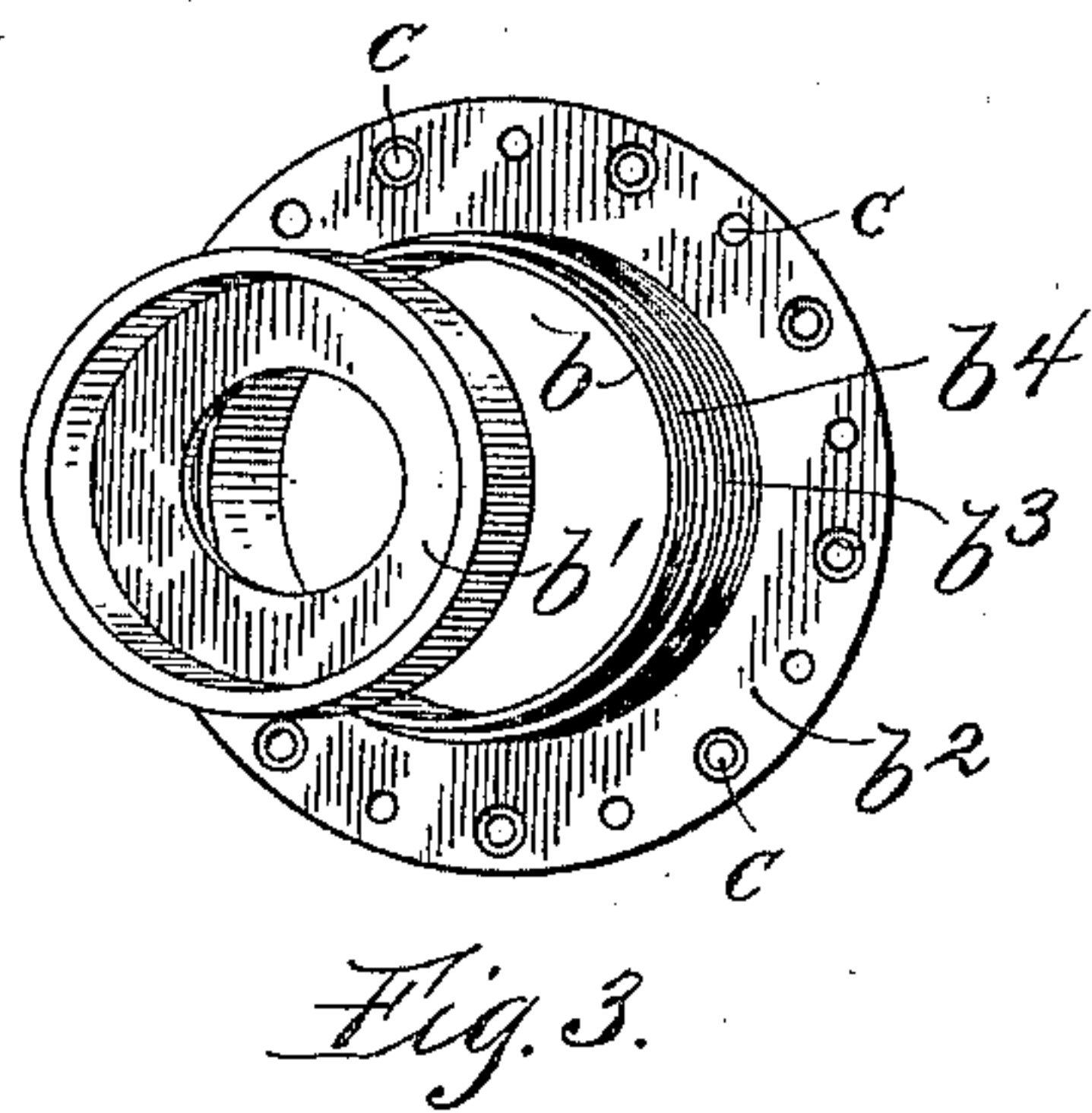
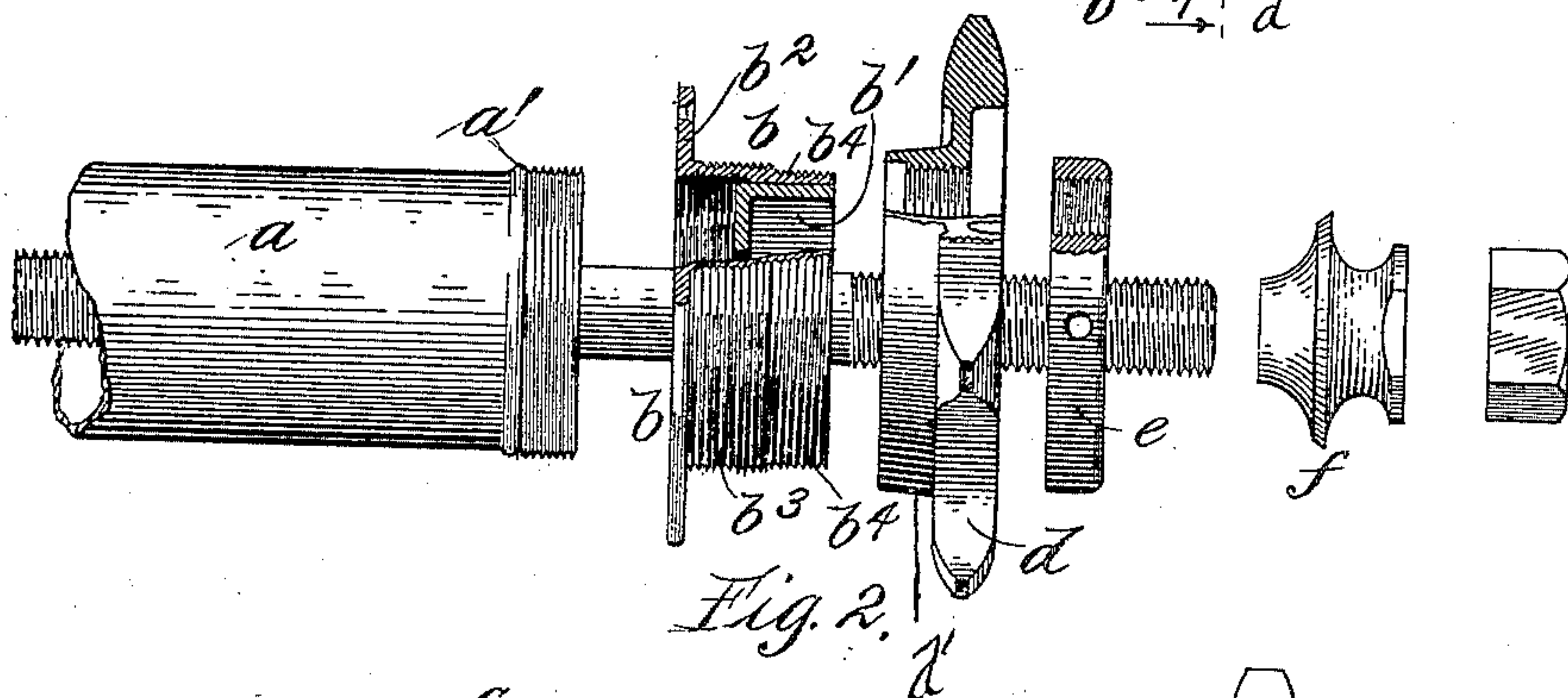
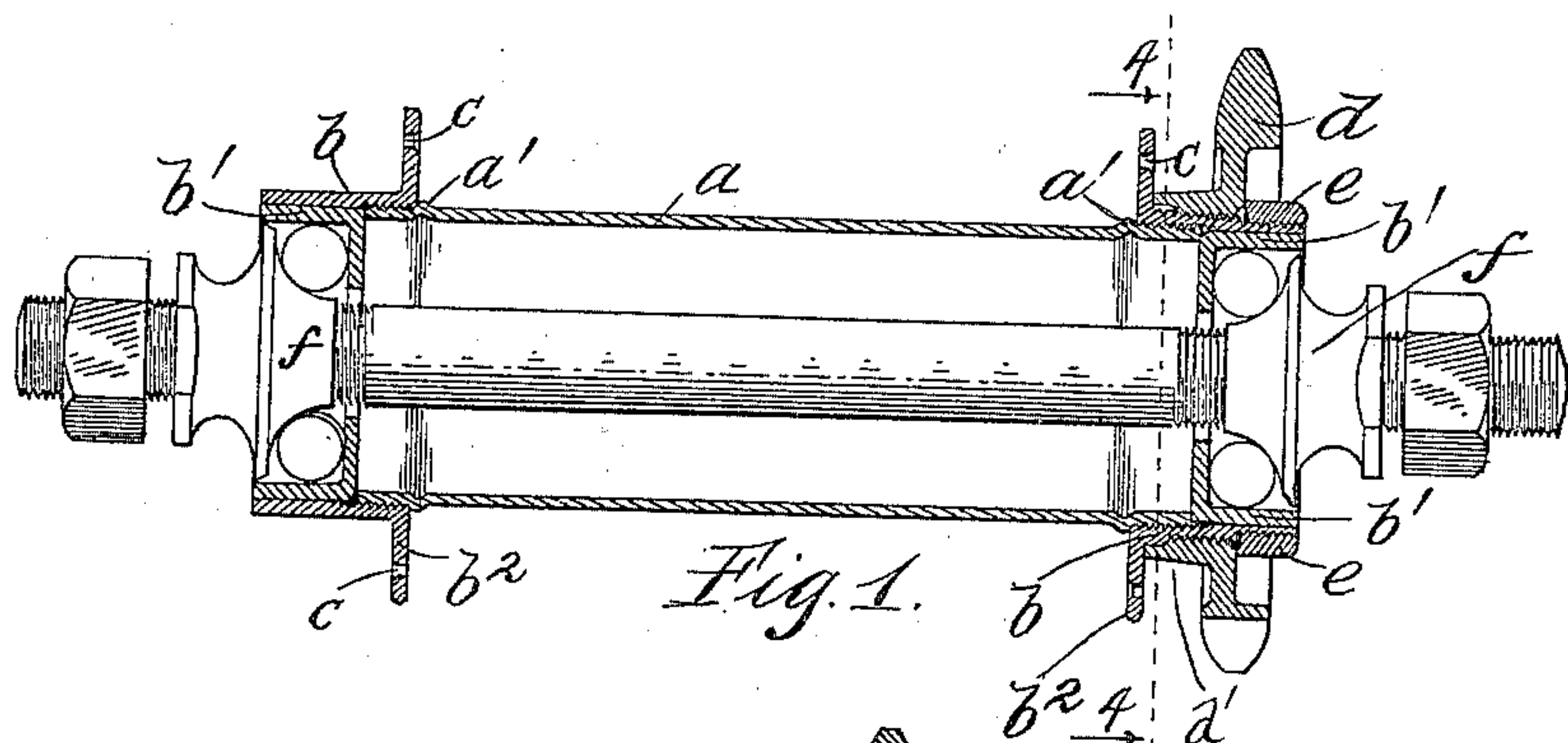
No. 622,635.

Patented Apr. 4, 1899.

A. S. REED.
HUB FOR WHEELS.

(Application filed July 12, 1897.)

(No Model.)



Witnesses:
L. M. Canner,
John W. Sinclair

Inventor:
Albert S. Reed,
By Barton Brown
Attorneys.

UNITED STATES PATENT OFFICE.

ALBERT S. REED, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE ONWARD COMPANY, OF SAME PLACE.

HUB FOR WHEELS.

SPECIFICATION forming part of Letters Patent No. 622,635, dated April 4, 1899.

Application filed July 12, 1897. Serial No. 644,269. (No model.)

To all whom it may concern:

Be it known that I, ALBERT S. REED, 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 Hubs for Wheels, (Case No. 2,) 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 improvements in hubs for bicycle-wheels, and has for its object the provision of a structure combining extreme simplicity, strength, durability, and light weight.

My invention is more particularly applicable to the form of bicycle-hub known as the "barrel-hub," wherein a section of steel tubing is provided for the body of the hub, which is reinforced at its ends by special parts adapted to receive the bearing - cups, spokes, sprocket-wheel, and other associated parts. Various types of hubs have previously been devised, which structures more or less satisfactorily perform the functions for which they are designed.

The improved hub of my invention presents distinct points of advantage over any other structure with which I am conversant. In the manufacture of my improved hub I am enabled to construct the parts separately, thus insuring extreme accuracy and permitting of the ready replacement of worn or damaged parts. Moreover, in assembling the several parts of the hub I have provided a structure which wholly avoids the process of brazing, with its accompanying deterioration of the steel under the degree of heat necessarily employed.

The bicycle-hub of my invention may be briefly described as consisting of a tubular barrel or body portion threaded at its extremities, upon each of which is screwed a combined spoke-flange and bearing-cup receptacle, which is adapted to engage shoulders or abutments provided at the extremities of the threaded barrel. For the rear hub a sprocket-wheel is constructed having an extended threaded part which is adapted to screw over the cup - receptacle and engage the spoke-flange, a locking-ring being exteriorly screwed

upon the bearing - cup receptacle, which is adapted to hold the sprocket-wheel in position.

From the above it will be seen that the several parts of my improved hub are assembled merely by screwing together, while the completed device consists of but few parts, which are so disposed as to reinforce each other.

My invention will be more readily understood by reference to the accompanying drawings, wherein—

Figure 1 is a longitudinal sectional view of the improved hub of my invention. Fig. 2 is a view of the several parts of the hub previous to assembling the same. Fig. 3 illustrates a bearing-cup about to be inserted in the combined cup - receptacle and spoke-flange, and Fig. 4 is a sectional view on line 4 4 of Fig. 1.

The same letter of reference is used to designate like parts in each of the several figures of the drawings.

The tubular barrel *a* is provided with annular shoulders or abutments *a'*, which are rolled or otherwise formed near each end thereof, the portions of the barrel between the shoulders and the end being threaded. The combined spoke-flange and bearing-cup receptacle *b* is adapted to receive the bearing-cup *b'*, which is forced home to its position, as illustrated in Fig. 2, prior to placing the same upon the barrel. The flanges *b²* are provided with openings *c*, through which the spokes of the wheel are passed in the usual manner. The parts *b* being now screwed upon the end of the barrel, as shown in Fig. 1, it is seen that the interior faces of the flanges *b²* are adapted to engage the shoulders *a'* at the same time that the bearing - cups *b'* abut against the extremities of the barrel *a*, the said parts being constructed to secure this double engagement. Where a sprocket-wheel *d* is to be mounted upon the hub, as is requisite for the rear hubs of bicycles, the cylindrical portion *b³* of the cup-receptacle is exteriorly cut with right-hand threads, while a portion *b⁴*, of slightly-smaller diameter, is provided with left-hand threads. The sprocket is constructed with an extending collar which is interiorly threaded and provides a rela-

tively large surface engaging with the cylindrical part b^3 , the teeth of the sprocket-wheel when in position being brought into line with the ball-bearings of the hub. In assembling a rear hub a sprocket d is screwed upon the part b^3 until its shoulder abuts against the spoke-flange b^2 , after which the locking-ring e is screwed upon the part b^4 , thus locking the sprocket-wheel in position, as illustrated in Fig. 1. The axle-bolt is passed through the openings in the bearing-cups, and balls are placed around the bearing-cones f , screwed thereon in the usual manner. I preferably provide a beveled edge for the bearing-cones f , which I have found largely prevents the entrance of dust and dirt into the bearings.

The constructions hitherto employed in this class of hubs have provided engaging threaded surfaces for the sprocket-wheels approximately of the same thickness as that of the sprocket. I have, however, found it desirable to secure a much greater bearing-surface by providing the laterally-extending collar d' , which, with the locking-ring, reinforces the inclosed bearing and at the same time, engaging the cylindrical surfaces b^4 and the spoke-flange b^2 , secures much greater strength for the parts than is obtainable with the prior constructions.

The construction of a bicycle-hub is very much simplified and its weight decreased by the utilization of the tubular extension of the L-shaped spoke-flange for the purpose of holding the bearing-cup, and the provision of a shoulder or abutment a' in connection with the threaded surfaces of the barrel permits of screwing the part directly upon the barrel and insures the necessary strength in the hub without the customary brazing. In manufacturing barrel-hubs for bicycle-wheels it is necessary to employ steel tubing of light gage or weight for the body portion. As a result of this it is impracticable, if not impossible, to cut a thread upon the same of such size or depth as to afford sufficient engagement and limit the movement of the flange portion. Brazing, as I have stated, has been resorted to to strengthen the parts; but this is rendered unnecessary even with the lightest tubing employed when limiting stops or abutments are provided in accordance with my invention, against which the flange portion may be screwed. The strength of the hub is further contributed to by forcing the bearing-cup within its receptacle a sufficient distance to engage the extremity of the tubular barrel at the same time that the flange engages the shoulder a' .

As is well known to those conversant with the art, the brazing of steel tubing or other parts of high-grade steel is to be avoided as far as possible, and I have altogether obviated this by the construction above shown and described, with the attendant advantages of retaining in the several parts the highest degree of efficiency.

The disposition of the sprocket-wheel exemplified in my improved construction directs the pull of the chain immediately upon the ball-bearings situated within said sprocket, thereby obviating any unnecessary strain upon the several parts concerned. The spoke-flanges are arranged well within the extended bearings, thereby admirably adapting the hub to meet lateral strain without injuring the same. The sprocket-wheel is recessed, permitting the employment of a wide locking-ring. The width of the hub, moreover, is not increased by this advantageous disposition of the several parts. By reason of the fact that the parts are readily assembled and disassembled by screwing them upon and off the barrel or body portion any damaged or worn part of my improved hub is readily replaced.

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

1. In a hub for vehicle-wheels, the combination with a length of steel tubing forming the body portion of said hub and provided with threaded extremities, of spoke-flanges screwed thereon and rolled shoulders or abutments formed from said tubular body portion near either extremity thereof, adapted to be engaged by and to maintain the spoke-flanges in position, substantially as described.

2. In a hub for vehicle-wheels, the combination with a length of steel tubing forming the body portion of said hub and provided with threaded portions at its extremities, of combined spoke-flanges and bearing-cup receptacles consisting of threaded tubular parts and angularly-extending flange portions adapted to screw thereon, bearing-cups respectively disposed in the tubular portions of said receptacles, and rolled shoulders or abutments formed near each extremity of the tubular body portion adapted to be engaged by and to maintain the spoke-flanges in position, substantially as described.

In witness whereof I hereunto subscribe my name this 25th day of June, A. D. 1897.

ALBERT S. REED.

Witnesses:

GEORGE L. CRAGG,
JOHN W. SINCLAIR.