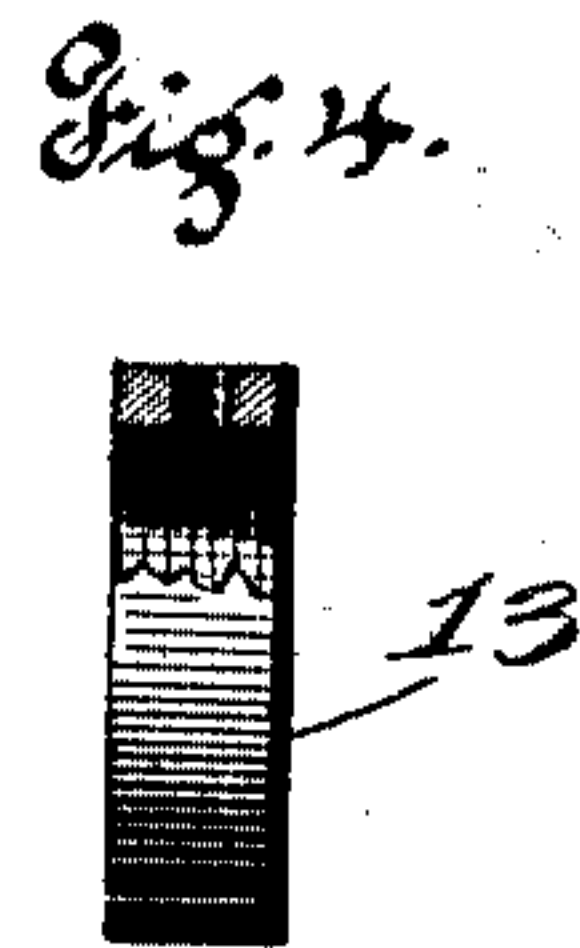
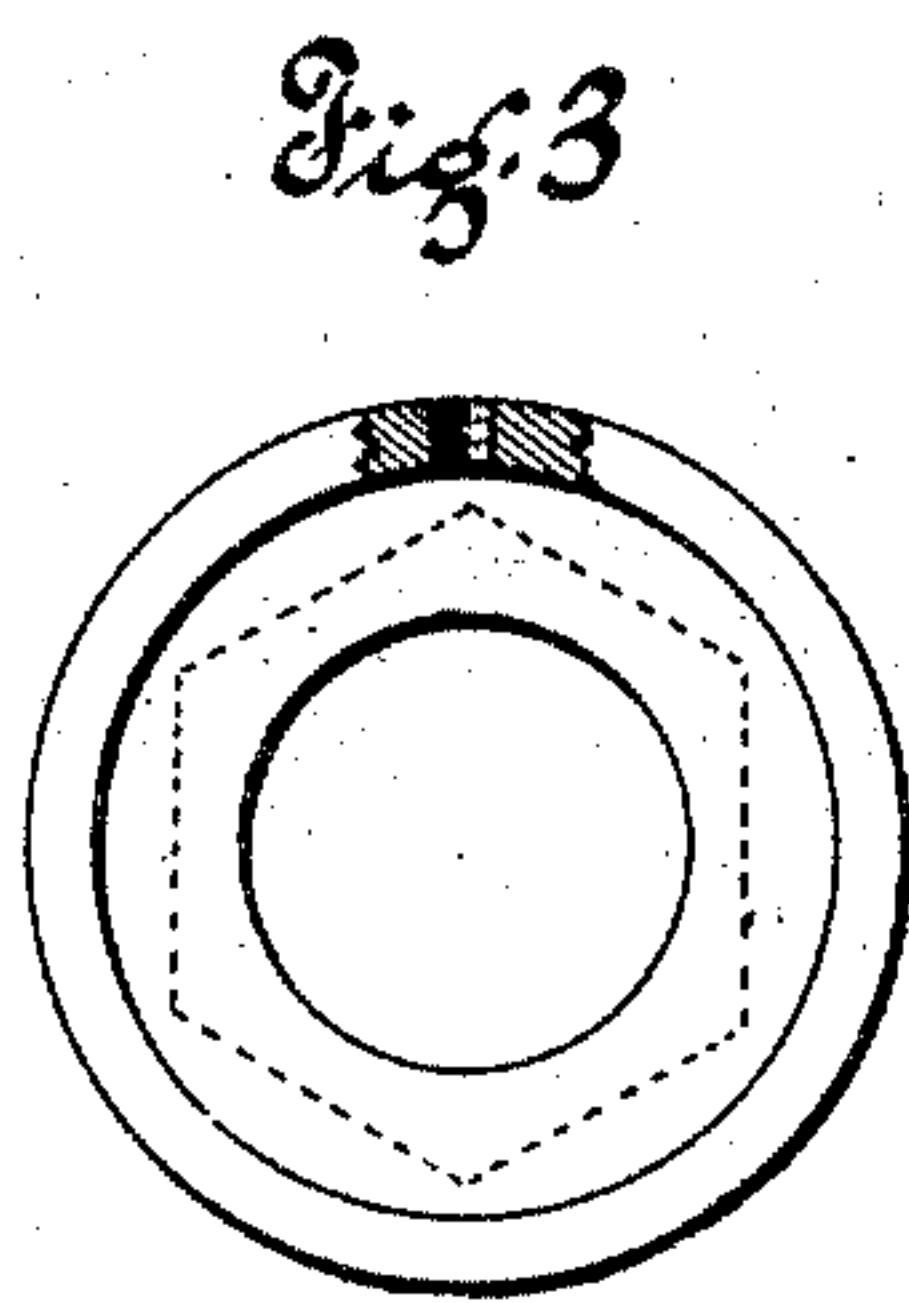
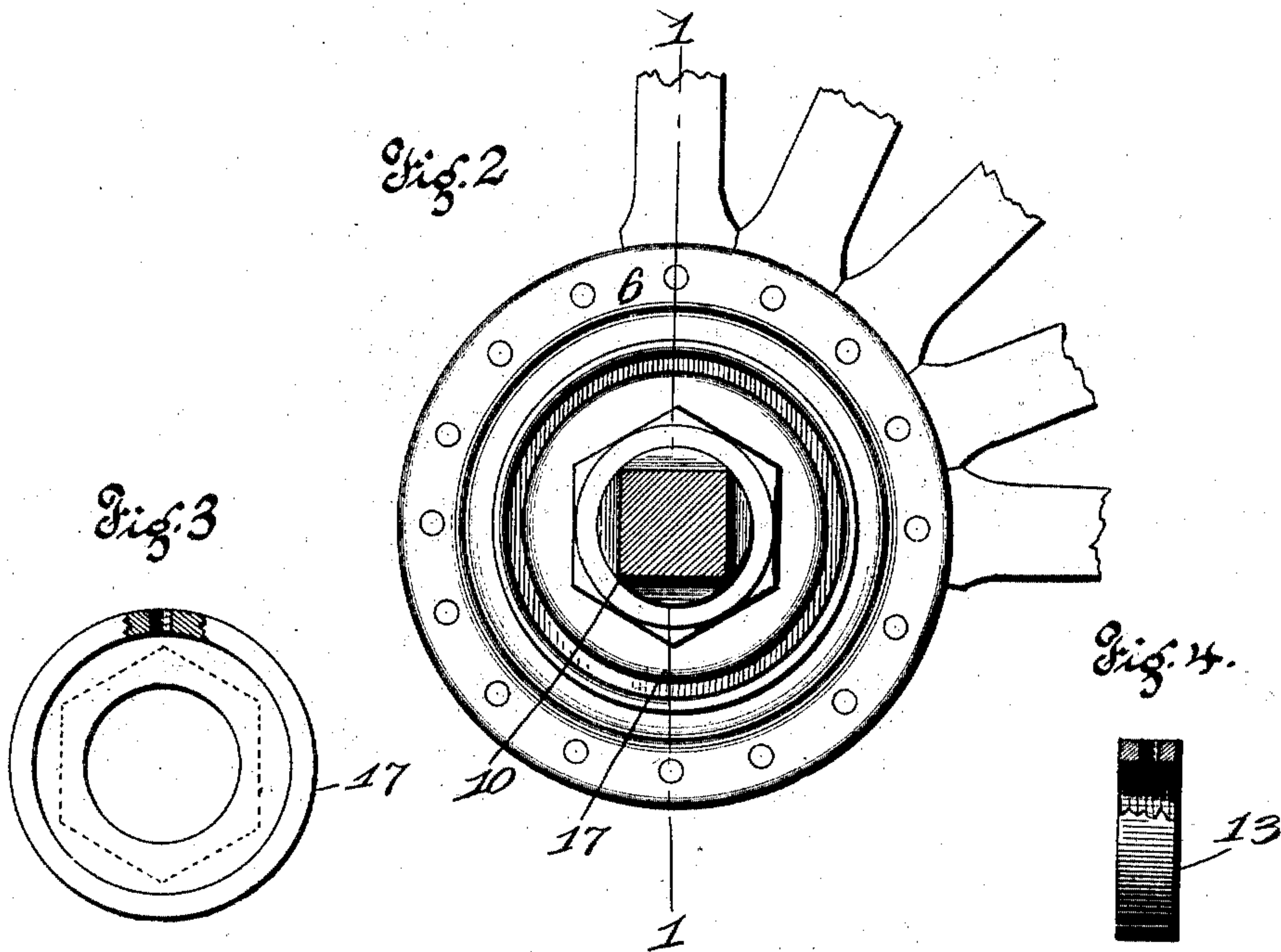
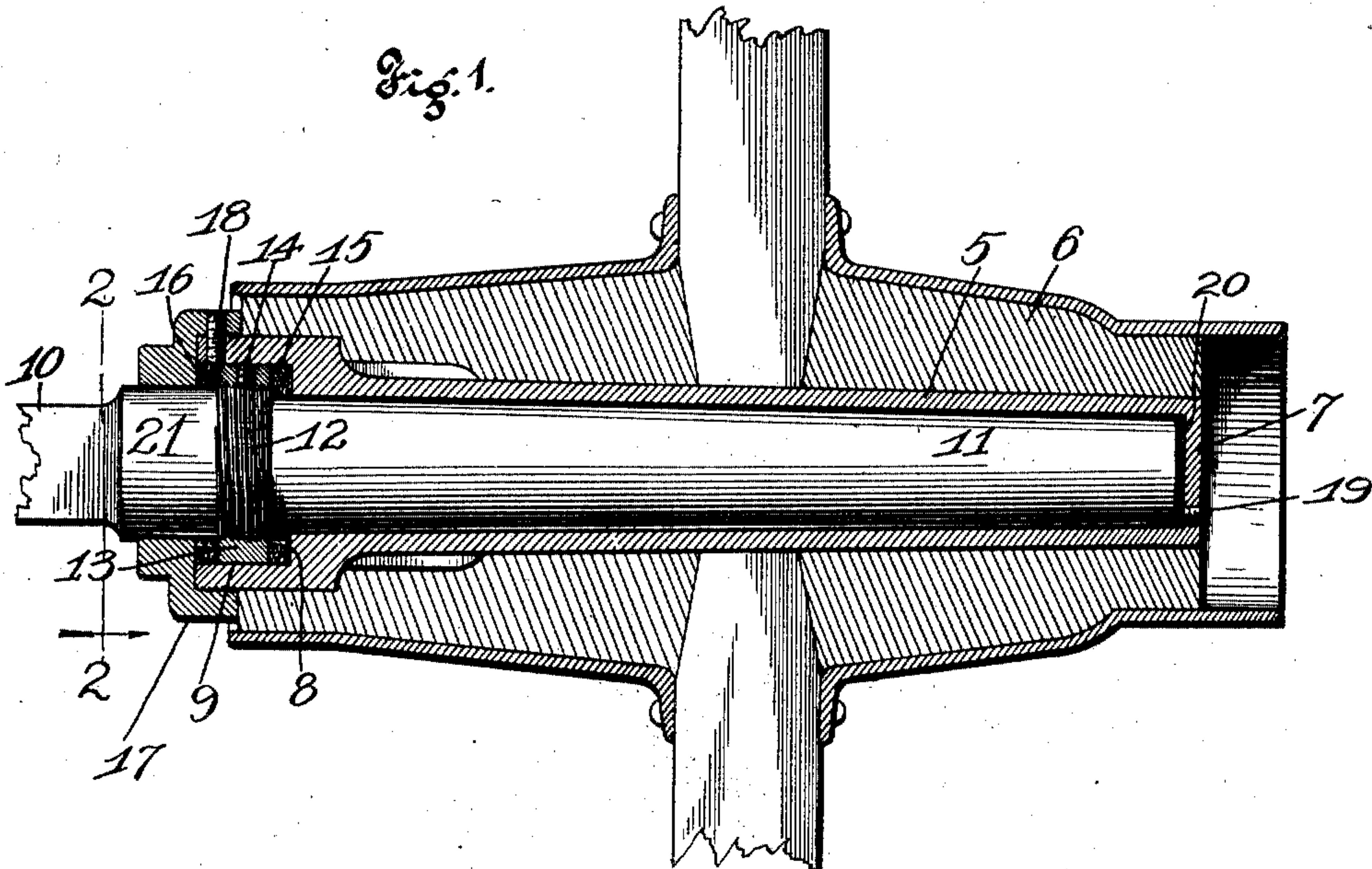


No. 759,088.

PATENTED MAY 3, 1904.

J. L. FREASIER.  
DUST PROOF AXLE.  
APPLICATION FILED JAN. 11, 1904.

NO MODEL.



Witness  
Alfred A. Eicks  
Witness

Inventor  
Joseph L. Freasier  
By Higdon & Longan & Hopkins Attys



# UNITED STATES PATENT OFFICE.

JOSEPH L. FREASIER, OF ST. LOUIS, MISSOURI.

## DUST-PROOF AXLE.

SPECIFICATION forming part of Letters Patent No. 759,088, dated May 3, 1904.

Application filed January 11, 1904. Serial No. 188,650. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH L. FREASIER, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Dust-Proof Axles, of which the following is a specification containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to dust-proof axles, my object being to improve the details of construction; and my improved dust-proof axle comprises an axle-box closed at one end and enlarged at the other end, an axletree, a spindle extending from the axletree into the axle-box, a nut slidingly mounted on the inner end of the spindle and adapted to be screw-seated upon the inner end of the axle-box, and a butting-ring removably and adjustably mounted upon the spindle outside of the nut, so that the nut holds the wheel in position upon the spindle.

In the drawings, Figure 1 is a central section of an axle embodying the principles of my invention, taken on the line 1 1 of Fig. 2. Fig. 2 is a cross-section on the line 2 2 of Fig. 1, looking in the direction indicated by the arrow, on an enlarged scale. Fig. 3 is a detail of the inner face of the axle-nut. Fig. 4 is a sectional detail of the butting-ring.

Referring to the drawings in detail, the axle-box 5 is mounted in the hub 6, the outer end of said axle-box being closed by the wall 7 and the inner end of said axle-box being enlarged to form the shoulder 8 and the butting-ring pocket 9 inside of said shoulder. The axletree 10 has a spindle 11 extending into the axle-box 5, the inner end of the spindle being enlarged and screw-seated, as indicated at 12, and the butting-ring 13 is mounted upon the threads 12 and fits in the pocket 9, said butting-ring being held adjustably in position by the set-screw 14.

A leather washer 15 is placed outside of the butting-ring to form a cushion between the butting-ring and the shoulder 8, and a smaller washer 16 is placed inside of the butting-ring to form a cushion between the axle-nut 17 and the butting-ring. The axle-nut 17 is placed upon the inner end of the axle or upon the

axletree before the butting-ring is assembled, and the axle-nut is screw-seated upon the inner end of the axle-box and held in position by the set-screw 18, said set-screw extending through the wall of the inner end of the axle-box as well as through the nut, so that by removing the said set-screw 18 oil may be supplied through the openings into the axle-box. The axle-nut 17 fits tightly against the end face of the axle-box 5, and the nut also fits tightly against the end face of the hub 6, especial care being taken to make the joints so that the oil in the butting-ring pocket 9 will not leak through said joints. A screw 19 closes a vent in the wall 7, so that by removing the screw the oil may be drawn out of the axle-box. The spindle 11 is cut short enough so that there will be a space 20 between the end of the spindle and the wall 7. The spindle is slightly tapered and the axle-box is correspondingly tapered, so that by adjusting the butting-ring 13 the wear between the spindle and the box may be taken up.

The butting-ring holds the hub upon the axle, and the end thrust comes upon the cushions 15 and 16, and said cushions being of leather or non-metallic there will be no rattle in the operation of the axle.

The axletree 10 is small enough to allow the nut 17 to pass from the spindle onto the axletree when it is desired to remove the hub from the axle.

The nut fits closely upon the inner end of the spindle, and by this means the axle-box is practically hermetically sealed.

In the construction of my improved axle I take a round bar large enough to form the enlarged portion 21 of the axle when turned and finished, which should be, say, one and three-eighths inches in diameter, and draw said bar down to the desired size of the axletree—say one inch square—and then turn the outer end down to form the desired size and shape of the spindle. The screw-threads 12 are cut upon the outer end of the reinforced portion 21. It is important that the screw-threads 12 be as small or smaller in diameter than the portion 21, so that the axle-nut 17 will pass readily over said screw-threads. This reinforced portion 21 gives the axle in-



creased strength at what would otherwise be the breaking-point. This manner of forming the reinforced portion 21 preserves the natural grain or crystallization of the steel used, 5 whereas in the old method the steel is upset to form the enlargement, and this destroys the natural grain or crystallization of the metal.

I claim—

10 In a dust-proof axle; a hub; an axle-box mounted in said hub, closed at its outer end by an integral wall and enlarged at its inner end to form a shoulder, and having a tapered bearing; an axletree; a spindle extending 15 from the axletree into the axle-box, there being an enlarged portion at the junction of the spindle with the axletree, the outer end of said enlarged portion being screw-threaded; said spindle being tapered to fit the tapered 20 axle-box, and there being a space between the outer end of the spindle and said integral wall; a butting-ring screw-seated upon the

screw-threaded end of said enlarged portion of the spindle, so as to take up the lost motion between the spindle and the axle-box; a 25 washer between the butting-ring and the shoulder of the axle-box; a second washer inside of the butting-ring; the axle-nut 17 exteriorly screw-seated upon the inner end of the axle-box and jamming against the inner 30 end face of the axle-box; the wooden hub 6 mounted upon the axle-box so that the axle-nut jams against the end face of the wooden hub; and the set-screw 18 inserted through the axle-nut and through the axle-box to hold 35 the nut securely in position; the axle-box and axle-nut being imperforate so as to hold oil.

In testimony whereof I have signed my name to this specification in presence of two subscribing witnesses.

JOSEPH L. FREASIER.

Witnesses:

ALFRED A. EICKS,  
M. G. IRION.