

No. 791,059.

PATENTED MAY 30, 1905.

A. VAN WORMER.  
SELF ADJUSTING BEARING.  
APPLICATION FILED AUG. 8, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

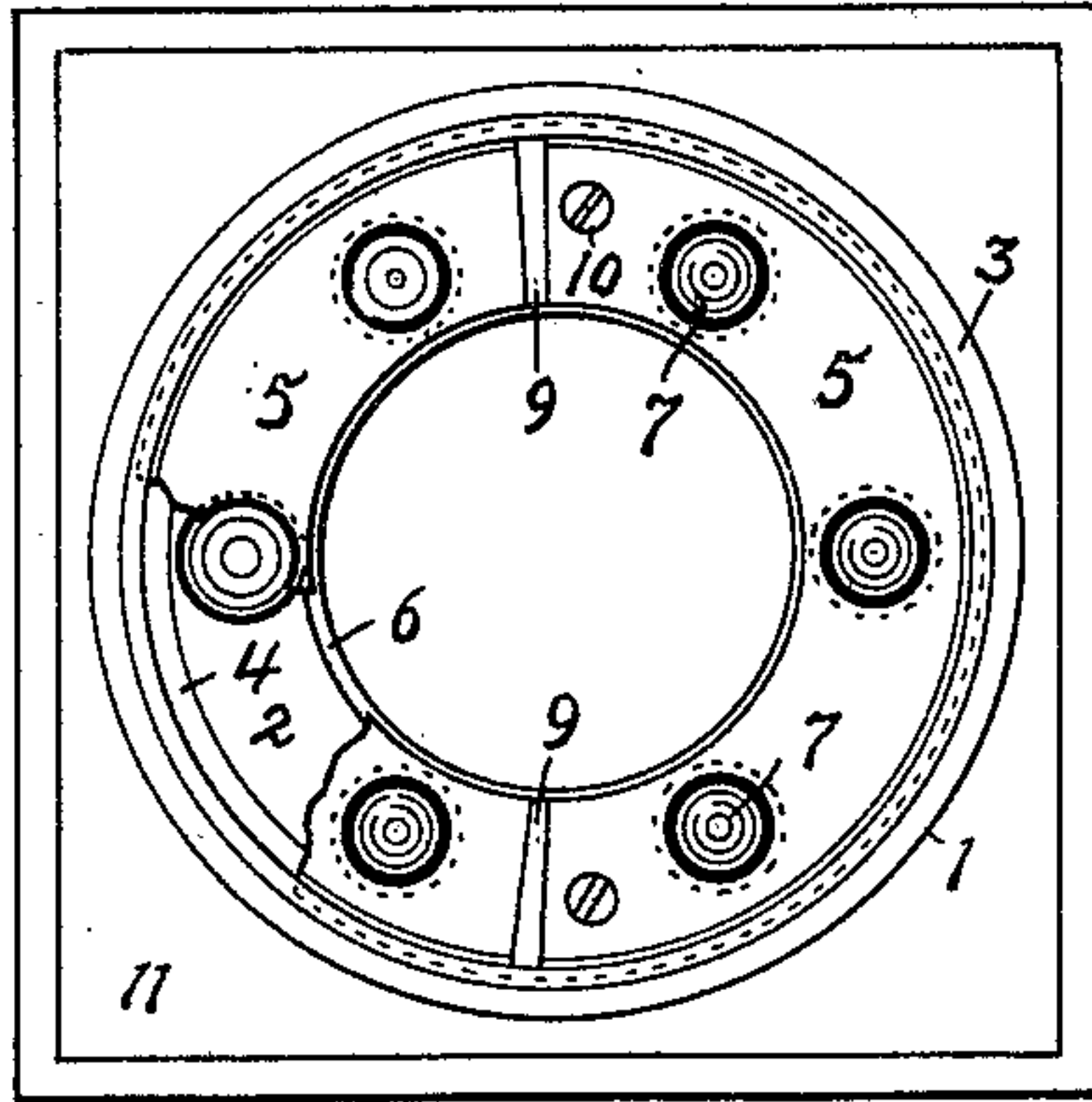
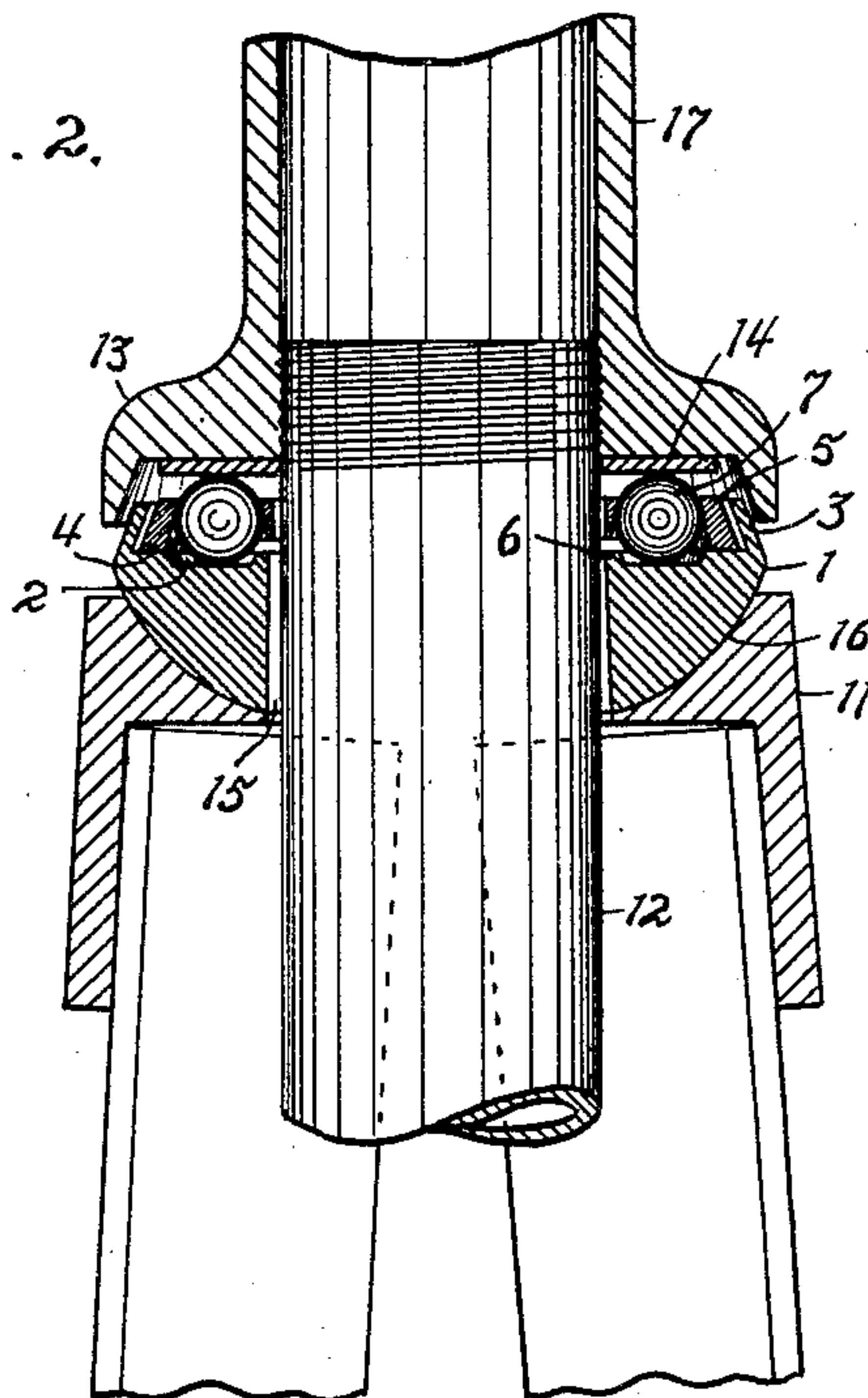


Fig. 2.



WITNESSES:

V. M. Burns.  
J. M. Dickens

Arba Van Wormer INVENTOR

BY J. M. Burns

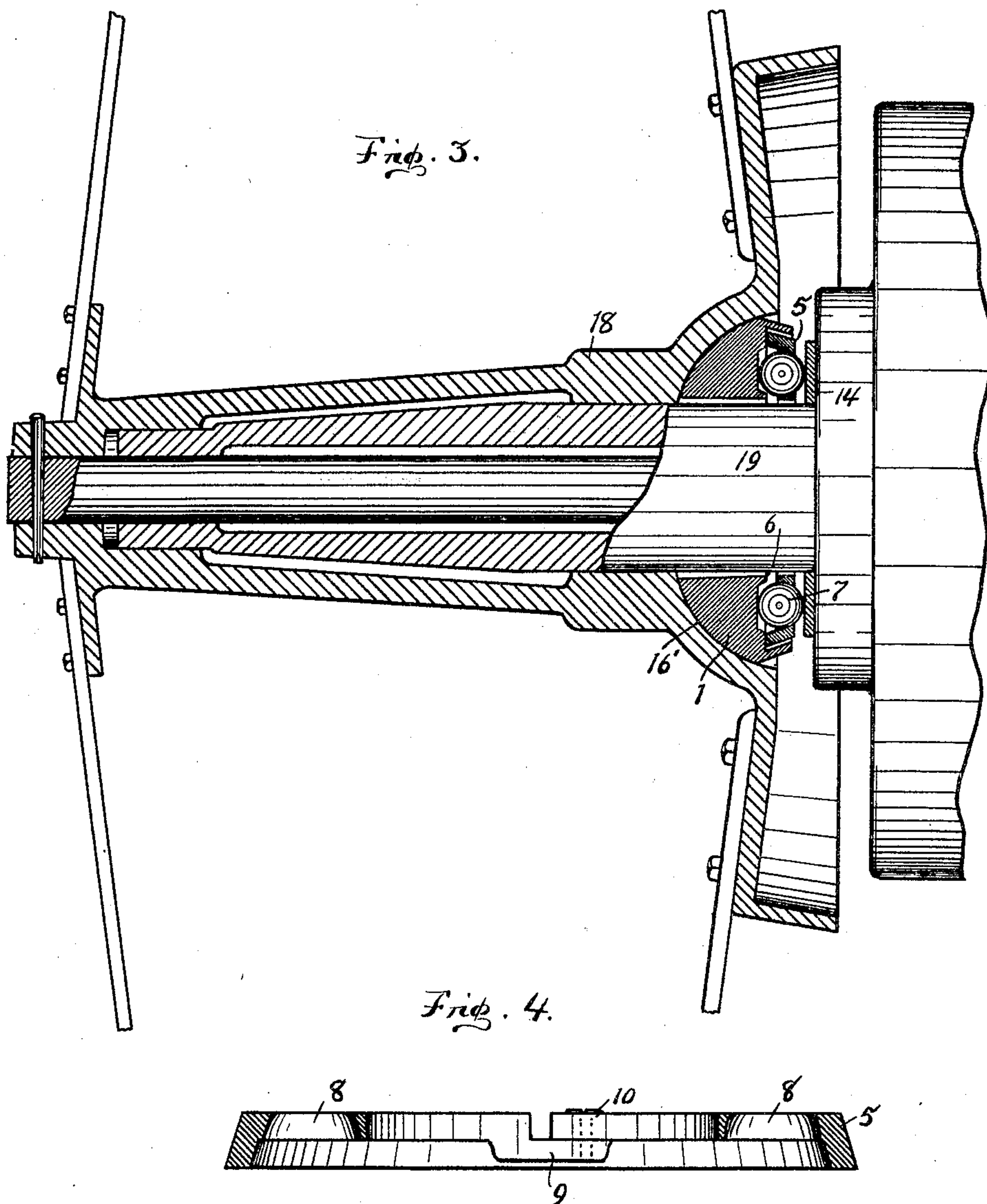
ATTORNEY

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*Arba Van Wormer* INVENTOR

BY *A. J. Burns.*

ATTORNEY



# UNITED STATES PATENT OFFICE.

ARBA VAN WORMER, OF FORT WAYNE, INDIANA, ASSIGNOR TO THE FORT WAYNE WIND MILL COMPANY, A CORPORATION OF INDIANA.

## SELF-ADJUSTING BEARING.

SPECIFICATION forming part of Letters Patent No. 791,059, dated May 30, 1905.

Application filed August 8, 1904. Serial No. 219,845.

*To all whom it may concern:*

Be it known that I, ARBA VAN WORMER, a citizen of the United States of America, and a resident of Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Self-Adjusting Bearings, of which the following is a specification.

This invention relates to improvements in self-adjusting bearings; and the object thereof is to afford a ball-bearing which will automatically adjust itself to the plane of the member which rests upon the balls and to provide means to hold said balls in proper relative position. I accomplish this object by the construction illustrated in the accompanying drawings, in which—

Figure 1 is a plan showing the bearing arranged upon a tower-cap, part of the retaining-ring being cut away. Fig. 2 is a vertical section of the same and showing also the shank of a windmill-head mounted in place. Fig. 3 is a vertical section showing the invention applied to the hub of a windmill, and Fig. 4 is a vertical section showing the retaining-ring upon an enlarged scale.

Similar numerals of reference indicate corresponding parts throughout the several views, and, referring now to the same, 1 is a cup having in one side thereof an annular channel 2. An annular flange 3 extends upward at the outer periphery of the cup and overhangs inwardly, and an annular shoulder 4 ranges around the channel 2 and adjacent the flange 3. An annular flange 6 extends upwardly from the cup along the inner margin of the channel 2. Bearing-balls 7 are arranged to roll in the channel 2, and a retaining-ring 5, having openings 8, is placed within the flange 3 and over said balls, the said balls ranging loosely in said openings, respectively. The outer edge of said ring is beveled and extends under the overhanging flange 3 and is thereby prevented from dislodgment from the cup. The said ring rests upon the shoulder 4 and is moved thereon as the balls are rolled in the channel. The ring 5 is composed of two semicircular sections, one of which has extending lips 9 upon its

under side, which range under the abutting ends of the opposite section, and said lips are secured thereto by screws 10, thus connecting said sections. 11 is a tower-cap having therein a socket-seat 46, in which the cup 1 is loosely supported. The said cup has a central bore 15, through which the shank 12 of the windmill-head extends. The said bore is of greater diameter than the said shank and affords sufficient play to allow the cup to shift in said socket-seat without coming into contact with said shank. A bearing-ring 14 is arranged between the shoulder 13 of the head 17 and balls 7 and is made of hardened metal suitable to resist the wear occasioned by engagement upon the balls. The outer lower edge of the shoulder 13 overhangs the cup 1, and thereby shields the bearing from the weather. In Fig. 3 a socket-seat 16' is shown formed in a hub 18, which is arranged to rotate upon a stud 19, and the cup 1 is arranged in said seat in a similar manner to the former instance.

For the sake of convenience of expression the tower-cap, with its socket-seat, will hereinafter be referred to as the "supporting" member and the shank 12 and the ring 14 as the "rotating" member, and the construction shown in Fig. 3 will be considered as an equivalent of that shown in Figs. 1 and 2.

In the operation of my invention it is obvious the rotating member is supported upon the balls, and because of the weight of said rotating member and the curvature of the lower surface of the cup and of the socket-seat the said cup will adjust itself in said socket-seat of the supporting member, and thereby compensate for any unequal weight placed upon any of the series of balls 7 by the said rotating member.

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

1. In a device of the class described, a supporting member having a socket-seat therein; a cup loosely arranged in said socket-seat there being an annular flange extending inwardly at the top of said cup; an annular series of balls arranged in said cup; a retaining-

ring having openings for said balls respectively, and the edges of said ring extending under said flange and being thereby held loosely in place; and a rotating member supported upon said balls.

2. In a device of the class described, a supporting member having a socket-seat therein; a cup loosely arranged in said socket-seat and having a central bore there being an inwardly-  
10 extending flange at the top of said cup; an annular series of balls arranged in said cup; a retaining-ring having openings for said

balls respectively, and being held loosely in place by said flange; a bearing-ring resting upon said balls; and a rotating member having a shank which extends loosely through the bore of said cup, and a shoulder supported upon said bearing-ring.

In testimony whereof I affix my signature in presence of two witnesses.

ARBA VAN WORMER.

Witnesses:

H. J. LAMPKE,  
W. G. BURNS.