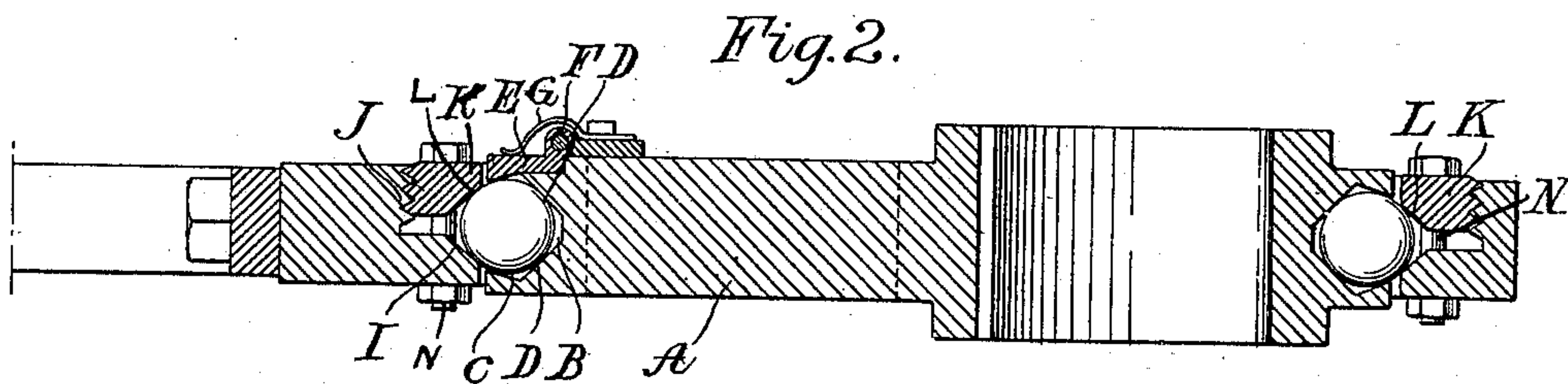
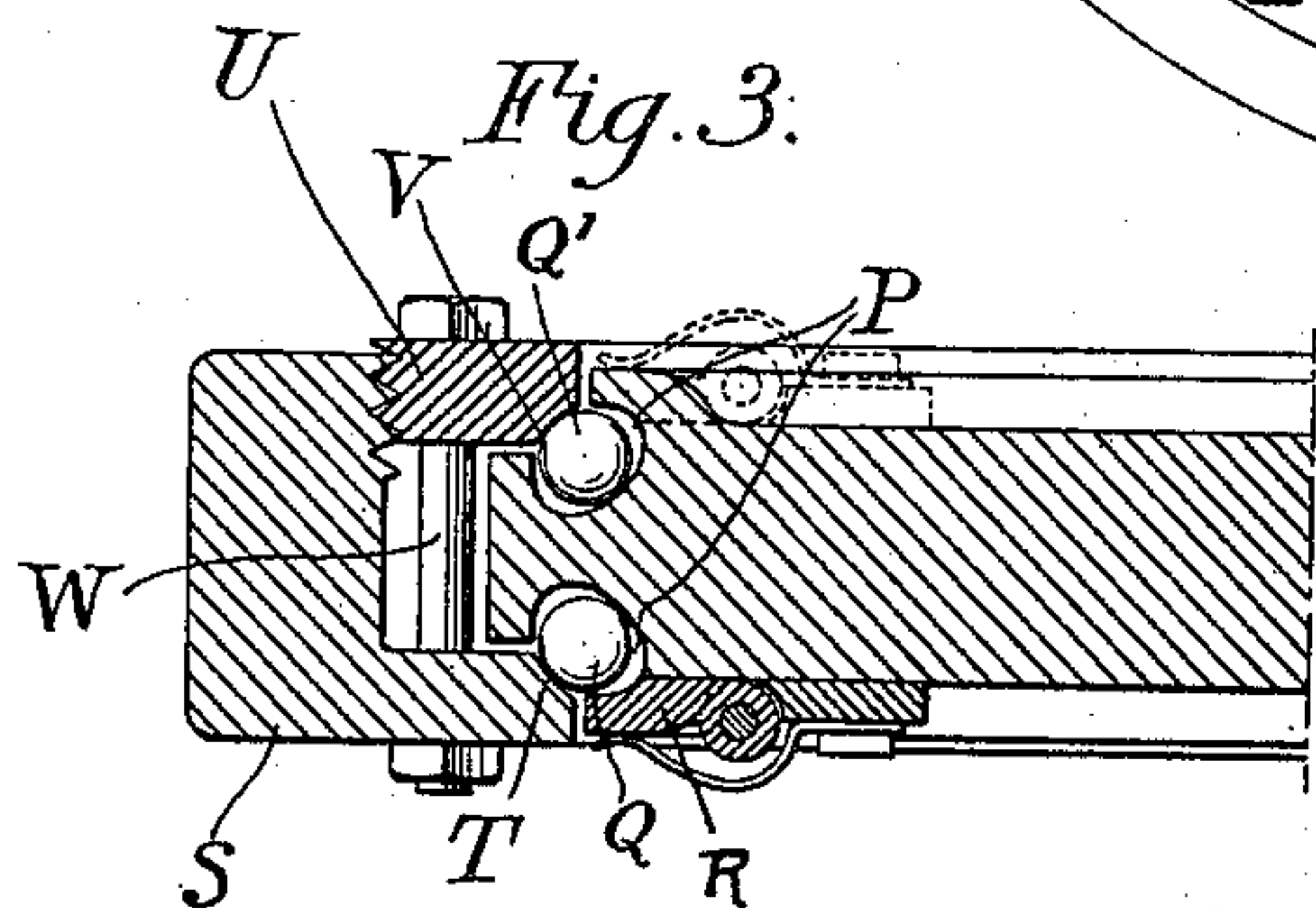
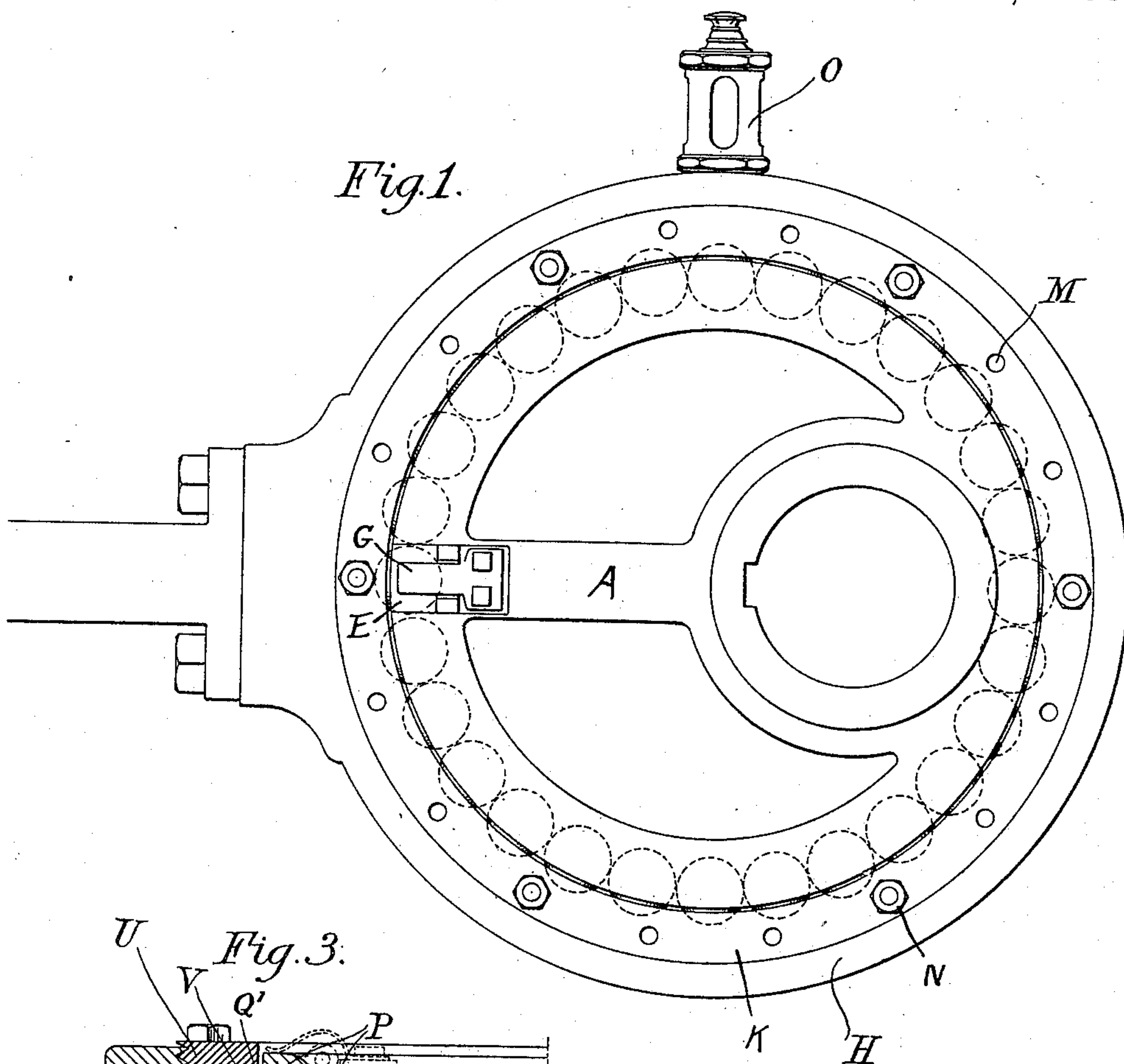


(No Model.)

F. H. HEATH.
BALL BEARING ECCENTRIC.

No. 596,678.

Patented Jan. 4, 1898.



Witnesses:
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UNITED STATES PATENT OFFICE.

FREDERICK H. HEATH, OF TACOMA, WASHINGTON.

BALL-BEARING ECCENTRIC.

SPECIFICATION forming part of Letters Patent No. 596,678, dated January 4, 1898.

Application filed March 9, 1897. Serial No. 626,612. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK H. HEATH, a citizen of the United States, residing at Tacoma, in the county of Pierce and State of Washington, have invented certain new and useful Improvements in Ball-Bearing Eccentrics, of which the following is a specification.

My invention relates to a new and useful improvement in eccentrics and straps therefor, and has for its object to provide a ball-bearing between said concentric and strap which will overcome the many difficulties heretofore experienced by the use of such devices.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, its construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an elevation of an eccentric and strap made in accordance with my improvement; Fig. 2, a central horizontal section thereof; and Fig. 3, a slight modification of my improvement, showing the adaptation thereof to two trains of balls.

In carrying out my invention as here embodied, A represents the eccentric, which has a groove B formed around its perimeter, and this groove is here shown as being polygonal in cross-section in order that the balls C, which are fitted therein, may have two firm points of bearing thereon, as indicated at D. This groove, by its construction, is contracted at its outer portion, so that when the balls have once been placed therein they cannot drop therefrom even though the eccentric-strap be removed; but in order that the balls may be originally inserted within this groove and, when the occasion requires, withdrawn therefrom one by one I cut away one wall of the groove and substitute therefor a cap E, which is hinged at F and is normally held closed by a spring G, so that when the balls are to be initially inserted within the groove they are placed through this cut-away portion, and likewise when they are to be withdrawn they are extracted one by one there-through.

H is the eccentric-strap, which is here made

in a single piece, the opening therein being of somewhat greater diameter than the eccentric and having a beveled wall I formed thereon, and suitable screw-threads J also formed within this opening. An adjusting-ring K, whose periphery is threaded to match the threads J, is screwed within the opening in the eccentric and has an inclined wall L, which corresponds to the wall I, so that when this ring is in place two bearing-points will be held upon each ball, which, when taken in connection with the bearing-points D which these balls have upon the eccentric, it will be seen that four bearing-points are held by each ball, thereby setting the strap relative to the eccentric and at the same time permitting said eccentric to freely revolve within its strap.

The adjusting-ring K is provided with a number of bolt-holes M for the passage of the bolts N, and a like number of bolt-holes are also formed through the straps, so that when the ring is properly adjusted it may be secured against accidental displacement by the bolts and suitable nuts run therein, as will be readily understood.

A very decided advantage of my improvement over the old forms of eccentric-straps is that my improved strap is made by a single piece, and therefore the opening therein is a true circle, and when adjustment is necessary for any cause the bringing about of the same does not throw the strap out of true, as is the case with the old form of strap on account of being split and having to be drawn together when adjusted.

While in most circumstances but little or no oil is needed for the free running of my improvement, it is preferable in high-speed machinery and that class of machinery which runs constantly for great lengths of time that effective means be provided for supplying the small quantity of oil needed, and I have therefore shown an oil-cup O, the shank of which is threaded through the strap, thereby delivering oil directly to the balls and grooves in which they run, and this cup may be of any approved design, the exact construction thereof forming no part of my invention.

While in practice I have found the construction just described as very advanta-

geous, it is obvious that for heavy machinery, such as marine engines and the like, a greater bearing-surface would be advantageous, and with this object in view I have shown in Fig. 3 a slight modification of my invention, which consists of forming two grooves P in the sides of the eccentric and contracting these grooves sufficiently at their outer portions to cause them to retain the balls Q and Q', comprising the two trains. Thus the balls can be only inserted or removed from the groove through the spring-actuated caps R. The strap S, which is adapted for use in connection with this modification of eccentric, has formed upon the wall of its central opening an incline surface T, adapted to bear against the train of balls Q, while the adjusting-ring U, which is run within suitable threads within said space, has a beveled surface V, adapted to bear against the balls Q'. This ring is likewise secured in its adjustment by suitable bolts W.

Having thus fully described my invention, what I claim as new and useful is—

1. In a device of the character described, an eccentric having a groove formed in its periphery so contracted at its outer portion as to retain balls therein, a series of balls located in said groove, a cap hinged to the eccentric to close an opening in the wall of the

groove and an eccentric-strap bearing on said balls, as and for the purpose described.

2. In a device of the character described, an eccentric having a groove formed in its periphery so contracted at its outer portion as to retain balls therein, a series of balls located in said groove, a cap hinged to the eccentric to close an opening in the wall of the groove, a spring bearing on said cap, an eccentric-strap having an adjustable ring thereon bearing on said balls, as and for the purpose described.

3. In combination with an eccentric having a groove therein which is contracted at its outer portion, and having a cut-away portion leading from said groove, a series of balls, each of which is adapted to pass through the cut-away portion but may not otherwise be withdrawn from the groove, a cap for closing the cut-away portion and a spring for normally holding said cap in position, as and for the purpose described.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

FREDERICK H. HEATH.

Witnesses:

S. S. WILLIAMSON,
H. K. MOORE.