

No. 681,683.

Patented Sept. 3, 1901.

H. DECK.
ADJUSTABLE BALL BEARING.

(Application filed Jan. 28, 1901.)

(No Model.)

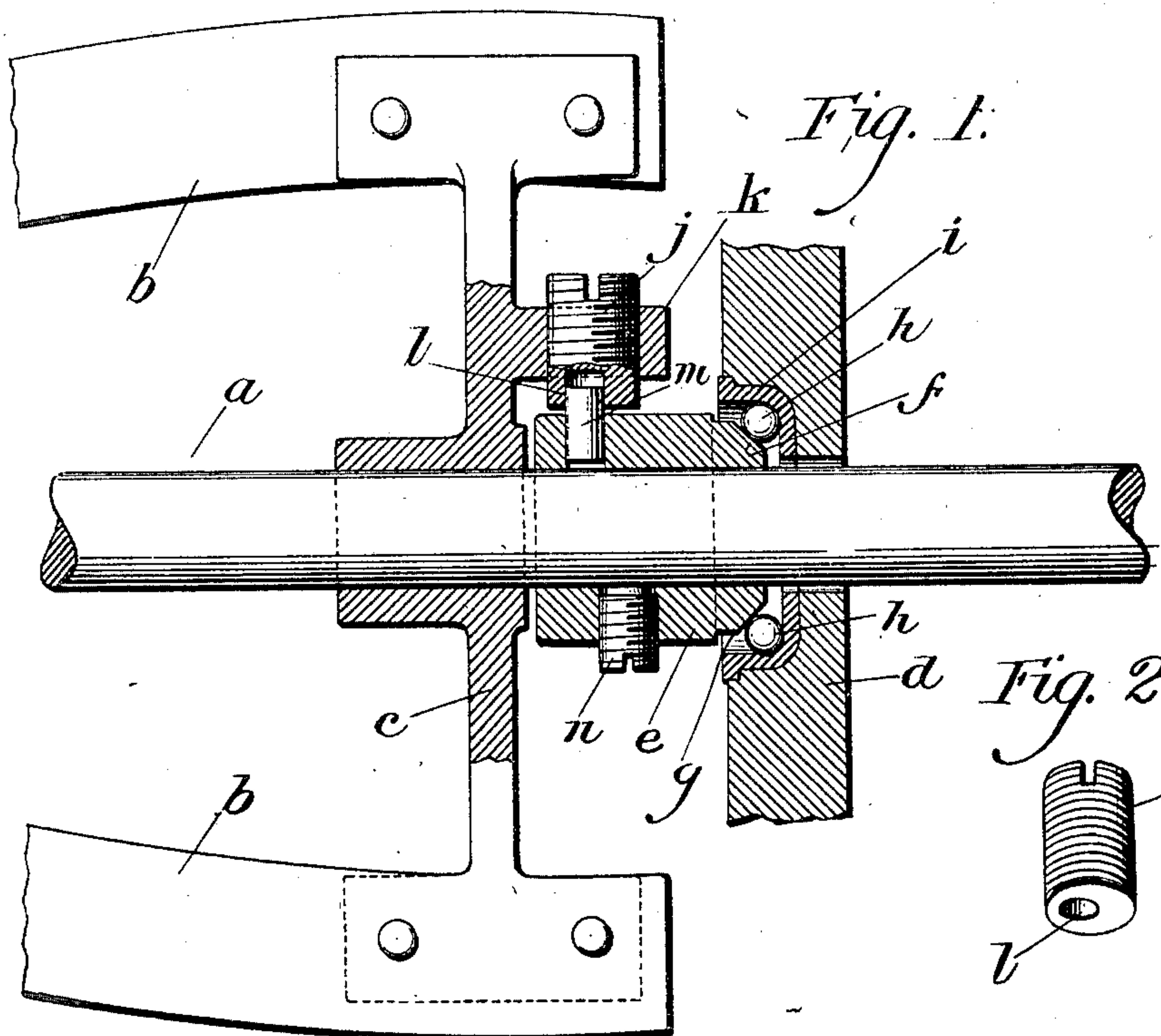


Fig. 2.

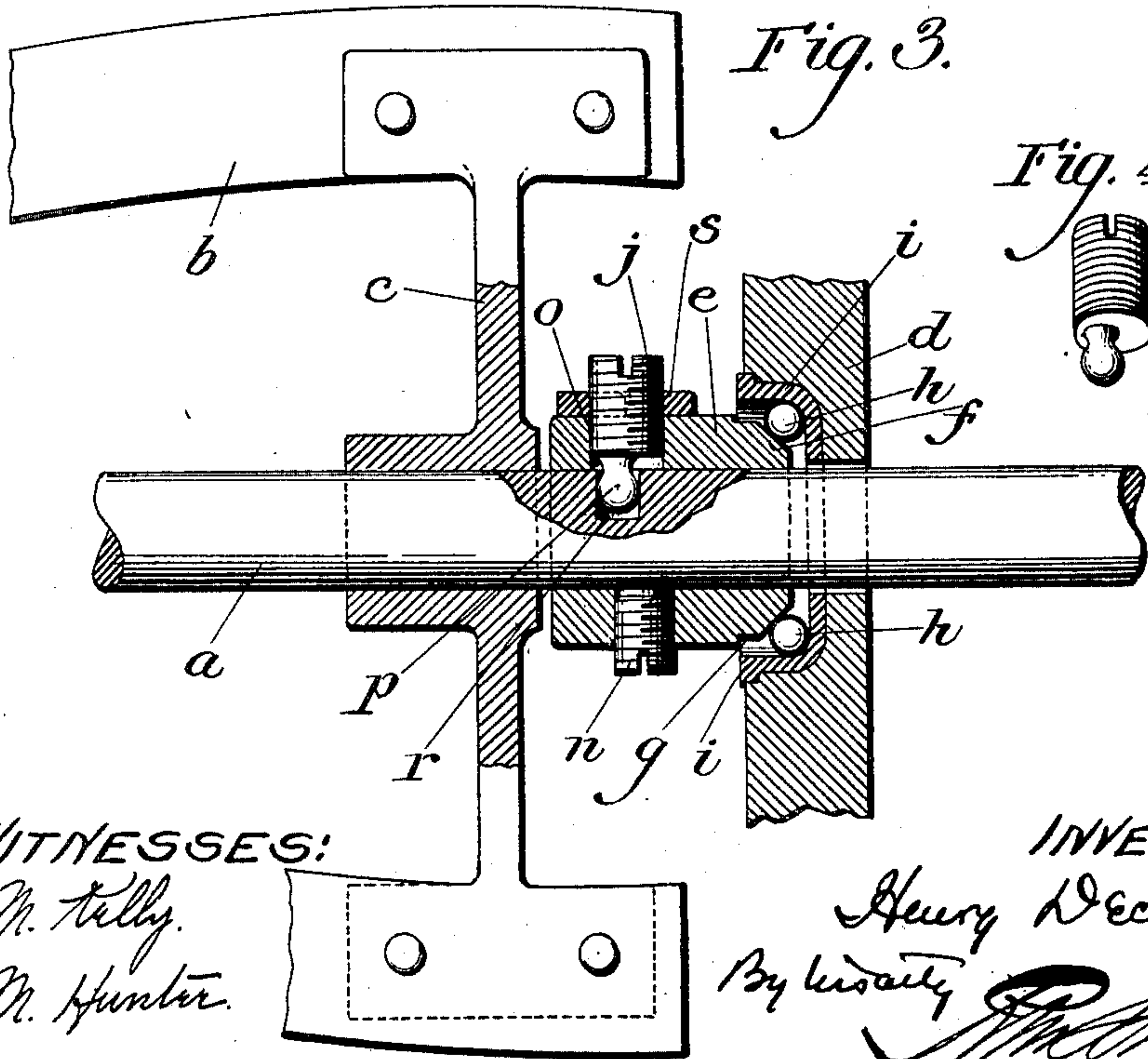
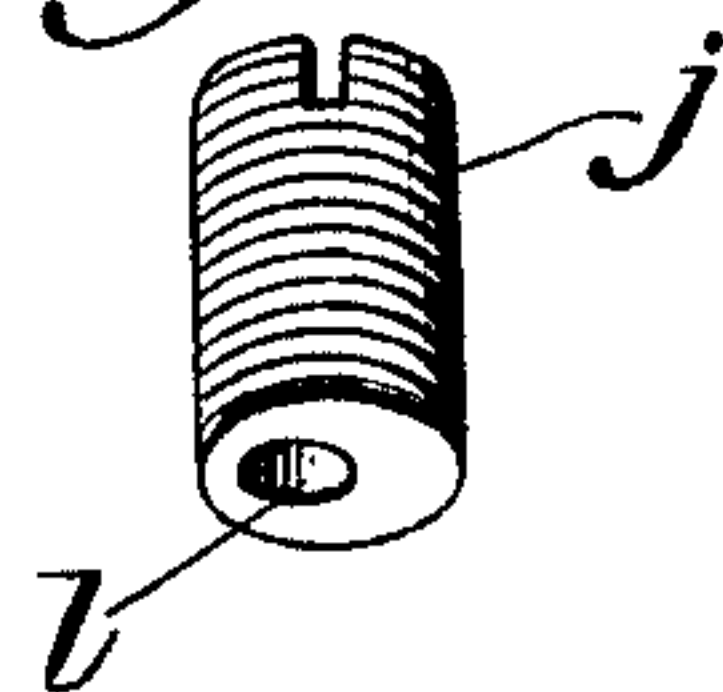


Fig. 4.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HENRY DECK, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO WILLIAM P. M. BRAUN AND JOHN F. BRAUN, OF SAME PLACE, (COPARTNERS TRADING AS JOHN BRAUN AND SONS.)

ADJUSTABLE BALL-BEARING.

SPECIFICATION forming part of Letters Patent No. 681,683, dated September 3, 1901.

Application filed January 28, 1901. Serial No. 45,012. (No model.)

To all whom it may concern:

Be it known that I, HENRY DECK, of the city of Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented an
5 Improvement in Adjustable Ball-Bearings, of which the following is a specification.

My invention relates to adjustable ball-bearings for shafts, &c.; and it consists of the improvements which are fully set forth hereinafter and are shown in the accompanying
10 drawings.

It is the object of my invention to enable the bearing to be adjusted with facility for the purpose of taking up wear in the bearing
15 parts.

My bearing was designed by me especially for use on the cutter-shafts of lawn-mowers, and in the drawings I have shown it so applied. I do not mean, however, to limit my
20 invention to this use of the bearing, as it is obvious that it may be applied to a great variety of machines.

My invention resides particularly in the devices for effecting the adjustment of the bearing-cone. The amount of movement required is very small; but the adjustment must be positive, and lateral movement or rotation of the cone on the shaft should be avoided.

It is the object of my invention to attain these objects by means of an adjusting device which is very simple in construction and may be adjusted with facility.

Figure 1 is a longitudinal sectional view of an adjustable ball-bearing embodying my invention; showing the same applied to a lawn-mower cutter-shaft. Fig. 2 is a perspective view of the detached adjusting-screw employed in the form of my invention shown in Fig. 1. Fig. 3 is a horizontal sectional view
35 similar to Fig. 1, illustrating a different form of my invention; and Fig. 4 is a perspective view of the detached adjusting-screw employed in the form of the invention shown in Fig. 3.

45 *a* is the cutter-shaft, which carries the cutters *b*, the latter being usually secured to spiders *c*, carried by the shaft.

d is a part of the side arm or frame upon which the cutter-shaft is journaled.

50 *e* is a cone-bearing carried by the shaft *a*

and having its tapered or cone-shaped end *f* projecting into a recess *g* in the side arm or frame in which the ball-bearings *h* are arranged.

i is the usual disk or plate, located in the
55 recess *g* to receive the thrust of the balls *h*.

The cone *e* is fast on the shaft *a*, and the ball-bearing is afforded by the cone end *f* and the balls *h*.

So far as the construction has been described it is well known; but in bearings of this character difficulty has been experienced owing to the wear of the bearing parts, and adjustment is necessary to take up this wear. This adjustment I accomplish by moving the
60 cone-piece *e* upon the shaft *a*; but to properly effect the adjustment means must be employed for positively moving the cone and holding it firmly while the set-screw which secures the cone to the shaft is being tightened. For this purpose I employ an adjusting-screw having an eccentric connection
65 with the cone, so that when the cone is loosened and the adjusting-screw is turned the eccentric connection will impart a longitudinal movement to the cone upon the shaft.
70

In the construction shown in Fig. 1 the adjusting-screw *j* is carried in a threaded lug *k* on the end spider *c*, and is provided on its lower face with an eccentric recess *l*, which
80 engages a lug or pin *m*, carried by the cone. When the set-screw *n* is loosened and the adjusting-screw *j* turned, the eccentric connection afforded by the recess *l* and pin *m* will move the cone longitudinally on the shaft *a*.
85 When the proper adjustment is made, the set-screw *n* is tightened. The arrangement of the pin and recess may obviously be reversed. The extent of adjustment afforded by these devices is very small; but it is sufficient for
90 the purpose of taking up the wear. It will be observed that the adjustment is effected with very little turning or lateral movement of the cone. Such lateral movement is objectionable, as it is liable to injure the shaft
95 and changes the bearing-point of the set-screw *n*. There is of course a slight lateral movement of the cone; but it is so small that it is not objectionable.

In the construction shown in Fig. 3 the ad 100

justing-screw is screwed into a threaded hole
o in the cone and is provided on its end with
an eccentrically-located projection *p*, which
fits a recess *r* in the shaft. In this case as
5 the position of the eccentric-head *p* is fixed
with reference to the shaft the turning of the
adjusting-screw will move the cone longitu-
dinally on the shaft. A jam-nut *s* may be
employed to lock the adjusting-screw against
10 accidental movement. This is not, however,
necessary. The head *p* is rounded or ball-
shaped to permit it to turn in the recess *r*
when the cone is adjusted. This is rendered
necessary because of the slight lateral move-
15 ment of the cone and because play between
the head *p* and recess *r* is not permissible.

The details of construction may be varied
without departing from the invention.

What I claim as new, and desire to secure
20 by Letters Patent, is as follows:

1. In an adjustable ball-bearing for shafts,
&c., the combination with the ball-socket and
balls, of a cone carried by the shaft and
adapted to be moved longitudinally thereon,
25 and an adjusting-screw eccentrically con-

nected with the cone, and adapted when
turned to positively move the cone longitu-
dinally on the shaft in either direction.

2. In an adjustable ball-bearing for shafts,
&c., the combination with the ball-support 30
and balls, of a cone carried by the shaft and
adapted to be moved longitudinally thereon,
and an eccentric adjusting device engaging
said cone and adapted when turned to posi-
tively move the cone longitudinally on the 35
shaft in either direction.

3. In an adjustable ball-bearing for shafts,
&c., the combination with the ball-support
and balls, of a cone carried by the shaft and
movable longitudinally thereon and an ad- 40
justing-screw having a pivotal connection
with the shaft and eccentrically connected
with the cone.

In testimony of which invention I have here-
unto set my hand.

HENRY DECK.

Witnesses:

JESSE GILBERT,
THEO H. ROTH.