

No. 615,662.

Patented Dec. 6, 1898.

G. F. CALLAGHAN.
AXLE ARM ROLLER BEARING.

(Application filed Aug. 8, 1898.)

(No Model.)

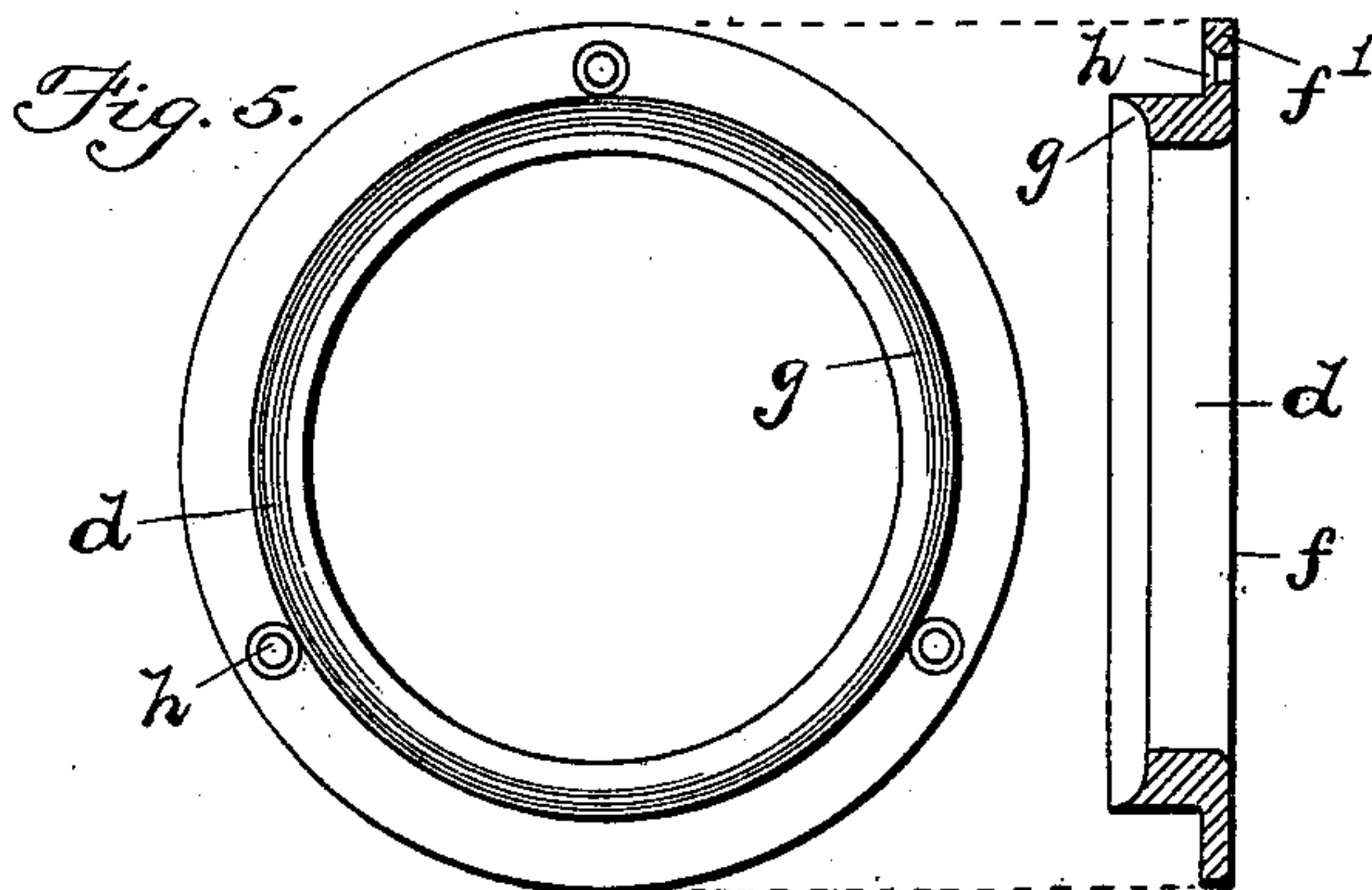
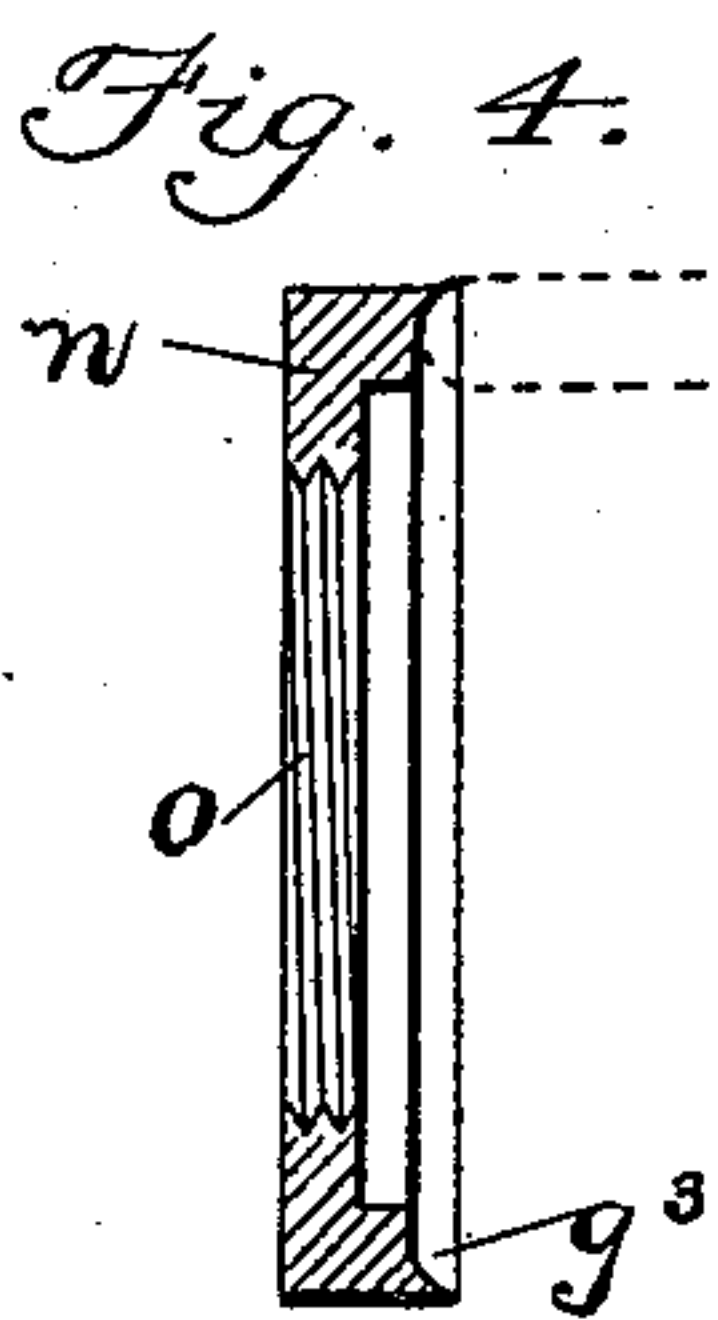
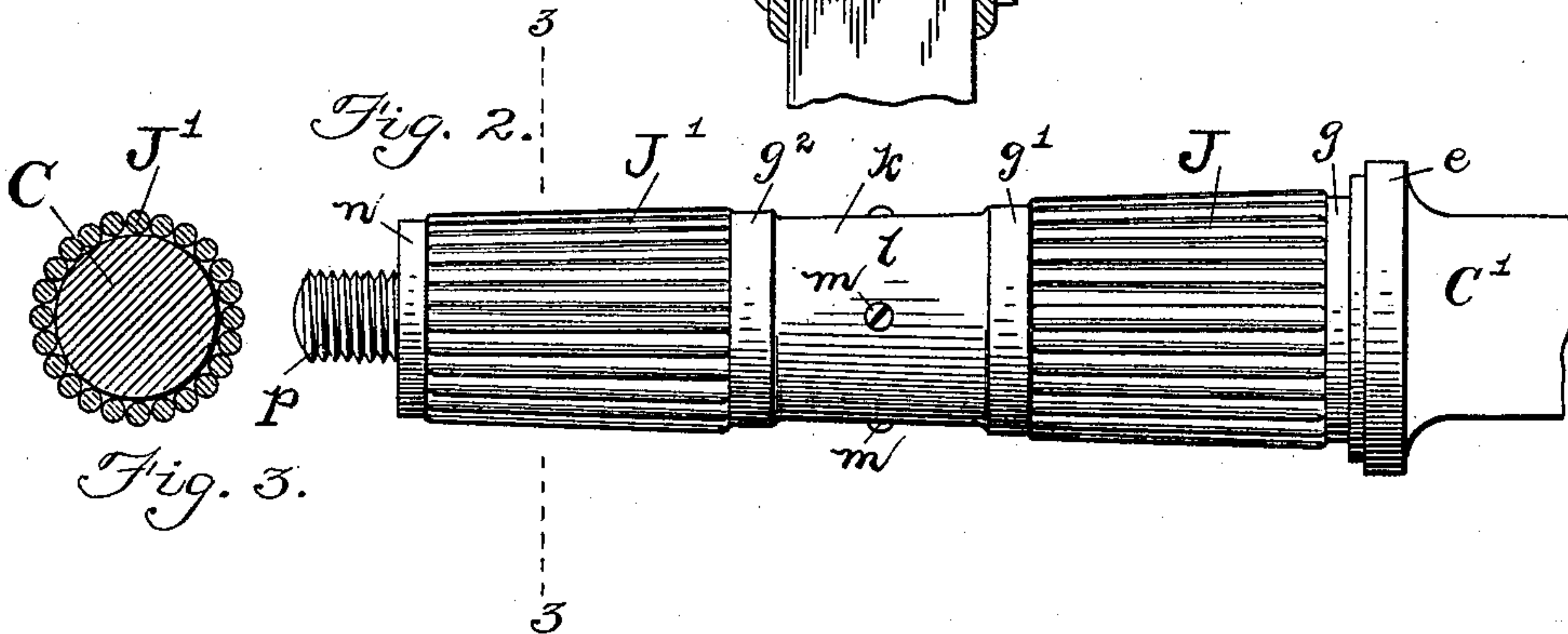
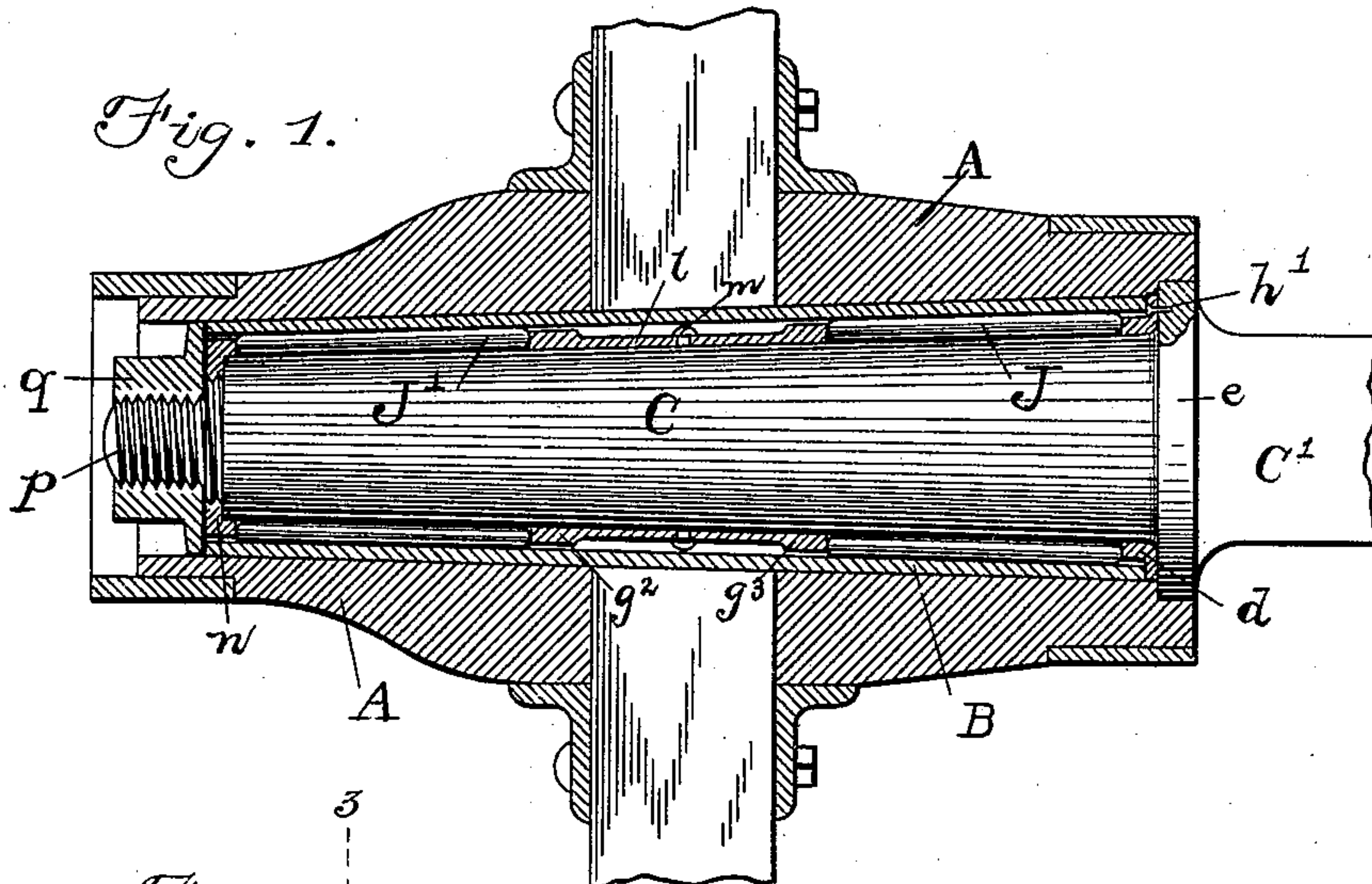


Fig. 5.

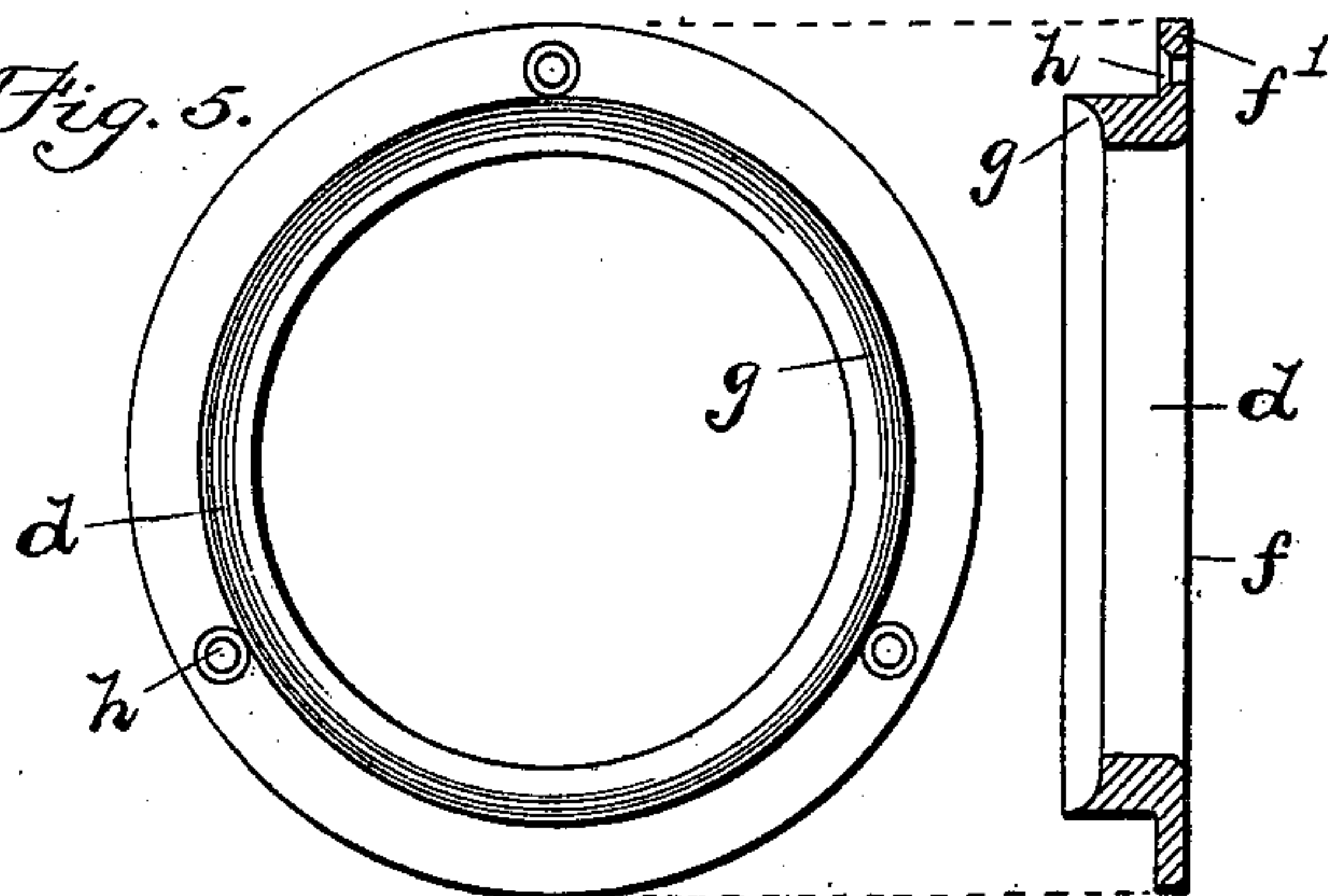
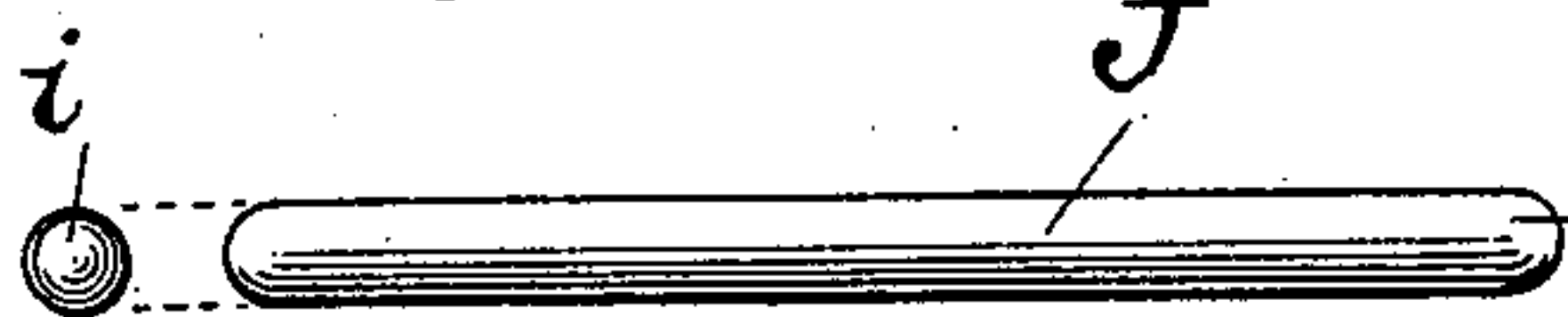


Fig. 6.



Witnesses :-

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UNITED STATES PATENT OFFICE.

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AXLE-ARM ROLLER-BEARING.

SPECIFICATION forming part of Letters Patent No. 615,662, dated December 6, 1898.

Application filed August 8, 1898. Serial No. 688,064. (No model.)

To all whom it may concern:

Be it known that I, GEORGE F. CALLAGHAN, a citizen of the United States, residing at Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Axle-Arm Roller-Bearings, of which the following is a specification.

This invention relates to an axle-arm roller-bearing.

10 The object of the invention is to provide a roller-bearing sleeve of such construction that it may readily be applied to the arm or spindle of an axle and retained thereon whenever the wheel is removed. Access can be
15 had to a roller-bearing of this construction for readily cleansing it.

The invention is illustrated in the accompanying drawings, in which—

20 Figure 1 is a view of the arm or spindle of an axle with the sleeve roller-bearing and wheel-hub in section. Fig. 2 is a side view of the axle-arm and sleeve-rollers as seen when the wheel is removed. Fig. 3 is a cross-section of the axle-arm and rollers on line 3 3
25 of Fig. 2. Fig. 4 is a diametrical section of the small collar. Fig. 5 shows two views of the large collar. Fig. 6 shows two views of a roller.

Referring to the drawings, it will be seen
30 that the wheel-hub A is of ordinary construction—in fact, any kind of hub may be used. A suitable box B is in the hub, and this box must be large enough to take over the sleeve-rollers that are secured on the axle-arm C. A
35 collar *d* is first slipped onto the axle-arm and must fit snugly the large end of the arm and abut against the permanent collar or flange *e*, adjoining the axle C'. The back *f* of this large collar is flat, so as to fit against the per-
40 manent flange *e*; but the front has an inward bevel edge *g*, or, preferably, instead of a straight bevel on the inner part, a concaved or hollowed-out ring-face, as shown clearly in Fig. 5. This collar may be made fast on the
45 large end of the arm C by screws passed through the collar. In the present instance the back of the collar has a lateral rim-flange *f'*, provided with several holes *h* for screws *h'* to enter corresponding holes in the perma-
50 nent flange *e* on the axle. The inward-concaved ring-face before described forms an annular undercut groove around the axle-arm

C, and the rounded ends *i* of the rollers J take into this annular groove on the arm. All the rollers are cylindric and have rounded
55 ends *i*, as shown in Fig. 6.

Two independent sets or series of rollers J J' are provided, one set for each end of the axle-arm, and these are separated by a sleeve
60 *k* at the center. This central sleeve fits the axle-arm snugly, and at each end has an inward-concaved ring-face like that already described on the large collar. The inward-concaved face for the rear set J of rollers is
65 designated by *g'* and the like face for the front set J' is designated by *g''*. The exterior surface of the sleeve *k* has its central portion between the two ends of reduced size, as at *l*, and the sleeve is retained rigidly on the axle-
70 arm by screws *m*.

A collar *n* is secured on the small end of the axle-arm and has an inward-concaved face
75 *g''*. (Shown more clearly in Fig. 4.) This face is for one end of the front set J' of rollers. In this instance the small collar *n* is made fast on the end of the axle-arm by a screw-thread connection *o*.

The extremity of the axle-arm has a screw-thread *p*, which receives the ordinary nut *q*,
80 that keeps the wheel on.

By reference to Figs. 1 and 2 it will be seen each set of rollers J J' constitutes a loose sleeve, secured on the axle-arm C by the rounded ends of the rollers being loosely
85 clamped by the inward-concaved faces or annular undercut grooves of the collars *d n* and sleeve *k*. In operation all the rollers in one set are free to turn around the axle. By employing the stationary central sleeve *k*, which is reduced in size exteriorly between
90 its ends, it is possible to make the rollers short, and short rollers operate more smoothly. The end collars and the central sleeve are of less diameter than the axle-arm and rollers, whereby only the rollers come in contact with
95 the box B in the hub.

When the wheel is removed from the axle-arm, the rollers remain on the latter and have the appearance shown in Fig. 2. This construction enables the rollers to be easily,
100 thoroughly, and quickly cleaned, an operation that is attended with difficulty and unsatisfactory results where the rollers are secured in the hub-box.

Having thus described my invention, what I claim is—

The combination of an axle-arm; two collars one of which is rigidly secured to one
5 end of said arm and the other to the other end of the same and each collar provided with an inwardly-concaved ring-face; a central sleeve rigidly secured on the axle-arm and having at each end a similar concaved ring-face; and
10 two independent sets of rollers, each roller

having a rounded end, the said ends being loosely clamped by the inwardly-concaved ring-faces.

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

GEORGE F. CALLAGHAN.

Witnesses:

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