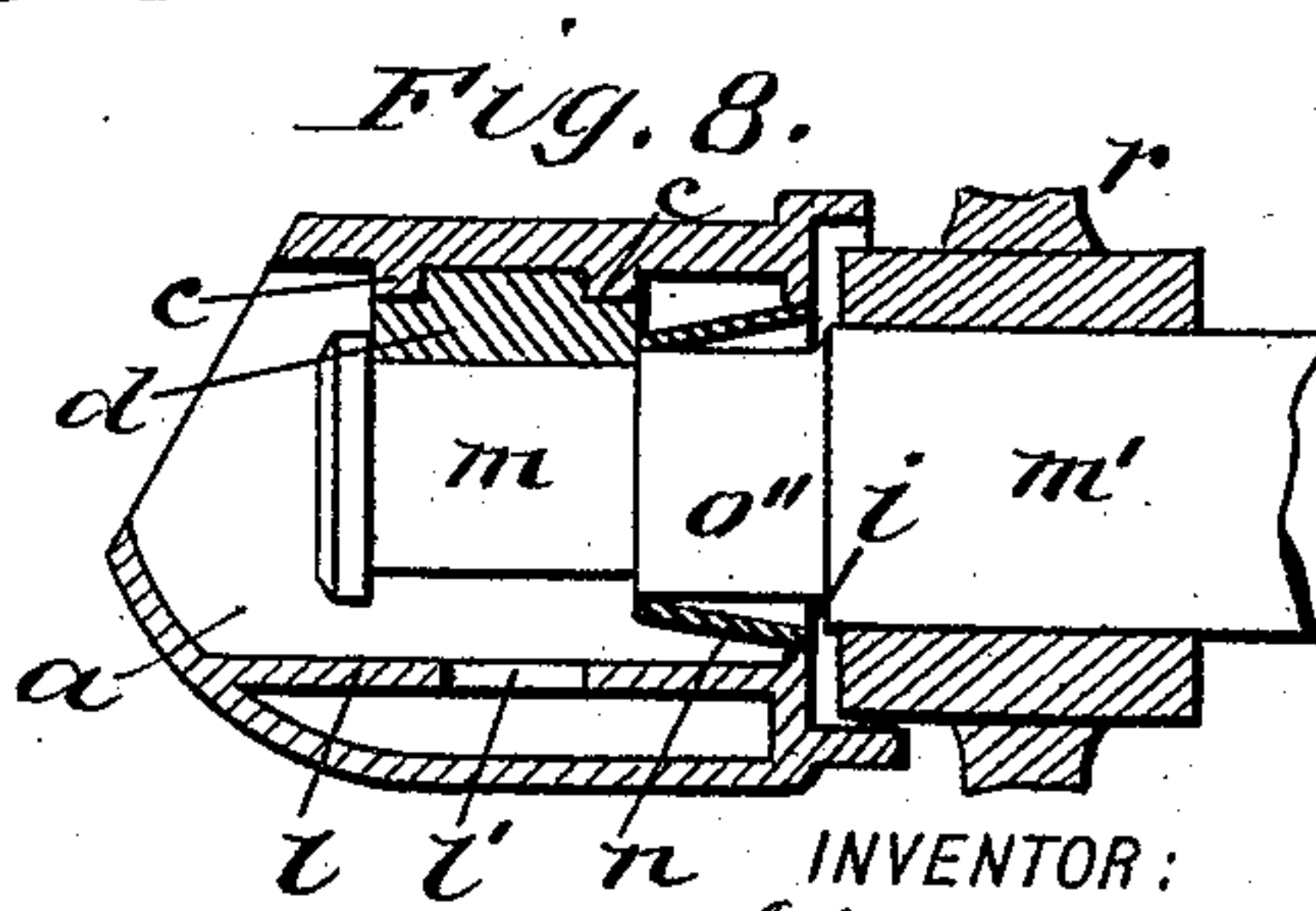
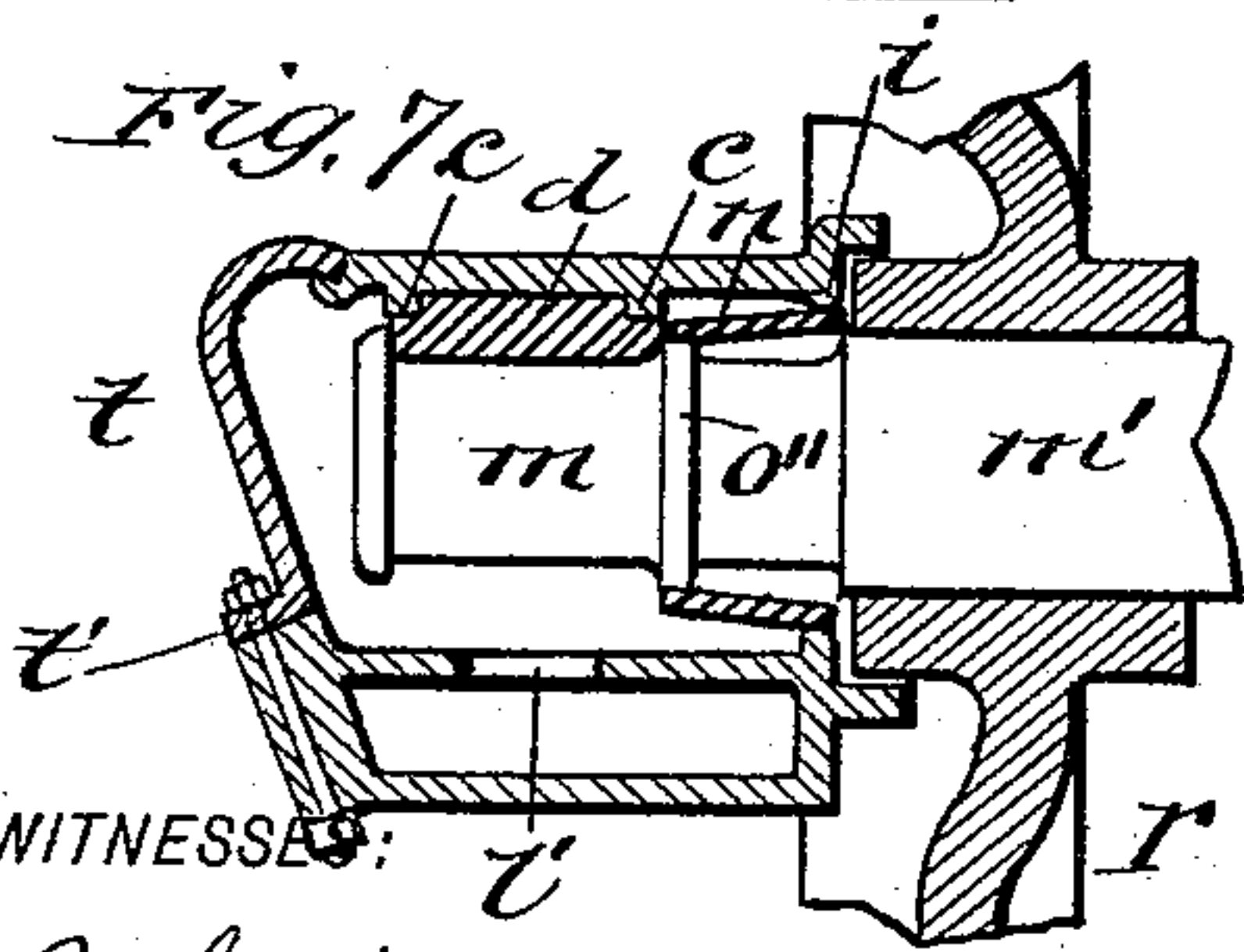
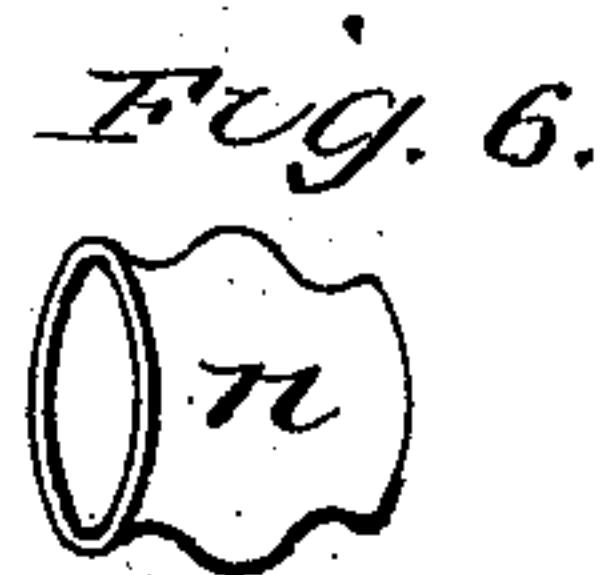
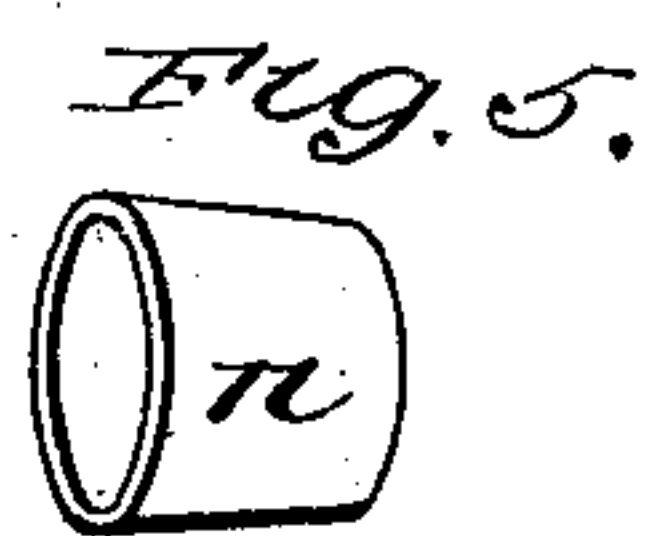
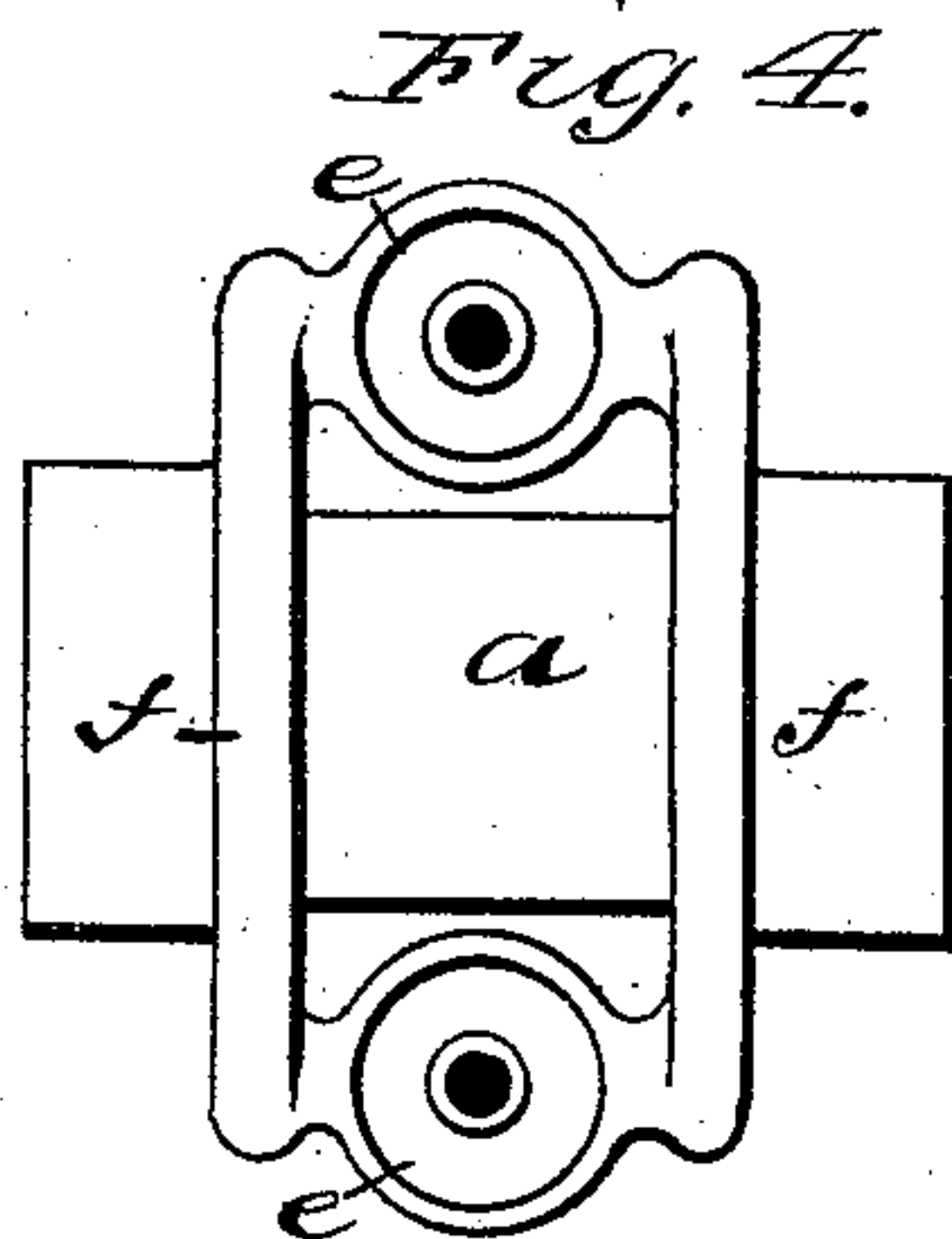
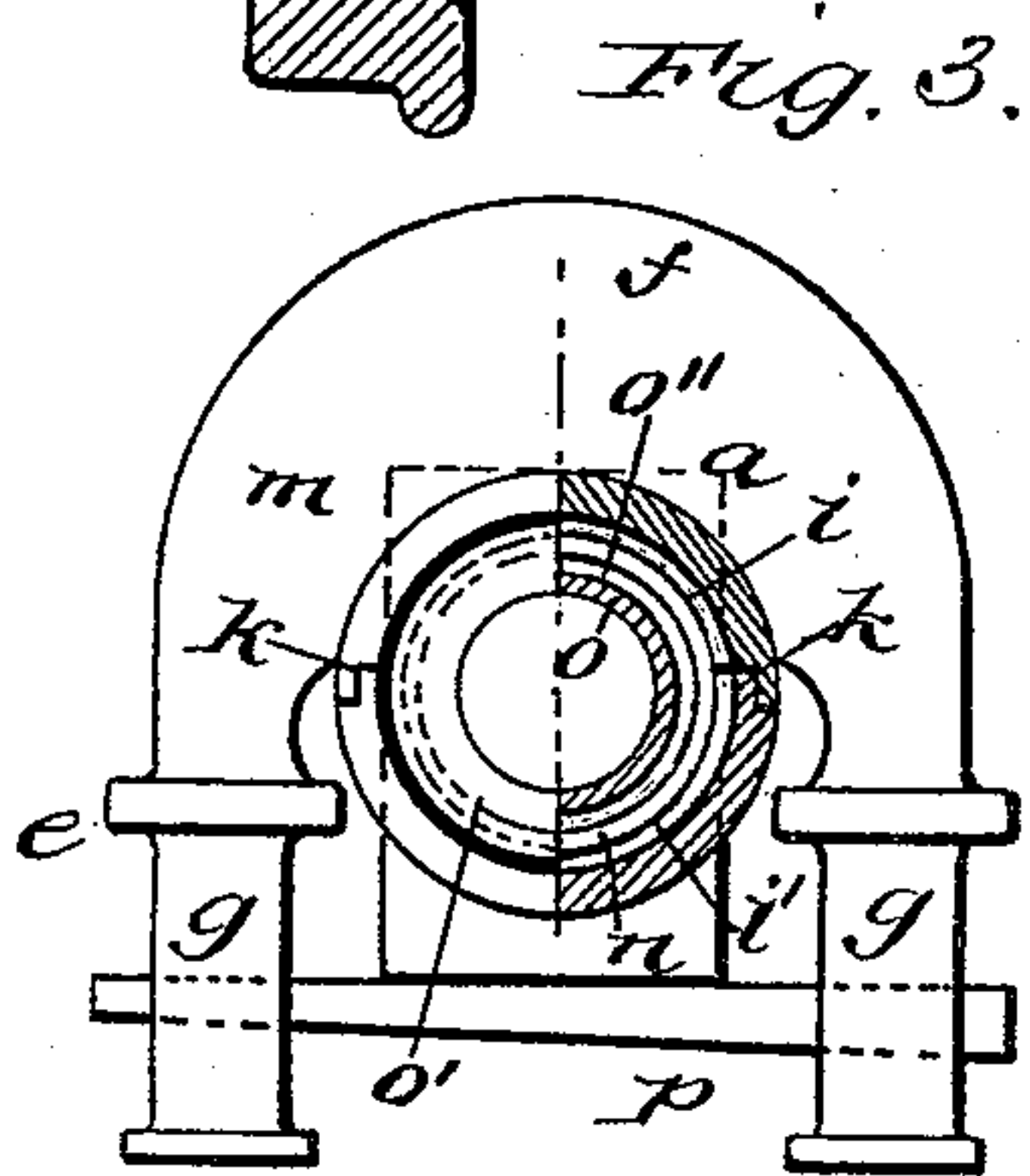
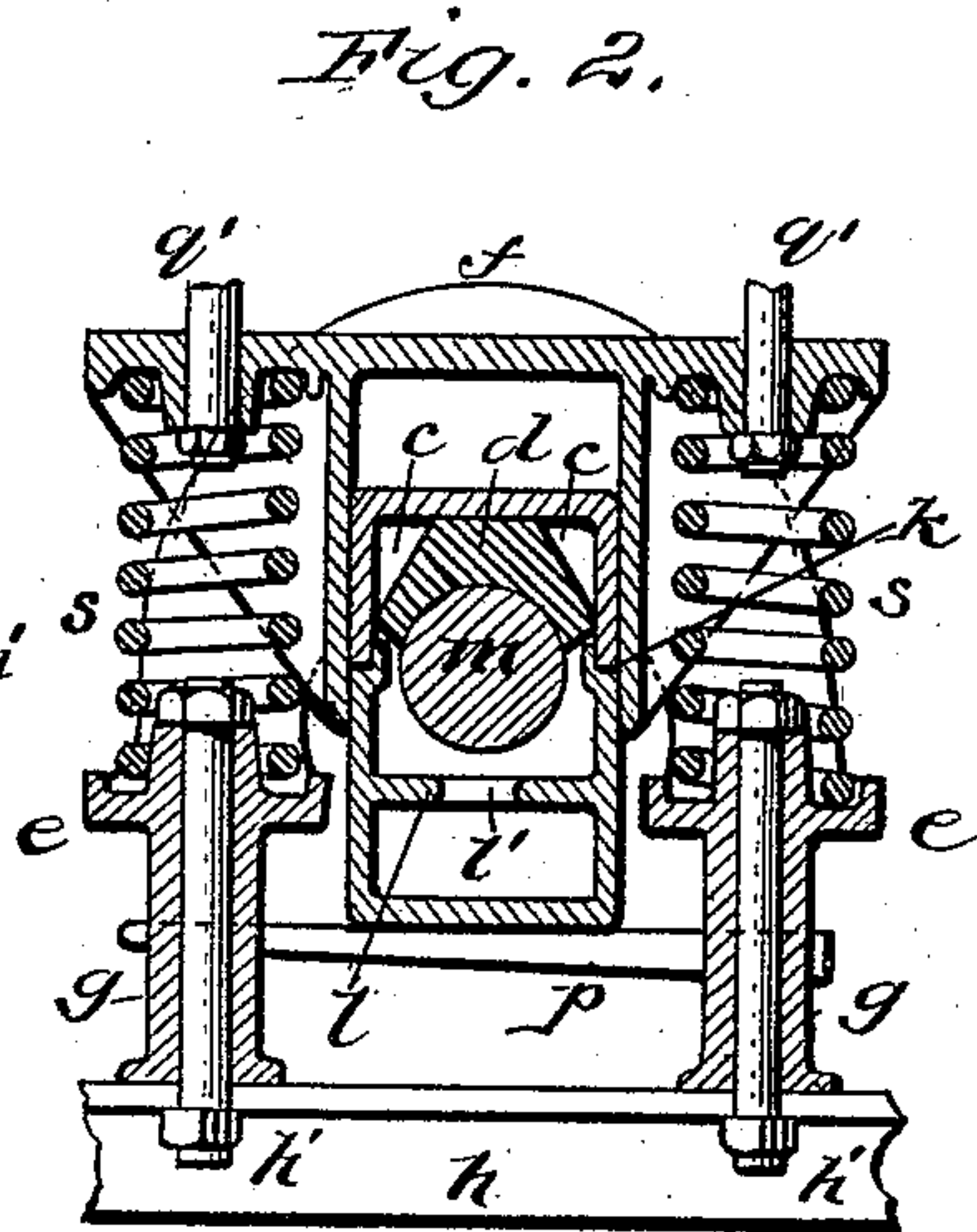
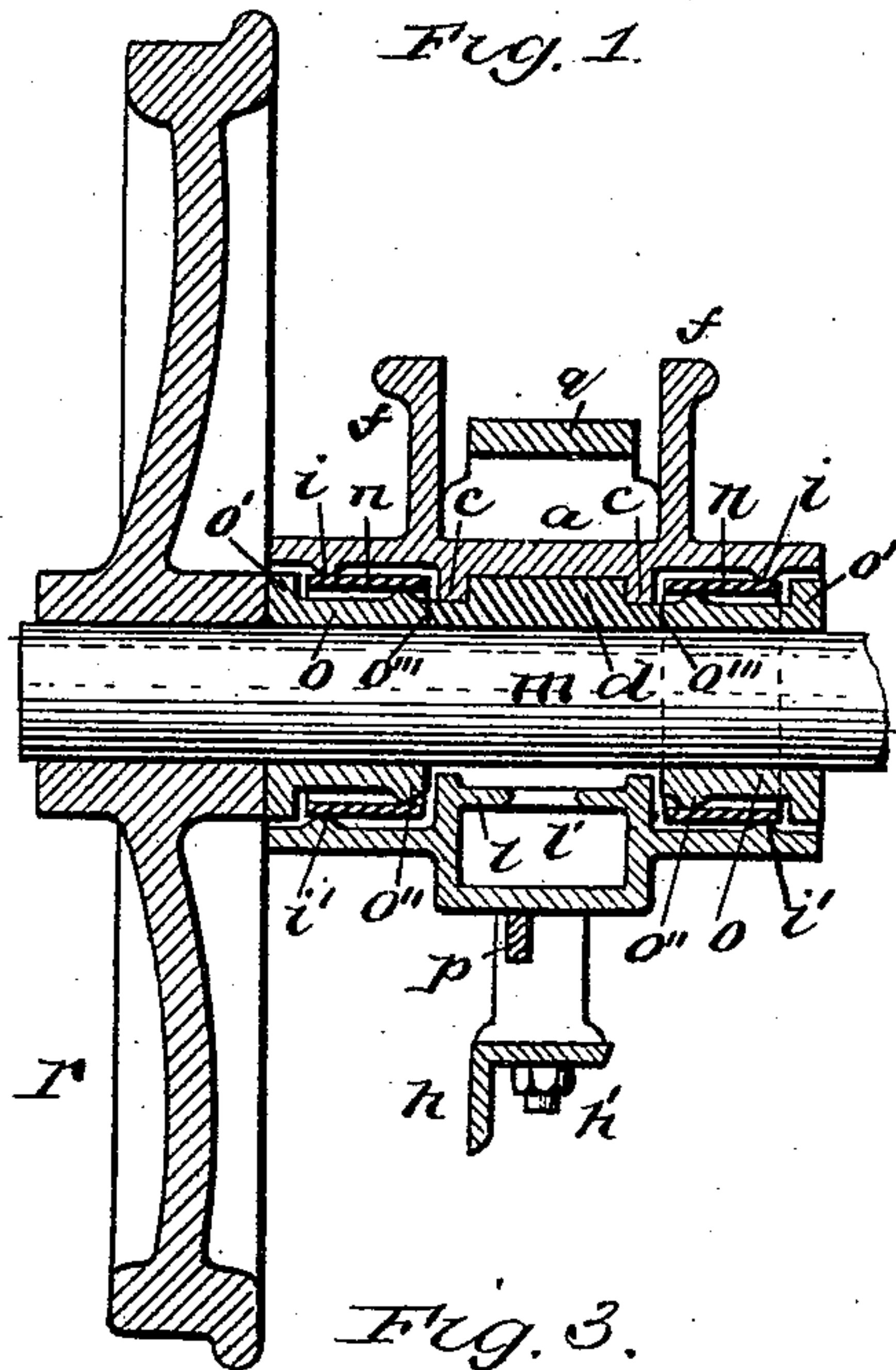


(No Model.)

A. TWYMAN & H. G. BIRD.
DUST GUARD.

No. 437,370.

Patented Sept. 30, 1890.



WITNESSES:

W. R. Davis.
C. Sedgwick

INVENTOR:

A. Twyman
BY H. G. Bird
Munn & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

AARON TWYMAN, OF PULLMAN, AND HORACE G. BIRD, OF CHICAGO,
ILLINOIS.

DUST-GUARD.

SPECIFICATION forming part of Letters Patent No. 437,370, dated September 30, 1890.

Application filed March 1, 1890. Serial No. 342,195. (No model.)

To all whom it may concern:

Be it known that we, AARON TWYMAN, of Pullman, in the county of Cook and State of Illinois, and HORACE G. BIRD, of Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Dust-Guard Attachments for Journal-Boxes, of which the following is a full, clear, and exact description.

10 The object of the invention is to provide a journal-box with a dust-guard so constructed as to exclude dust or others matters which by their presence are liable to cause unnecessary or excessive friction between a journal and
15 its bearing; and the invention consists in certain novel constructions and combinations of parts, substantially as hereinafter described, and more particularly pointed out in the claims.

20 Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

25 Figure 1 represents the invention as designed to be applied to the truck or running-gear of a railroad-car with "inside bearings," and is a vertical longitudinal sectional view, taken on the center line of the axle through the journal-box. Fig. 2 is a sectional view on the center line of the journal-box at right
30 angles to Fig. 1. Fig. 3 is an end view of the journal-box, one-half showing the exterior and one-half being a section through the dust-guard. Fig. 4 is a plan view of the journal-box. Figs. 5 and 6 are views in perspective
35 of the dust-guard under two forms of construction. Figs. 7 and 8 show the invention as applied to a truck having outside bearings.

Referring first to Figs. 1, 2, 3, and 4, *a* indicates the journal-box, the upper part of which is provided on its inside with suitable projections or bracket-pieces *c* to receive the journal-bearing *d*, and is provided on the outside with spring-seats *e*, carried by the webs
45 or flanges *f*, which extend over and are connected to the top of the box and are provided with pedestals *g*, by means of which the upper part of the journal-box may be attached to a lower tie-bar *h* by bolts *h'*. The journal-box *a* is also provided with semicircular dust-guard seats *i* and its lower part on the inside

with a suitable flange forming a rabbeted joint *k* between the upper and lower part. The lower part of the box has a diaphragm *l*, that portion of the box below the diaphragm being designed to carry the lubricant which will be fed to the surface of the journal *m* through a lamp-wick or other suitable means, an opening *l'* being provided for that purpose in the diaphragm *l*. The lower part of the journal-box is also provided on the outside with semicircular dust-guard seats *i'*, that, together with the similar parts *i* on the upper part of said box, form a continuous circular rim or seat for the dust-guard *n*.

55 The axle or shaft *m'*, the journal of which *m* is to support or carry the journal-bearing *d*, is provided with collars *o*, having flanges *o'*, dust-guard seats *o''*, and end bearing-surfaces *o'''*. Each collar may be either a separate piece or pieces attached to the axle or shaft or it may be a part of the shaft or axle.

60 The dust-guard *n* is substantially in form of a hollow cylinder. It may be slightly conical, as shown in Fig. 5, or corrugated, as indicated in Fig. 6, such corrugation being for the purpose of conferring additional elasticity as well as affording means of retaining the dust-guard more effectually in continuous contact with its seats *i*, *i'*, and *o''* by lapping at
65 its ends over said seats, thus holding it in its proper position.

Said dust-guard may be constructed of metal, gum, vulcanized fiber, leather, or any of these in combination, or other suitable materials, and may be either originally without a seam or made from a straight or suitably-curved strip bent around in one or more folds and cemented, laced, or riveted together at the joint or seam. It is applied between the
70 dust-guard seat *i i'* on the upper and lower parts of the journal-box and the dust-guard seat *o''* on the collar *o* in such manner that the end of the dust-guard *n* which is nearer the center of the journal-box is pressed or forced outward by the pressure of the dust-guard seats *o''*, and the end of the dust-guard which is farther from the center of the journal-box is pressed or forced inward by the pressure of the dust-guard seat *i i'*. The distance between the points or places of application of the inward and outward pressure,
75
80
85
90
95
100

combined with the elastic nature of the material out of which the dust-guard *n* is constructed, will be sufficient to maintain a constant easy close connection between the parts
 5 under the varying conditions of lateral or vertical movement between the journal *m* and the journal-bearing *d*.

In the practical application of the dust-guard the end of the dust-guard which is farther from the center of the journal-box and in contact with the dust-guard seat *i i'* is intended to be so held by frictional contact as to prevent the dust-guard from rotating with the axle *m'*, and to assist the frictional contact in so holding it, as well as to afford more complete protection against admission of dust at that part, the corrugations indicated in Fig. 6 are in part designed to embrace the dust-guard seat *i i'*.

20 The journal-bearing *d* is provided with recesses to fit the projections *c* and with end bearing-surfaces to receive the end-thrust communicated by the axle or shaft to the end bearing-surfaces *o'''* of the collars *o*. The lower part of the journal-box is held in position by the taper key *p*. The horn-plate *q* may be attached to the frame of a car or truck by means of the bolts *q'*. The wheel *r* is located upon the axle *m'*, and *s* are springs
 25 which, resting upon the spring-seats *e*, support the horn-plate *q*, upon which the frame of the truck or car is supposed to be carried.

The foregoing description applies more particularly to the use of the invention as it might be applied to a shaft or axle, which the necessities of construction require should pass through the journal-box, as in the case of a railroad-car truck with inside bearings or bearings between the wheels on each axle.
 35 The device is equally applicable to a shaft or axle which is required to pass out of the journal-box at one end only, as in the case of a railroad-car truck with "outside bearings," in which case the outer end of the journal-box may be closed by any of the usual methods. Figs. 7 and 8 illustrate such application of the invention. Fig. 7 shows a journal-box similar to those in ordinary use, the lower
 40

part not being removable and the front being closed by the lid *t*, held by the bolt *t'*. Fig. 8 50 is a similar journal-box without a lid and shows an axle *m'*, similar in construction to those in ordinary use, the dust-guard seat *o''* being also of the usual form.

For convenience we have only shown and particularly described our improvement in its application to a journal-box for a railway-car. We wish to be clearly understood, however, that it is intended for use with journal-boxes generally, and desire to include as within the spirit of our invention any and all modifications of the construction, as shown and described, that may be desirable for adapting our improvement to the various kinds of journal-boxes to which it is applicable.
 65

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with a journal-box and axle, a tubular dust-guard, an internal seat for one end of the dust-guard, and an external seat for the opposite end thereof, one of said seats being on the box and the other on the axle, substantially as described.
 70

2. In combination with a journal-box provided on its interior with a dust-guard rim or circular seat beyond or to one side of the journal-bearing, an axle for the box provided with collar having a swell adjacent to its bearing and forming a raised inner dust-guard seat for operation in connection with the outer dust-guard seat, substantially as described.
 80

3. The combination of a substantially cylindrical tubular dust-guard with a journal-box having a rim or circular seat on its interior beyond or to one side of its bearing for the outer surface of the dust-guard near its one end and an axle having a circular swell or seat for the inner surface of said dust-guard at or near its opposite end, substantially as described.
 85 90

AARON TWYMAN.
 HORACE G. BIRD.

Witnesses:

W. H. DYKENFORTH.
 M. J. FROST.