

No. 894,716.

PATENTED JULY 28, 1908.

D. L. APPELBERRY.

LOCK NUT.

APPLICATION FILED JAN. 31, 1907.

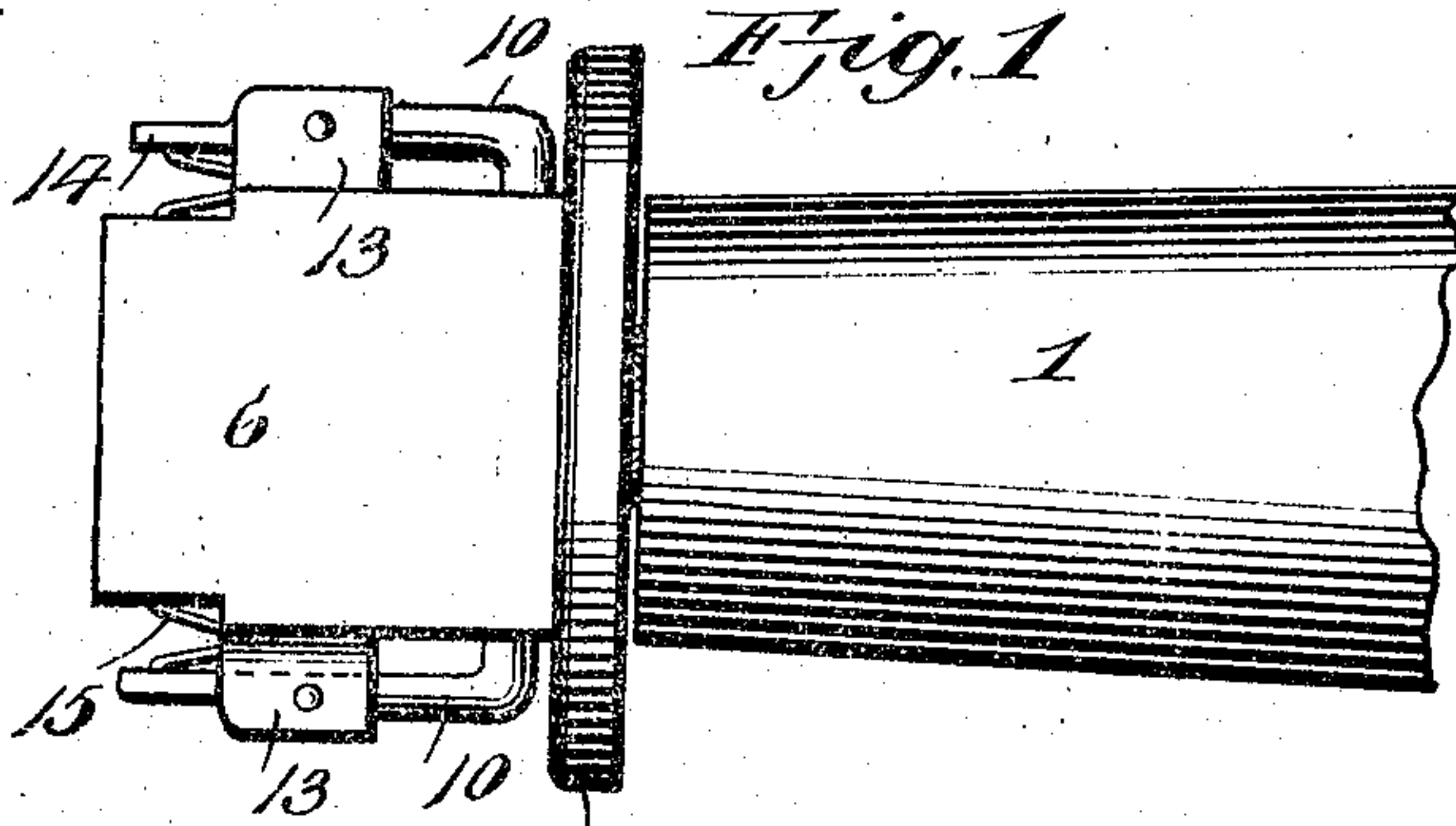


Fig. 1

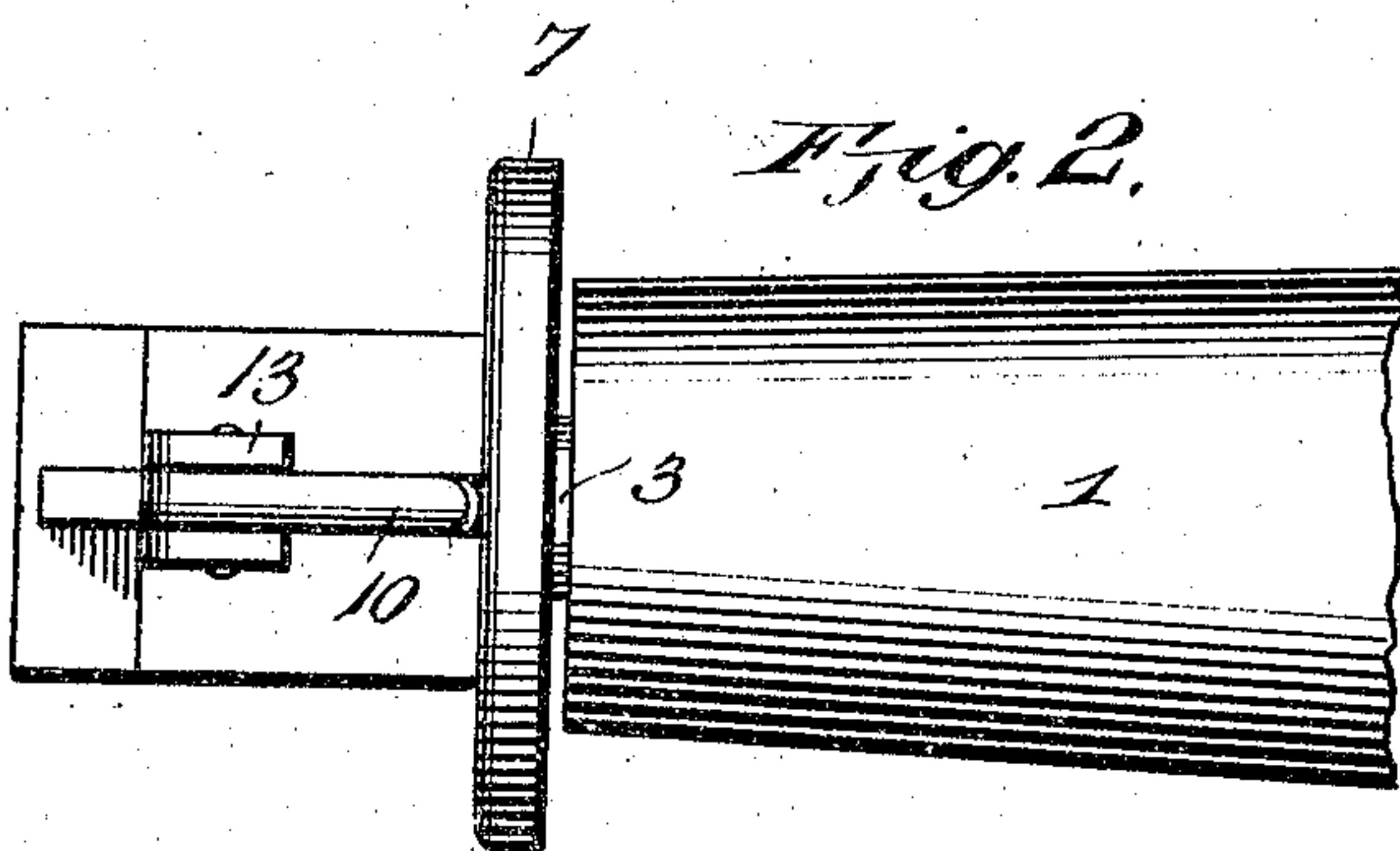


Fig. 2

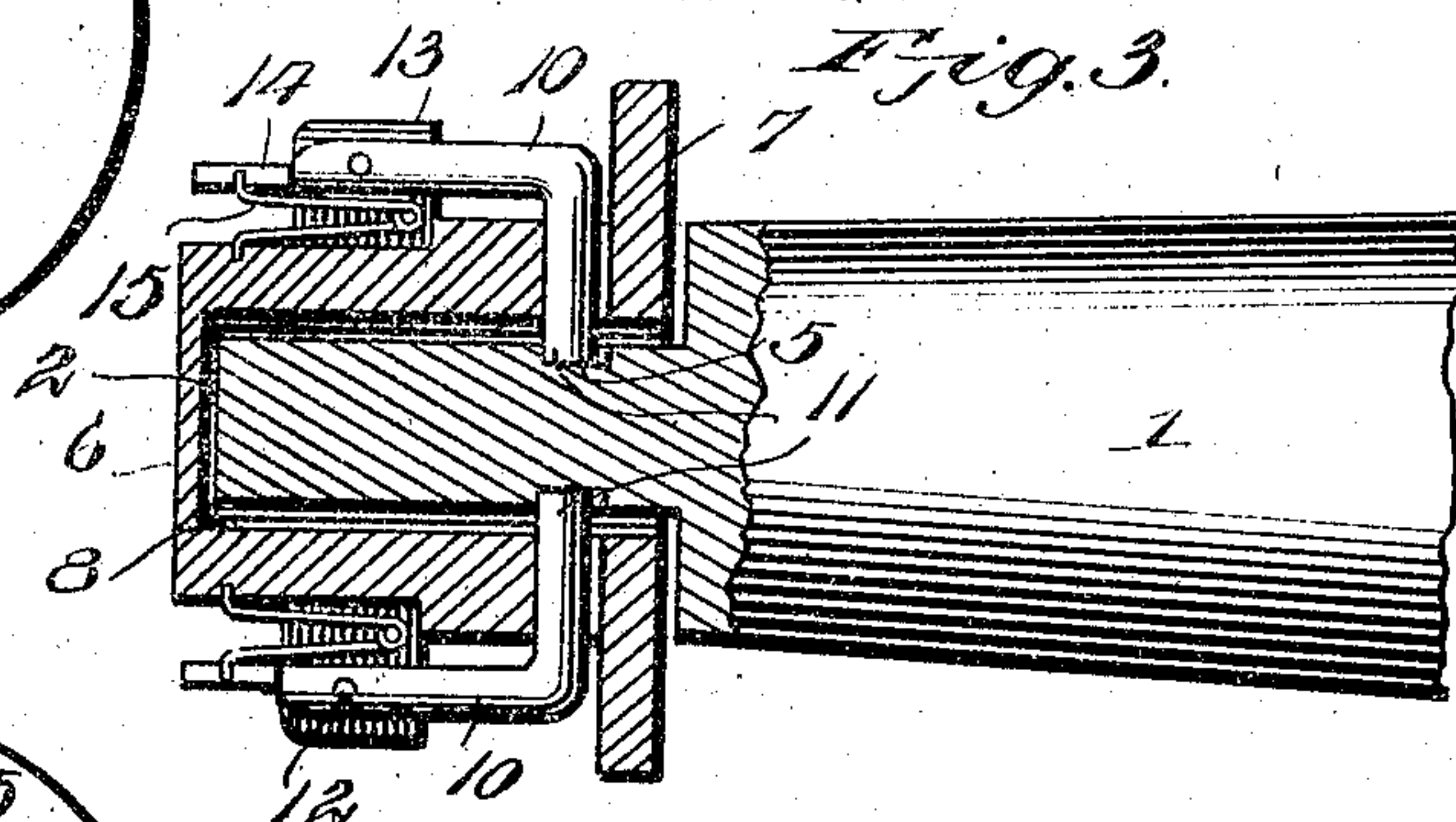


Fig. 3

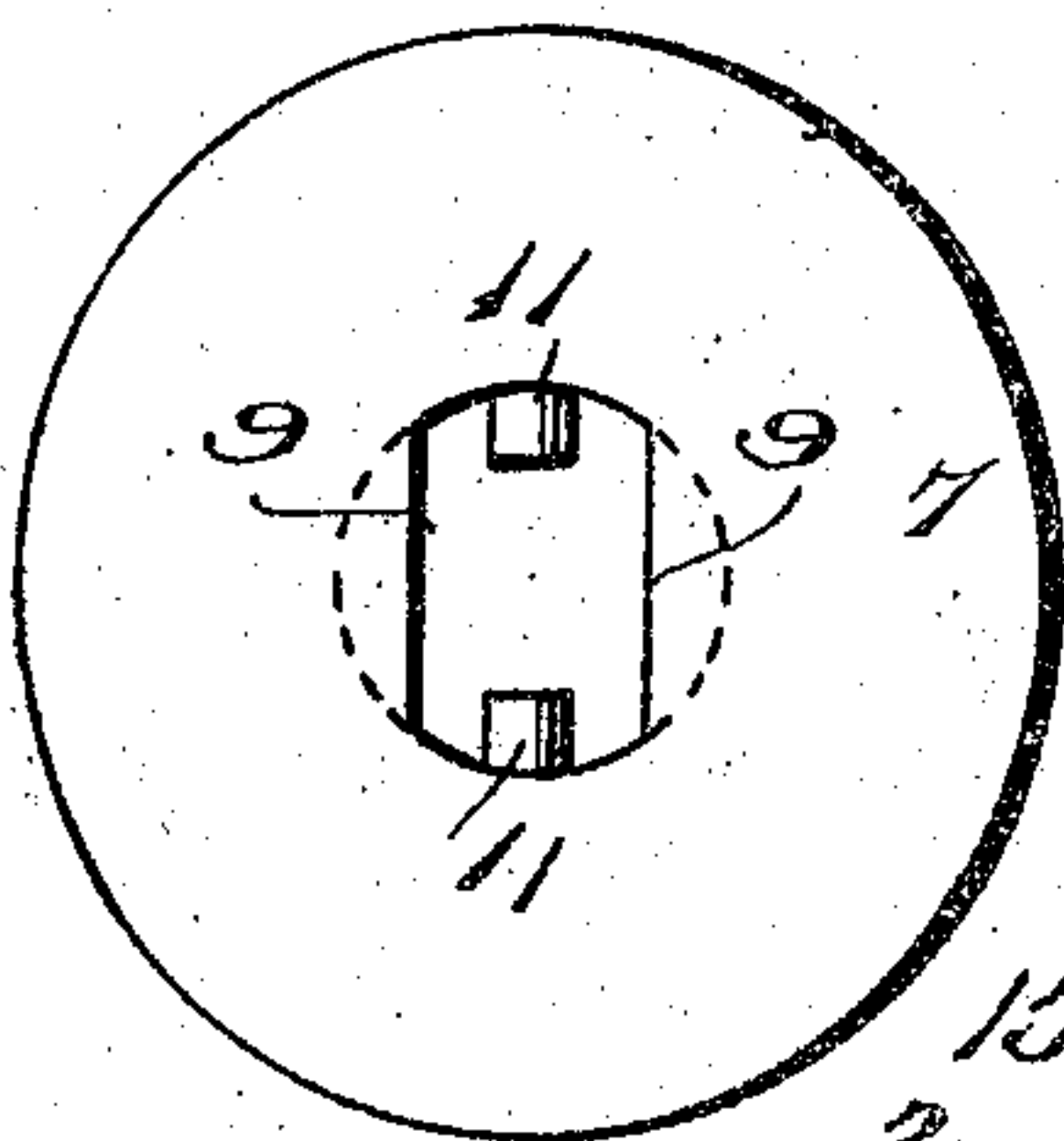


Fig. 4

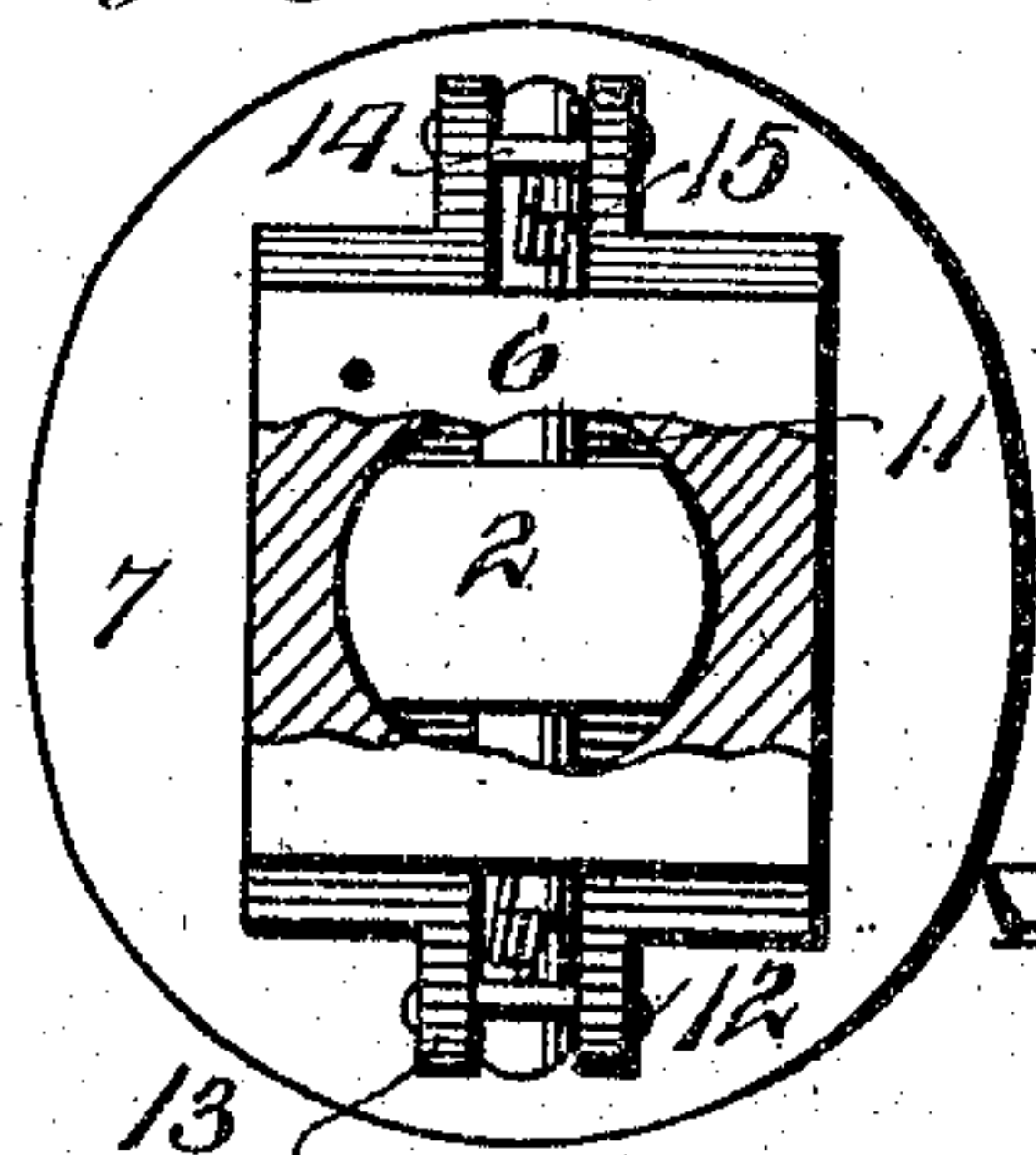


Fig. 5

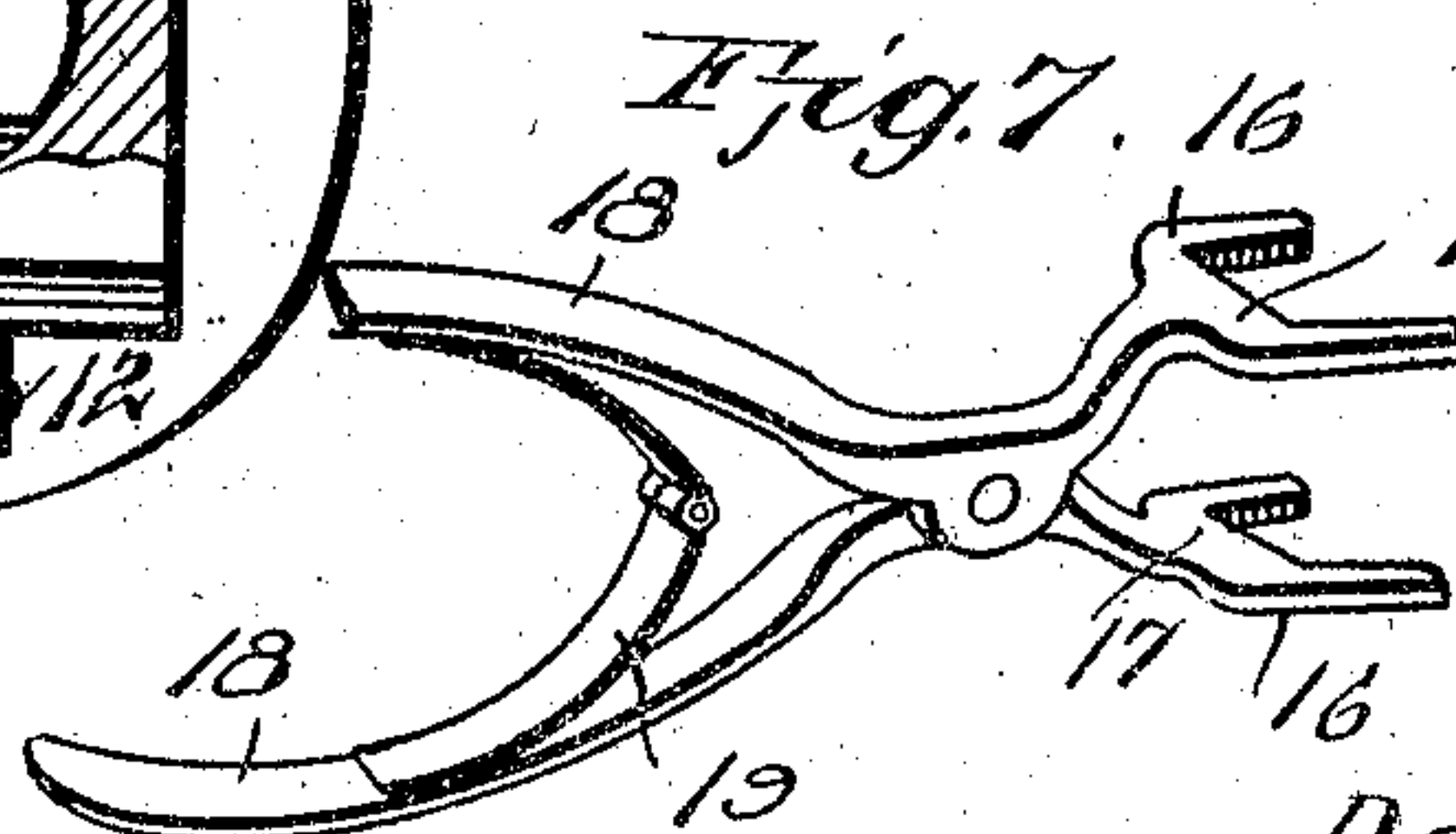


Fig. 6

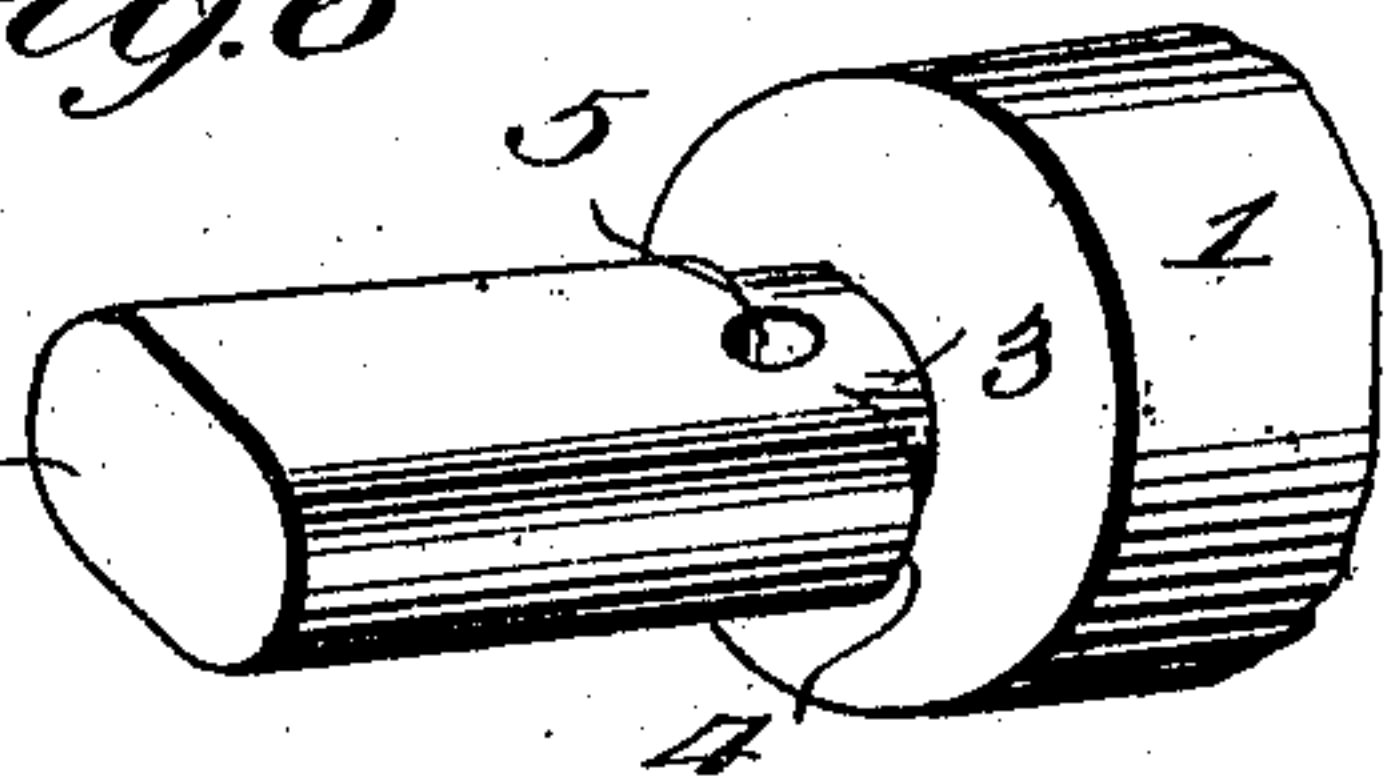


Fig. 7

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LOCK-NUT.

No. 894,716.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, DANIEL L. APPELBERRY, a citizen of the United States, residing at Chinook, in the county of Chouteau and State of Montana, have invented new and useful Improvements in Lock-Nuts, of which the following is a specification.

This invention relates to nut locks for the cap nuts of the spindles of all kinds of vehicles, the object of the invention being to provide a simple and practical device for retaining spindle nuts in place and preventing the same from being turned off the spindles by the action of the wheels, the construction hereinafter described permitting the spindles to be readily and quickly moved whenever necessary.

With the above general object in view, the invention consists in the novel construction, combination and arrangement of parts hereinafter more fully described, illustrated and claimed.

In the accompanying drawings, Figure 1 is an elevation of a sufficient portion of a spindle to show the nut lock applied thereto. Fig. 2 is a similar view taken at right angles to Fig. 1. Fig. 3 is a sectional view of the same. Fig. 4 is an inner face view of the nut or cap. Fig. 5 is a broken outer end view of the cap. Fig. 6 is a detail perspective view, showing the spindle extension. Fig. 7 is a perspective view of an implement used for applying and removing the nut or cap.

Referring to the drawings, 1 designates an ordinary vehicle axle spindle which, for the purpose of carrying out the present invention, is provided with an end extension 2 which is in the form of a flat-sided ellipse in cross section, as shown in Figs. 5 and 6, the inner end of said extension immediately adjacent to the contiguous end of the spindle 1 being notched or cut away at opposite sides, as shown at 3, to provide projecting shoulders 4 behind which corresponding shoulders on the cap or nut are adapted to engage to sustain the lateral pressure of the wheel hub, thereby removing all strain from the cap or nut locking device hereinafter particularly described. The spindle extension 2 is further provided in its opposite flat sides with sockets 5 adjacent to the shoulders 4 and adapted to receive the latches of the cap or nut hereinafter described.

6 designates the cap or nut which is recessed to fit over the spindle extension 2 in the manner best illustrated in Fig. 3, in

which it will be observed that said cap is provided at its inner end with a circumferential flange 7 which is adapted to receive the pressure of and form a bearing for the outer end of the hub of the wheel mounted on the spindle 1. The interior bore 8 of the cap or nut 6 is, in the main, round so as to turn upon the extension 2 but adjacent to its inner end, the side of said bore is reduced by providing inwardly projecting, oppositely located shoulders 9, the inner edges of which are straight, as shown in Fig. 4, and parallel to each other, said shoulders being of a suitable thickness to fit behind the shoulders 4 of the extension 2 and between said shoulders 4 and the adjacent extremity of the spindle proper, so that when the shoulders 9 are thus engaged with the shoulders 4, the cap or nut is positively prevented from moving outward on the spindle extension and, therefore, the shoulders 4 and 9 take all of the lateral strain or pressure brought to bear on the flange 7 by the wheel hub.

Arranged at opposite sides of the cap or nut 6 are L-shaped latches 10 having in bent extremities 11 which work through openings in the sides of the cap or nut and into the sockets 5 of the extension 2 so as to form a lock between the cap and the spindle and prevent the cap from turning on the spindle so as not to get loose. When the latches are engaged with the sockets 5, the shoulders 9 of the cap rest behind the shoulders 4 of the spindle extension and it is only by a partial rotation of the cap or nut 6 that the shoulders 9 may be carried away from behind the shoulders 4 so as to enable the cap to be slid off the extension 2. The latches 10 are fulcrumed at 12 on lugs 13 extending outward from opposite sides of the cap or nut 6 and said latches are provided with outwardly extending lever portions 14 adapted to be grasped between the fingers or forced toward each other by a suitable implement to rock the latches and move the extremities thereof out of engagement with the socket 5 to release the cap and allow the latter to be turned. The latches 10 are normally held in engagement with the sockets 5 by means of springs 15 interposed between the latches and the adjacent faces of the nut or cap 6, as clearly shown in Figs. 3 and 5.

To remove the cap or nut from the spindle, the lever extensions 14 are pressed toward each other, thereby moving the extremities of the latches out of engagement with the

sockets 5, whereupon the cap or nut may be turned to move the shoulders 9 outward from behind the shoulders 4, whereupon the nut may be slid outward off the extension 2, after which the wheel may be removed. To apply the cap or nut, the operation just above described is reversed.

If desired, an implement such as is shown in Fig. 7 may be used for applying and removing the nut, said implement resembling an ordinary pair of pliers but differing therefrom in that the jaws 16 of the pliers are forked so as to straddle the lugs 13 and enable the crown portions 17 of the jaws to engage the lever extensions 14 for the purpose of pressing the same toward each other to swing the engaging portions of the latches out of engagement with the spindle extension 2. The handle portions 18 of the jaws have a spring 19 interposed between them which operates to hold the jaws toward each other and cause them to maintain the latches 10 in an inoperative position during the operation of removing and applying the cap or nut.

From the foregoing description, it will be seen that all strain and pressure brought to bear against the cap or nut by the hub of the wheel is sustained by the interlocking shoulders 4 and 9, thus removing all strain from the latches, the latter being used merely to prevent the cap or nut from rotating under the action of the revolving wheel hub. This removes all liability of the cap or nut to unscrew. The cap or nut may, of course, be made of any size to fit any vehicle, and extra washers of different thicknesses may be supplied to be inserted between the hub of the wheel and the flange 7, for the purpose of taking up wear, and such washers may be applied instantly without alteration.

While the nut lock hereinabove described is especially designed for use in connection with the spindles of vehicle axles, it will be apparent that the same may be used in any

place where it is necessary to prevent nuts from working loose.

I claim:

1. The combination of a member having an extremity of greater transverse dimension in one direction than in the other and diminished at its inner end in the direction of its greater dimension to form shoulders and provided with oppositely disposed sockets, a nut on the said extremity having a bore of greater diameter than the greatest transverse dimension of the said extremity and also having webs adapted to engage behind the shoulders for preventing longitudinal displacement of the nut and having oppositely disposed openings adapted to register with the socket, L-shaped locking members pivotally mounted on the nut each with an arm disposed in an opening of the latter and adapted to terminally engage in the registering socket, and a separate spring interposed between each locking member and the outside of the nut for holding the said members in locking position.

2. The combination of a member having transversely extending sockets and oppositely disposed shoulders, a nut adapted to be assembled over the end of the member and provided with webs adapted to engage behind the shoulders, levers fulcrumed on the nut at opposite sides thereof and provided with right-angularly disposed extremities passing through openings in the nut adapted to engage in the sockets, the levers being of less length than the axial dimension of the nut; a spring interposed between each lever and nut and covered by the lever to be protected thereby, and means for securing each spring to the nut and adjacent lever.

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

DANIEL L. APPELBERRY

Witnesses:

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