

**No. 652,330.**

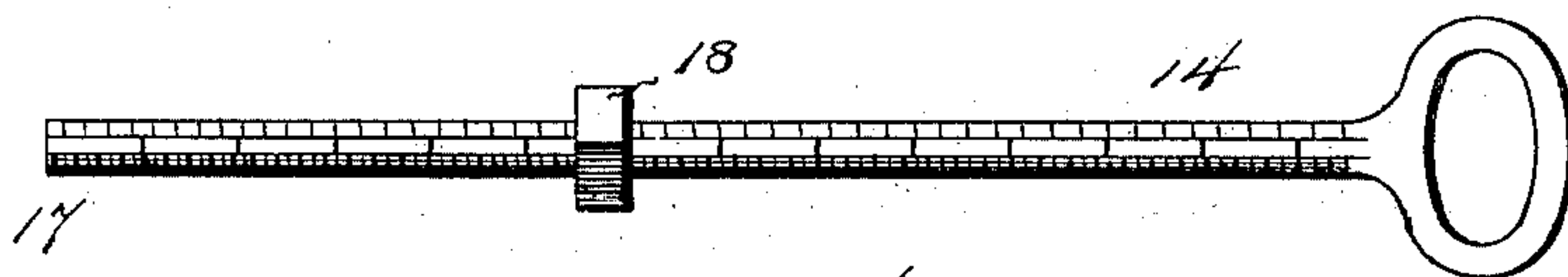
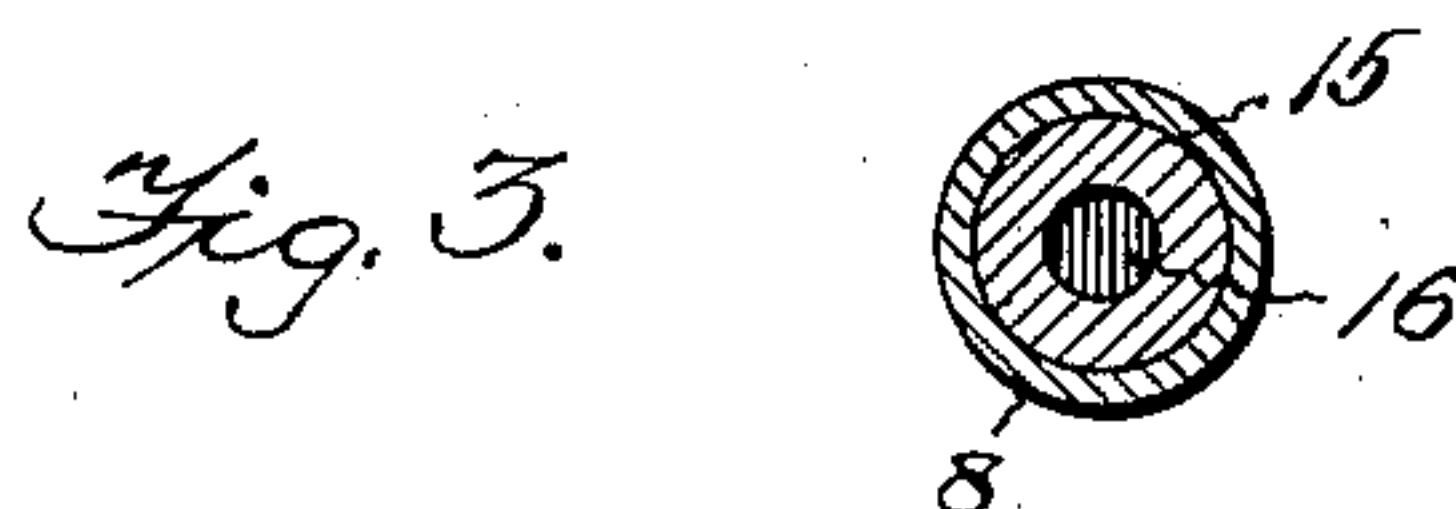
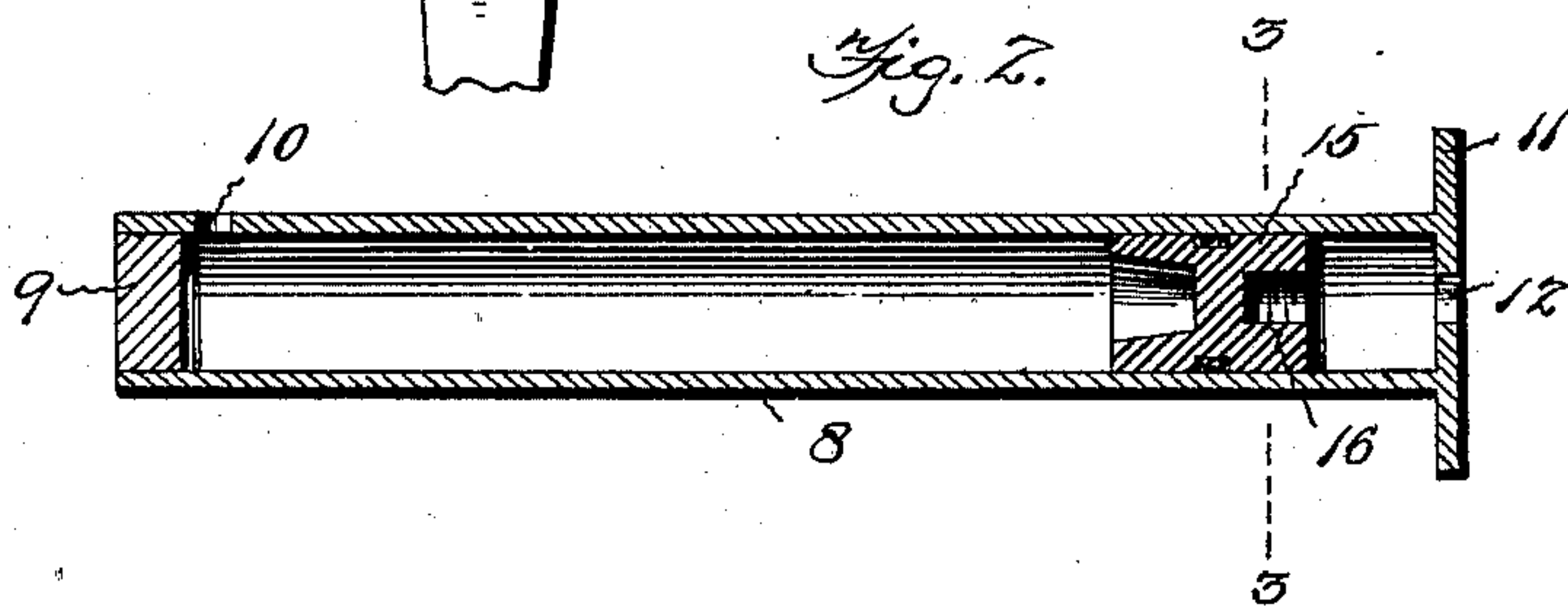
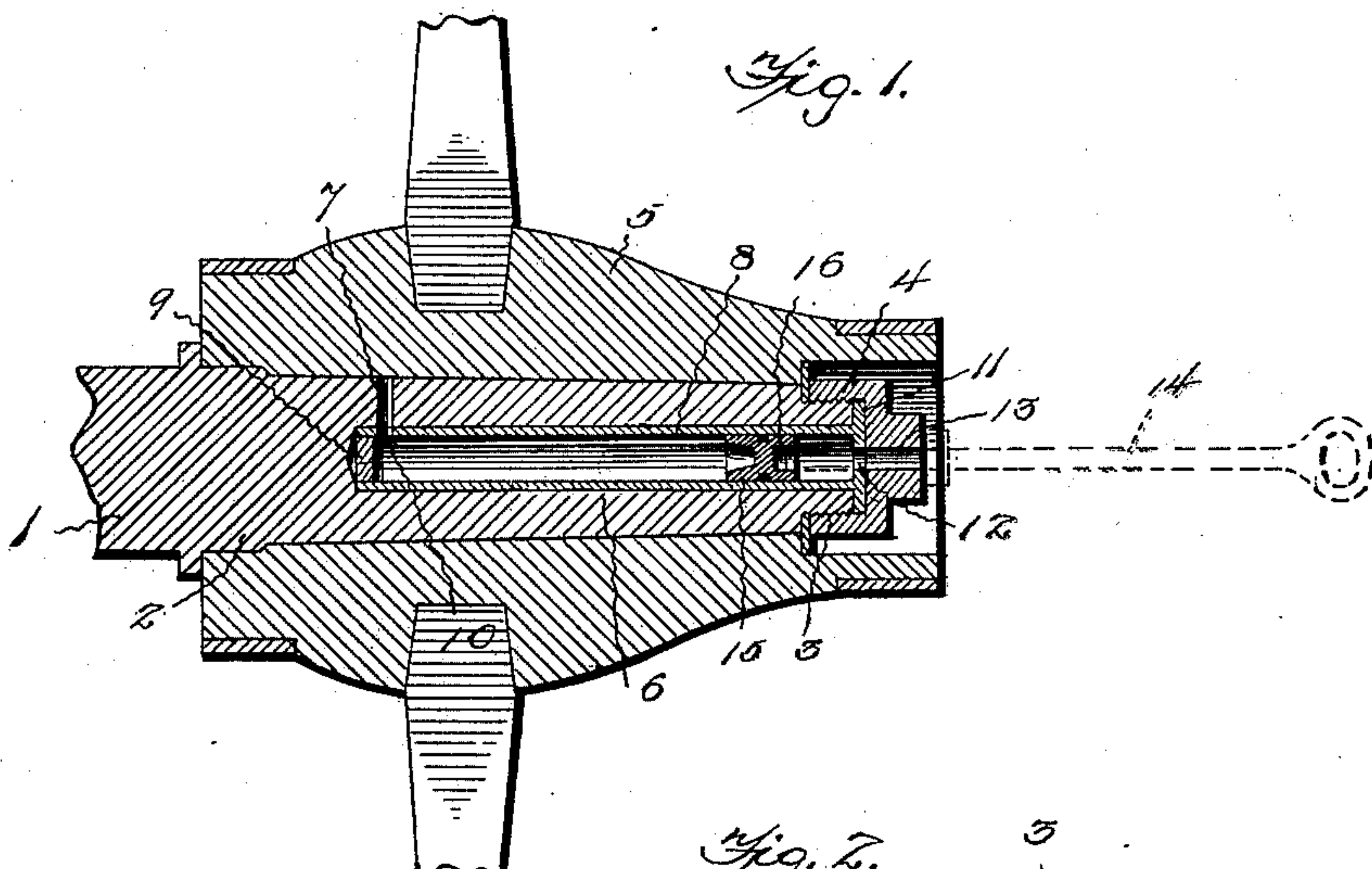
**Patented June 26, 1900.**

**H. J. RISLEY & J. M. ALBERT.**

## AXLE OILER.

(Application filed Dec. 28, 1899.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

HOLLIS J. RISLEY AND JOHN M. ALBERT, OF SOUTH BEND, INDIANA.

## AXLE-OILER.

SPECIFICATION forming part of Letters Patent No. 652,330, dated June 26, 1900.

Application filed December 28, 1899. Serial No. 741,873. (No model.)

*To all whom it may concern:*

Be it known that we, HOLLIS J. RISLEY and JOHN M. ALBERT, citizens of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Axle-Oilers; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

Our invention relates to improvements in axle-lubricators, and has particular relation to that class of such devices in which lubricating-oil is injected by means of a piston or its equivalent.

The object of our invention is to provide a device of this character which can be readily applied within the axle-spindle, which will allow of the delivery of a predetermined quantity of lubricating-oil, which will be held in a fixed position within the spindle, and which is simple and efficient in operation, durable in construction, capable of ready application, and which can be made at a moderate cost.

To this and other ends, the nature of which will be clearly apparent as the invention is hereinafter disclosed, our said invention consists in the improved construction and combination of parts hereinafter fully described, illustrated in the accompanying drawings, forming a part of this specification, and particularly set forth in the appended claims.

In the drawings, in which similar numerals of reference indicate similar parts in all of the views, Figure 1 is a vertical longitudinal sectional view of the axle-spindle and a portion of the wheel-hub, showing our improved lubricator in position, the plunger-rod being shown in dotted lines. Fig. 2 is an enlarged sectional view of the lubricating-casing. Fig. 3 is a cross-sectional view of the construction shown in Fig. 2, taken on the line 3 3 of said figure. Fig. 4 is a detail view of the plunger-operating rod.

In devices of this character heretofore constructed, as far as we are aware, there is, among other disadvantages, one important feature which has been lost sight of and by

reason of which said constructions have not gone into extensive use. The feature referred to consists in the ability to inject a definite quantity of lubricating-oil into the space between the hub and the spindle and also the ability to determine without removing the oil-receptacle from the spindle the quantity of oil remaining within such receptacle. In the present invention this feature is one of prominence and enables the user to have entire control over the oiling of the axle and also gives an immediate indication of the quantity of oil remaining within the receptacle, so that it may be again refilled when necessary. While this feature is mentioned in detail, it is to be understood, of course, that other features are presented, all of which are clearly set forth in the appended claims, and it is to be understood that modifications may be employed without departing from the spirit or scope of this invention in so far as such modifications fall within the terms of said claims.

1 designates the wagon-axle, having the spindle 2 of usual form, the said spindle having its outer end reduced and screw-threaded, as at 3, to receive the locking-nut 4, the latter holding the wheel-hub 5 in position on the spindle, the form of these parts being of the usual character. The spindle 2 is provided with a central longitudinal opening 6, having near its inner end the outlet 7, which leads from said opening 6 through the spindle 2 to the space between said spindle and the inner face of the wheel-hub. The opening 6 is adapted to receive the cylindrical oil-receptacle 8, the latter being provided at its inner end with a removable plug 9 and having adjacent to said plug a peripheral opening 10, which when said casing is in position will coincide with the opening 7, affording communication between the interior of said casing and the space between the spindle and the wheel-hub through the opening 7. The opposite end of said casing is provided with an annular flange 11, which extends inwardly and outwardly from said casing, said flange being of a diameter approximately equal to or slightly less than the outer face of the reduced end of the spindle 2, said flange being adapted when the casing is in position to abut against said outer face of the spindle and be



held in position by the nut 4, the latter being provided with a space to receive said flanged portion 11. As shown, the flange 11 is provided with a central opening 12, and the nut 4 is also provided with a longitudinal opening 13, the said openings 12 and 13 being adapted to afford access to the interior of said casing and for the plunger-operating rod 14, hereinafter described.

15 designates the plunger, which may be of any suitable form and may have, as shown, its inner end provided with a cup-shaped portion, which in case said end of the plunger is flexible will expand against the sides of the casing, forming a more perfect joining between the two without preventing the reciprocating movement of the plunger, as hereinafter described. The outer end of said plunger is provided with an opening 16, preferably screw-threaded, although such is not absolutely essential, said screw-threaded end being adapted to receive the screw-threaded end 17 of the plunger-operating rod 14, by means of which connection said plunger may be readily returned to its outer position when it is desired to refill the oil-receptacle.

As will be seen, the inner face of the casing 8 and the periphery of the plunger 15 are free from any projections, such as screw-threads, thus enabling said plunger to have a free sliding movement within the casing.

The plunger-operating rod 14 is preferably screw-threaded for approximately its entire length and at least to a sufficient distance as will enable a nut 18, which is mounted thereon, to be run forward a sufficient distance to allow the rod 14 to move the plunger the entire length of the casing. The said rod 14 is also provided with suitable peripheral marks which will serve as a guide for the movement of the nut 18 a predetermined distance.

In operation, the parts being in the position shown in Fig. 1, when it is desired that oil be passed between the spindle and the wheel-hub the rod 14 is inserted through the openings 12 and 13 until its inner end abuts against the plunger 15, when pressure is then applied and said plunger forced inwardly until the face of the nut 18 abuts against the nut 4, this inward movement of the plunger forcing a quantity of oil from said receptacle. After the wheel has been run for some little time the nut 18 is moved along said rod a suitable distance, which distance is equal to the distance which the plunger is to move, and the above operation repeated, these several operations being continued until the plunger 15 has reached the inner end of the casing or until the nut 18 has reached a point on said rod 14 which will indicate that the oil within the receptacle is of but small quantity. When the receptacle is substantially emptied of its oil contents, the nut 4 is removed and the entire casing 8 taken out of the opening 7, after which the end 17 of the rod 14 is screw-threaded into the opening 16 of the plunger 15 and said plunger drawn

outwardly until it reaches a point approximately against the flanged portion 11. The plug 9 is then removed and oil poured into said casing, after which said plug 9 is again placed in position and the inner casing 8, with its contents of oil, reinserted in the opening 6. From this it will be seen that by the use of the rod 14, having an adjustable stop, (the nut 18,) a predetermined quantity of oil may be forced out through the opening 10, it being immaterial whether the plunger 15 moves outwardly when the pressure is released, as might be the case where the wheel is run over rough roads, as the rod 14 will move said plunger inward to its proper position whether said plunger be in the position assumed during the previous operation or whether it has moved outwardly by reason of said jarring. Inasmuch as all of the wheels of the vehicle would be provided with the lubricator herein described and all of said lubricators would be filled at the same time, it will be readily seen that when the nut 18 has been adjusted to allow of the forcing of a predetermined quantity of oil from one lubricator the same quantity would be forced from each of the other lubricators.

Among the advantages which result from the use of the construction above described is to be found the ability to move the plunger rapidly in either direction through the casing, insuring a positive forcing of the oil from the casing and also allowing the plunger to be rapidly withdrawn when it is desired to refill the oil-chamber.

Having thus described our invention, what we claim as new is—

1. The combination with a hollow axle-spindle having an outlet-opening; of a casing removably secured within said opening, said casing having a port connected with said outlet-opening; a plunger mounted to have a sliding movement within said casing, and adapted to eject the contents of said casing; and a plunger-operating rod having an adjustable stop, said rod being adapted to move said plunger in one direction to a predetermined position, substantially as described.

2. The combination with a hollow axle-spindle, having an outlet-opening; of a casing removably secured within said opening, said casing having a port connected with said outlet-opening; a plunger mounted to have a sliding movement within said casing; and a plunger-operating rod independent of and adapted to operate against the outer end of said plunger, the said rod having an adjustable stop whereby said plunger may be moved in one direction within the said casing to a predetermined position, substantially as described.

3. The combination with a hollow axle-spindle having an outlet-port; of a cylindrical casing mounted within said spindle, said casing having its inner end provided with a movable plug, and also having an outlet-port



connected with the outlet-opening in said spindle; a plunger mounted to have a sliding movement within said casing, and adapted to eject the contents contained therein; and means removable from and adapted to contact with said plunger whereby it may be forced inward to a predetermined position, substantially as described.

4. The combination with a hollow axle-spindle, having an outlet-port, and also having a reduced, screw-threaded outer end; a wheel-hub mounted on said spindle and a wheel-retaining nut mounted on said reduced end; of a casing mounted within said spindle, the said casing having its outer end provided with an annular flange, said flange being adapted to abut against the face of the

outer end of said reduced end portion, and held in position by said hub-retaining nut, said casing also having an outlet-port connected with the opening within said spindle; a plunger mounted to have a sliding movement within said casing and adapted to eject the contents thereof; and means whereby said plunger may be moved in one direction to a predetermined position, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

HOLLIS J. RISLEY.

JOHN M. ALBERT.

Witnesses:

JAMES DUSHANE,

WILLIS A. BUGBEE.