

No. 785,606.

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C. G. GLASRUD.

LUBRICATOR.

APPLICATION FILED APR. 30, 1904.

Fig. 1.

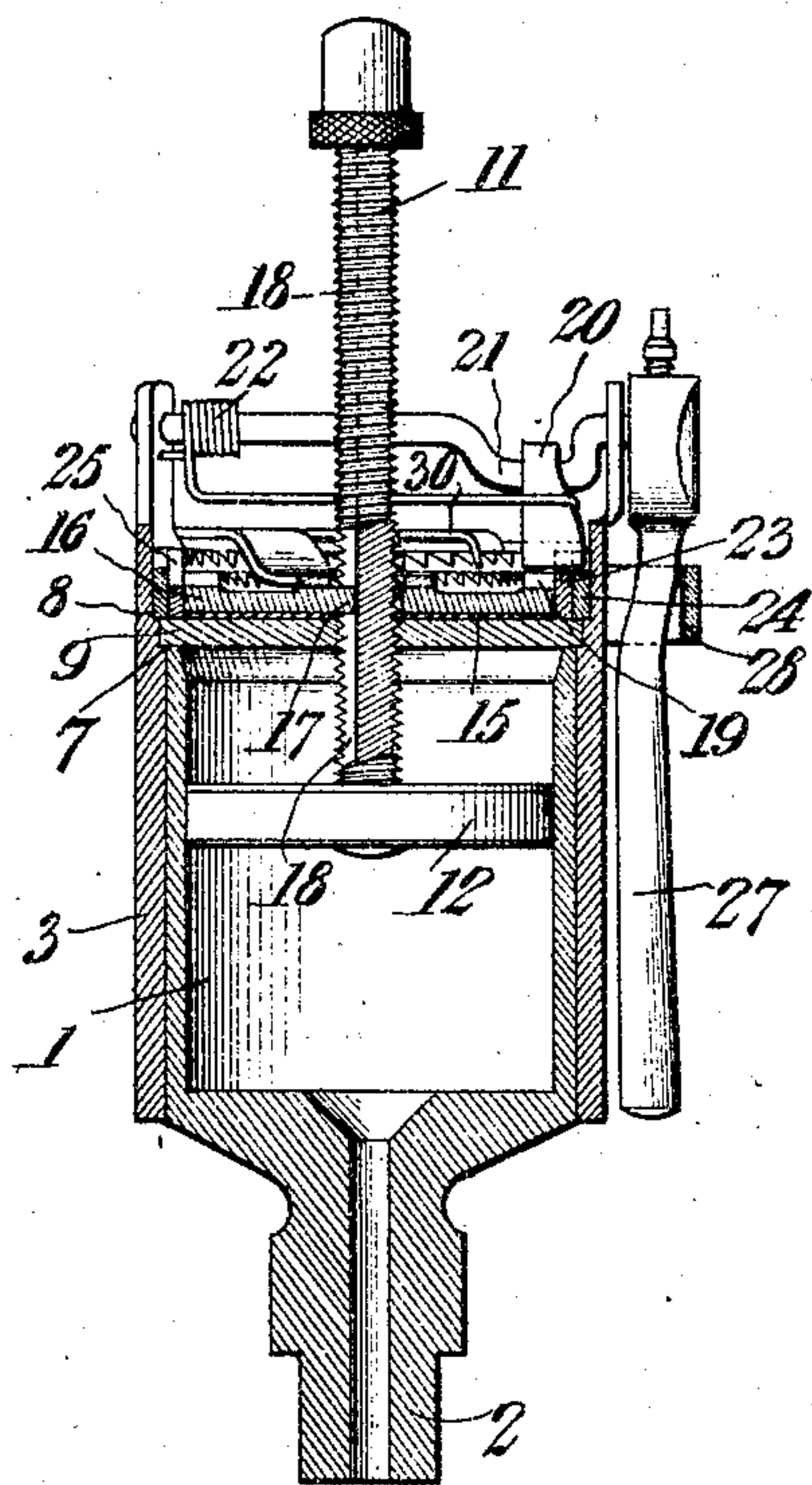


Fig. 2.

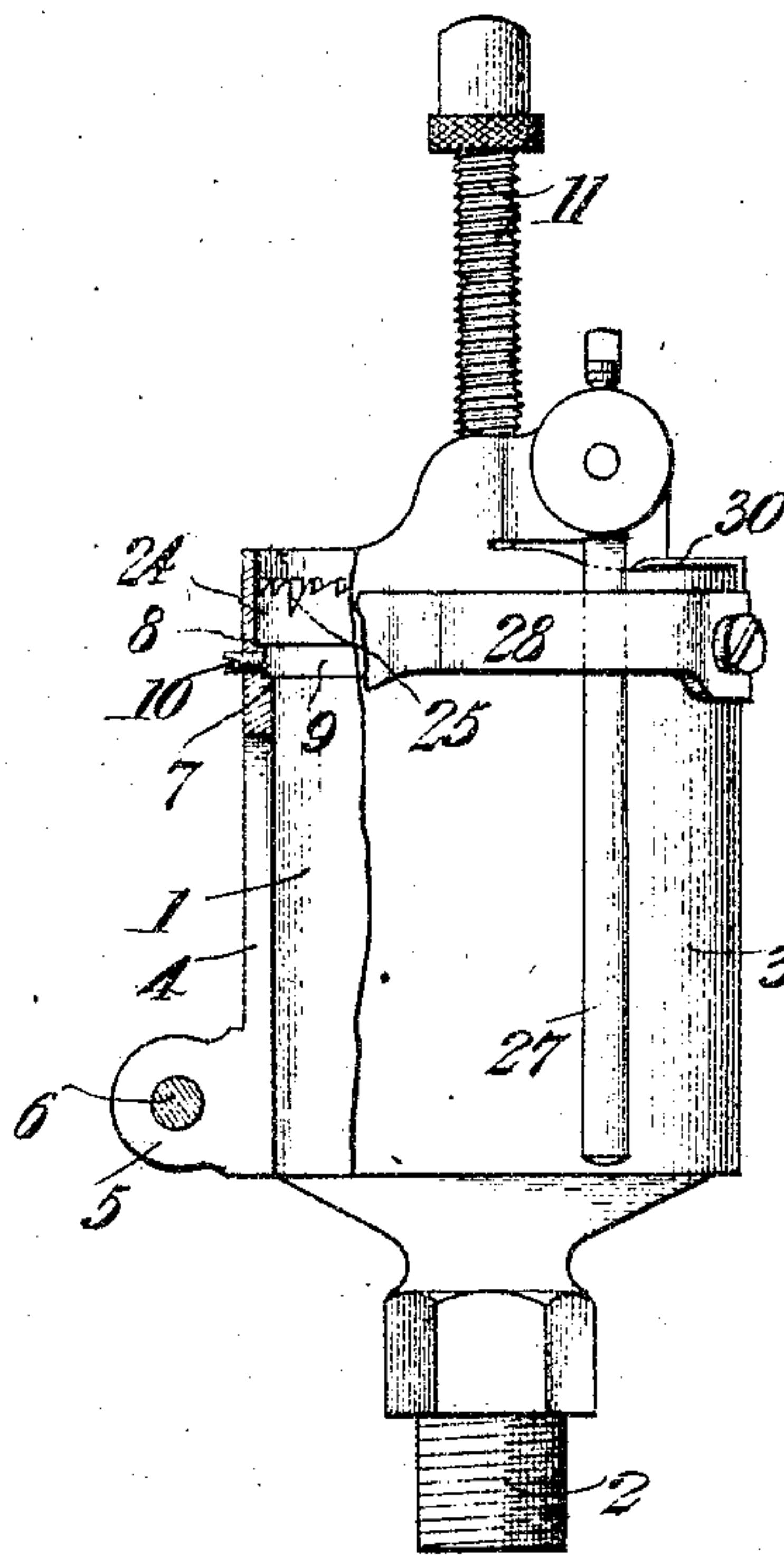


Fig. 3.

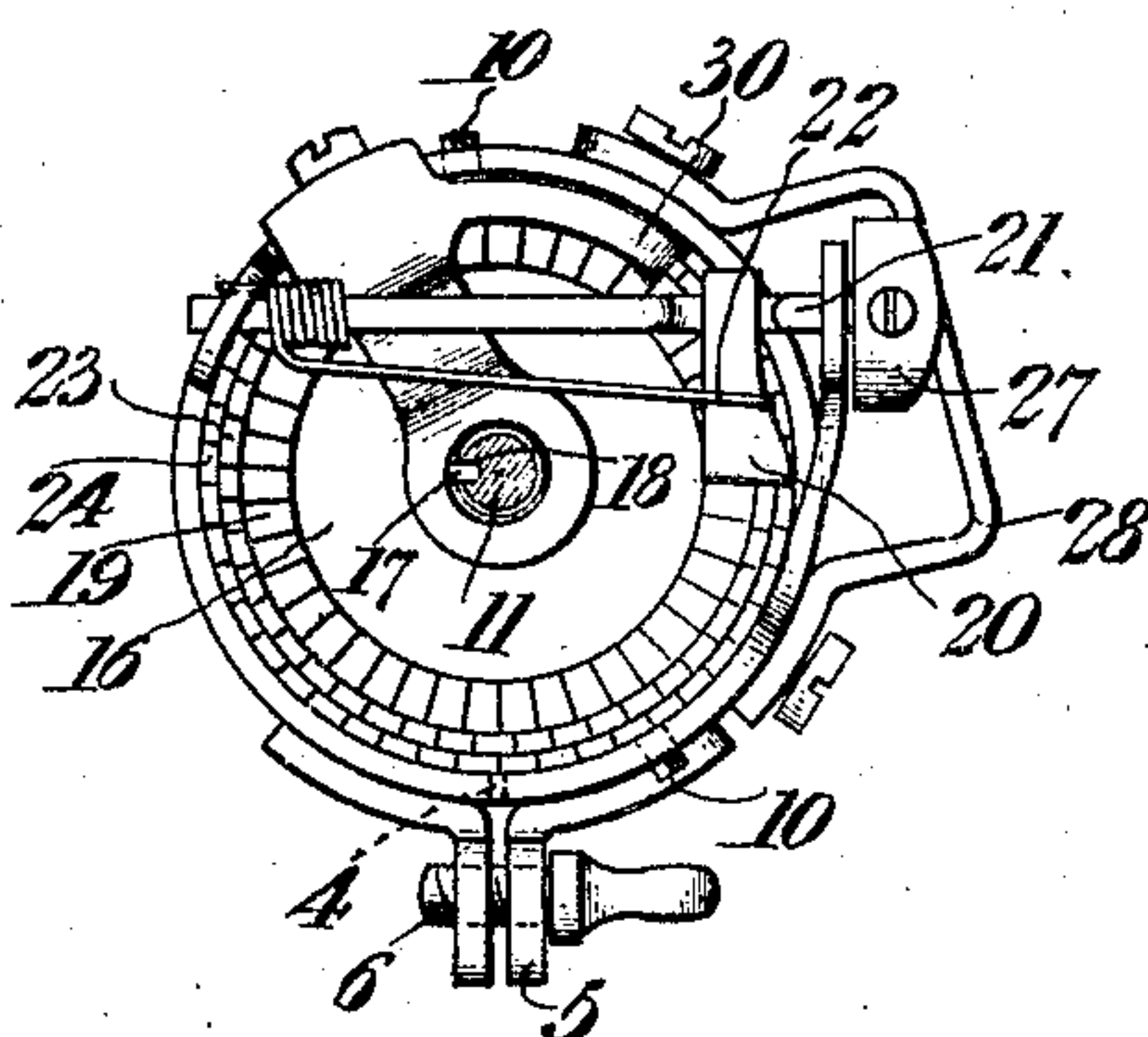
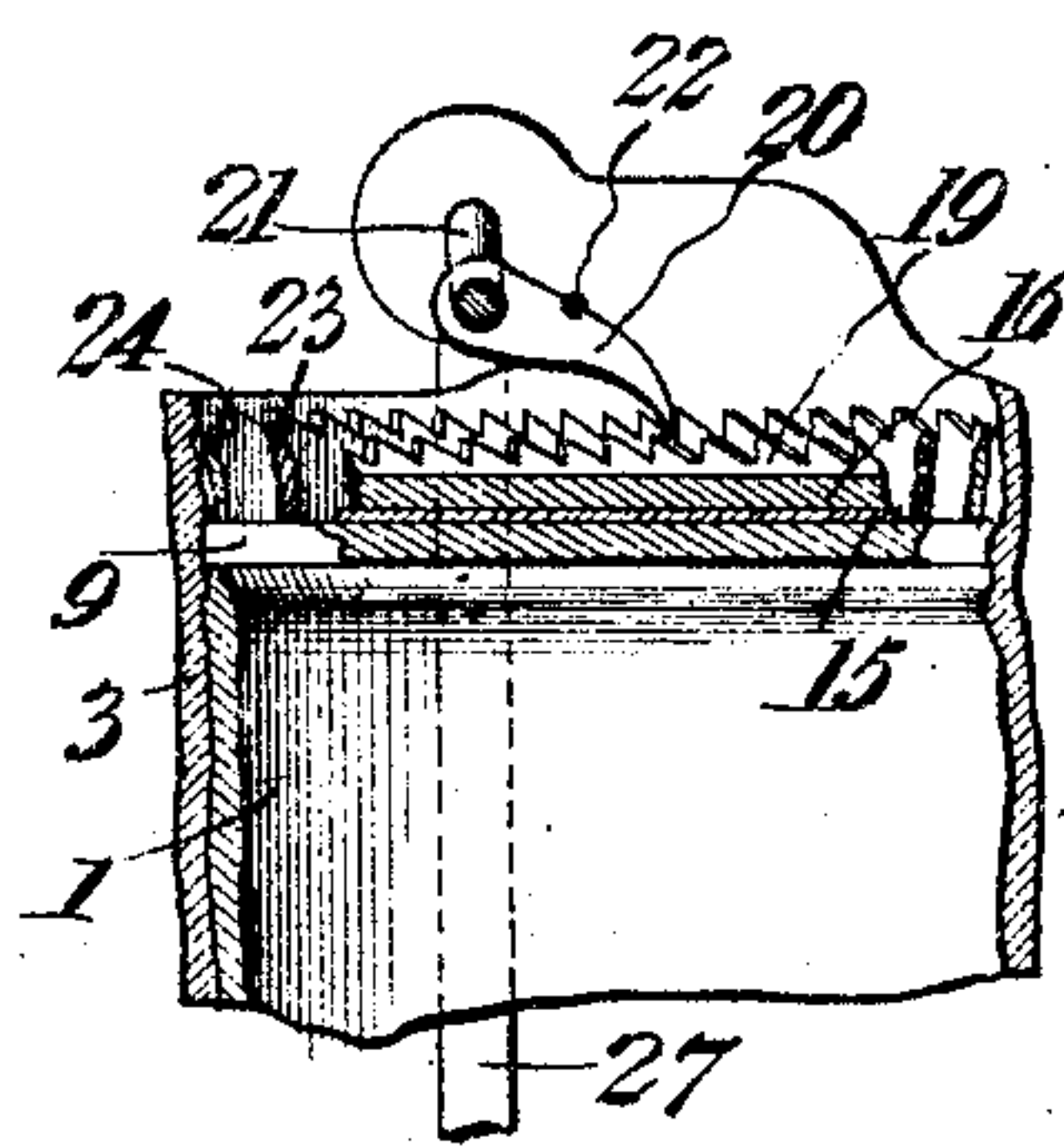


Fig. 4.



Witnesses

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LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 785,606, dated March 21, 1905.

Application filed April 30, 1904. Serial No. 205,819.

To all whom it may concern:

Be it known that I, CHRISTIAN G. GLASRUUD, a citizen of the United States, residing at Sheyenne, in the county of Eddy and State of North Dakota, have invented a new and useful Lubricator, of which the following is a specification.

This invention relates to improvements in force-feed lubricators of that class employed for automatically supplying viscous or semi-fluid lubricating material to movable parts of machinery, such as crank-pins, cross-heads, and the like.

The principal object of the invention is to provide a thoroughly-efficient lubricator of the most simple and economical construction and one in which the supply of lubricant may be forced to the points to be lubricated without waste of the lubricating material through excessive feeding, such as at times occurs where the lubricator receives feeding movement at each reciprocation or rotation of the member to which it is attached.

A further object of the invention is to provide a lubricator in which the construction is such as to permit the ready renewal of the supply of lubricant when necessary.

With these and other objects in view, as will more fully hereinafter appear, the invention consists in the novel construction and arrangement of parts hereinafter fully described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a sectional elevation of a force-feed lubricator constructed in accordance with the invention. Fig. 2 is an elevation of the same, a portion of the outer cap-piece being broken away in order to more clearly illustrate the construction. Fig. 3 is a plan view of the lubricator. Fig. 4 is a detail sectional view illustrating the relative positions of the operating-pawl and the racks with which it engages.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The lubricant-cup 1 is provided with a threaded stem 2, by means of which it may be attached to the crank, cross-head, or other member to be lubricated. Over the cup is fitted a cap 3, that is provided with one or more slits 4, and at the edges of each slit are perforated ears 5 for the passage of the clamping-screw 6, one of said ears being threaded for engagement with the screw, so that the cap may be firmly secured to the cup. By loosening the screw or screws the cap and its attached parts may be removed from the cup and the latter filled with a fresh supply of lubricating material.

The upper end of the cap is counterbored to form two shoulders 7 and 8, and on the shoulder 7 rests a nut or disk 9, held in place by set-screws 10 or equivalent securing devices, and the central portion of this disk is provided with a threaded opening for the reception of a screw 11, on the lower end of which is mounted a piston 12, having a peripheral packing-ring for contact with the inner wall of the cup. On the nut-disk 9 rests a spacing-disk 15, and on top of this is mounted a ratchet-disk 16, having an unthreaded opening for the passage of the screw and provided with a key 17, that enters a longitudinal groove or keyway 18, formed in the screw, so that movement imparted to the ratchet-disk will serve to turn the screw and the latter will be free for longitudinal movement independent of said ratchet-disk. The ratchet-disk 16 is provided with crown ratchet-teeth 19 to be engaged by a pawl 20, carried by a cranked shaft 21, that is held in bearing-openings formed in ears or lugs carried by the cap, and said pawl is normally forced in the direction of the ratchet-teeth by means of a torsion-spring 22, but engages with the teeth only at intervals.

Surrounding the ratchet-disk 16 are two rings 23 and 24, mounted for loose rotative movement, and the upper edges of both rings are provided with teeth similar to the teeth 19 of ratchet-disk 16. The roots of the teeth in the rings 23 and 24 are above the crowns of the teeth 19, except at one or more points, where deeper notches, such as 25, are arranged in the rings 23 and 24, and the pawl 20 engages with the teeth of the rings and trans-

mits movement thereto, but is only allowed to descend into engagement with the teeth 19 when it enters the alining deeper notches of the two rings, and in order that the number of operative movements imparted to the ratchet-disk may be lessened one of the rings—for example, the ring 24—has a larger number of teeth than the ring 23, so that the irregular movement imparted by the pawl will lengthen to a considerable extent the intervals of operative movement of the ratchet-disk.

On one end of the cranked shaft 21 is hung a pendulum 27, that plays within the limits of a guard 28, carried by the cap-piece, and at each reciprocatory or rotary movement of the member to which the lubricator is attached the pendulum will swing, and operative movement will be imparted to the pawl, and this in turn will operate at regular intervals the rings 23 and 24 and at infrequent intervals the ratchet-disk 16, and when the ratchet-disk is operated the screw 11 will be turned in the threaded opening of the nut-disk 9, and the plunger will be forced down to expel a quantity of the lubricating material.

In order to hold the ratchet-rings from rearward movement, a spring-pressed pawl 30 is secured to the upper portion of the cap-piece, the body of the pawl-carrier having a radially-extending arm that is provided with an opening for the passage of the screw.

In a device of this character the lubricating material may be slowly forced to the point to be lubricated, and by increasing or decreasing the number of deep notches in the rings 23 and 24 the quantity of lubricant expelled may be regulated in accordance with requirements. When the supply of lubricating material is to be replenished, the screw 11 is turned in the direction opposite to that in which it was turned to expel the lubricating material, care being taken that the pawl 30 is held up out of contact with the teeth on the ratchet-disk during the operation. The piston or plunger 12 may be then drawn up close against the disk 9 and removed with the latter, when the cap-piece is released by turning the screw 6.

Having thus described the invention, what is claimed is—

1. In combination, a lubricant-containing cup having an open top and provided with a discharge-opening, a split cap-piece fitting over the cup and confined in place on the cup, a nut-disk secured to the cap-piece and resting on top of the cup, a plunger fitting within the cup, a threaded plunger-rod secured to the plunger and extending through the nut-disk, a plurality of ratchet members supported in part by the nut and cap-piece, and means for operating said ratchet members.

2. In combination, a lubricant-containing

cup, a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging and turning the ratchet, a cranked shaft carrying said pawl, and an oscillatory pendulum for rocking said shaft.

3. The combination with a lubricant-containing cup, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging and turning the ratchet, means for permitting engaging movement of the pawl with said ratchet only at intervals with respect to the operation of the pawl, and means for operating said pawl.

4. The combination with a lubricant-container, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning said rod and having an unthreaded opening for the passage of the rod, a pawl for engaging said ratchet-disk, and a loose ratchet-ring also engaged by the pawl, the depth of the space between the teeth of the ring serving, except at intervals, to prevent engagement of the pawl with the teeth of the ratchet-disk.

5. The combination with a lubricant-container, of a plunger, a threaded plunger-rod, a stationary nut engaging the plunger-rod, a ratchet-disk for turning the rod and having an unthreaded opening for the passage of the rod, a pair of loose ratchet-rings adjacent to the disk, one of the rings having a greater number of teeth than the other, and the notches between the teeth of said rings being of unequal depth, and a pawl for engaging all three sets of ratchet-teeth.

6. The combination with a lubricant-containing cup having at its top a pair of seating-flanges of unequal diameter, a disk supported on the smaller seat and having a threaded opening, a plunger, a threaded plunger-rod extending through said threaded opening, a ratchet-disk for turning the rod, a pair of ratchet-rings surrounding the ratchet-disk, and supported on the seat of largest diameter, the spaces between the teeth of said ratchet-rings being of unequal depth, and a pawl for engaging all three sets of ratchet members.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHRISTIAN G. GLASRUDE.

Witnesses:

S. G. SEVERTSON,
F. L. KERMOTT.