

No. 661,612.

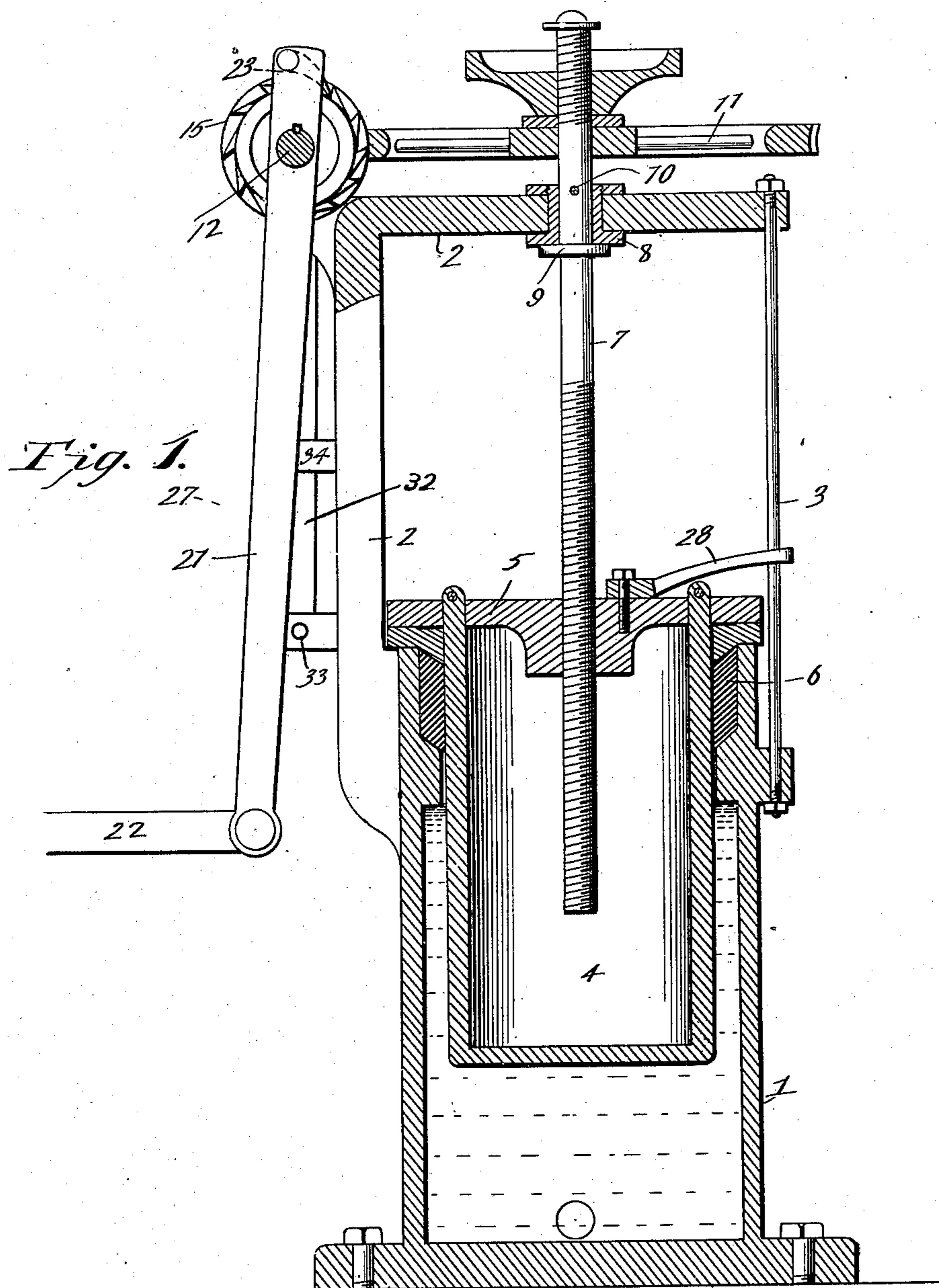
Patented Nov. 13, 1900.

O. O. KITTLESON.
LUBRICATOR.

(Application filed June 2, 1900.)

(No Model.)

2 Sheets—Sheet 1



Witnesses
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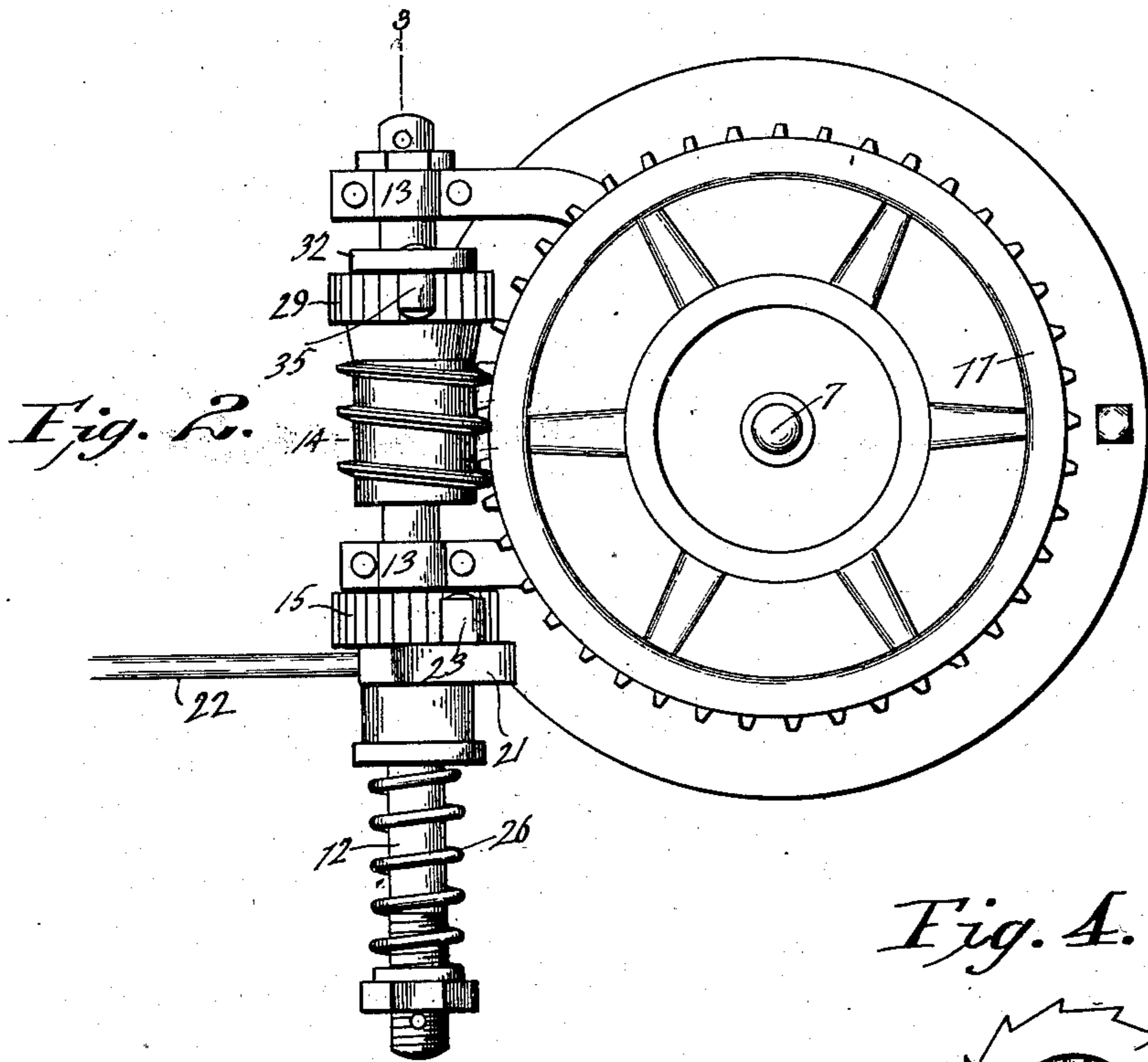


Fig. 4.

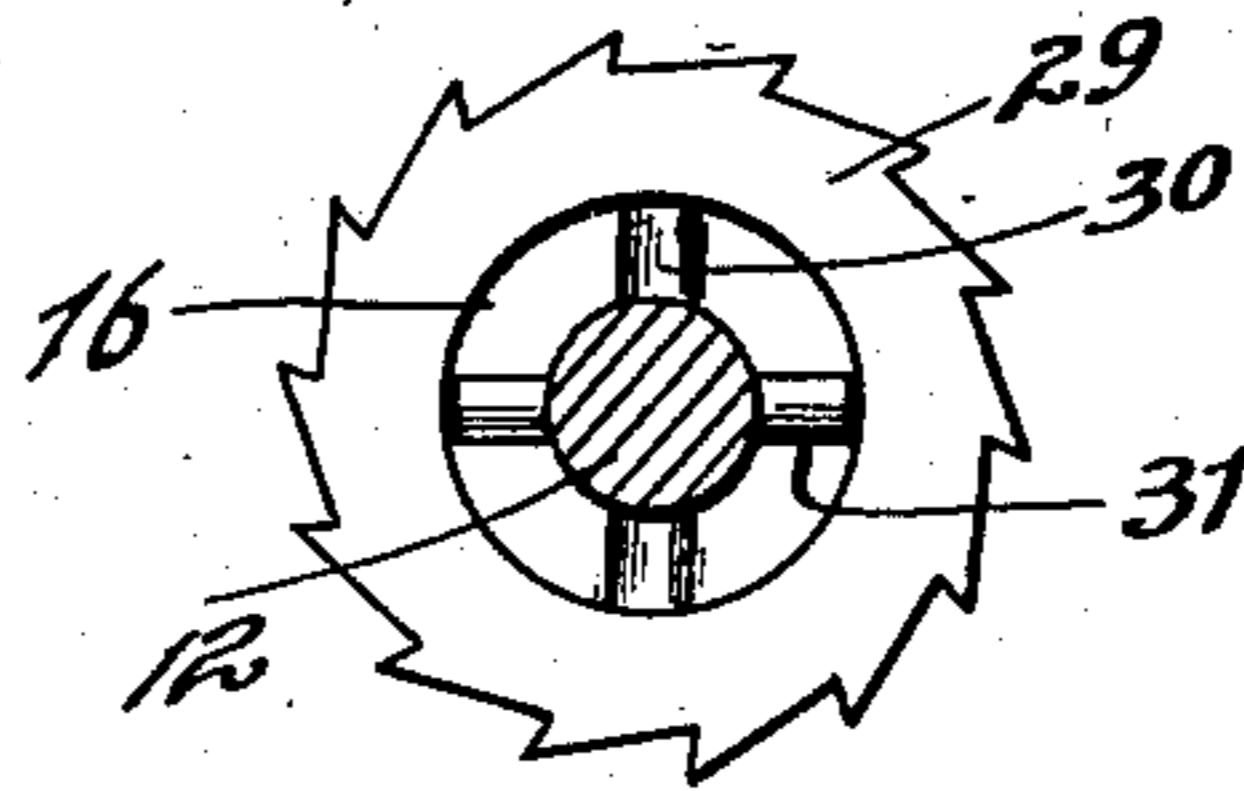
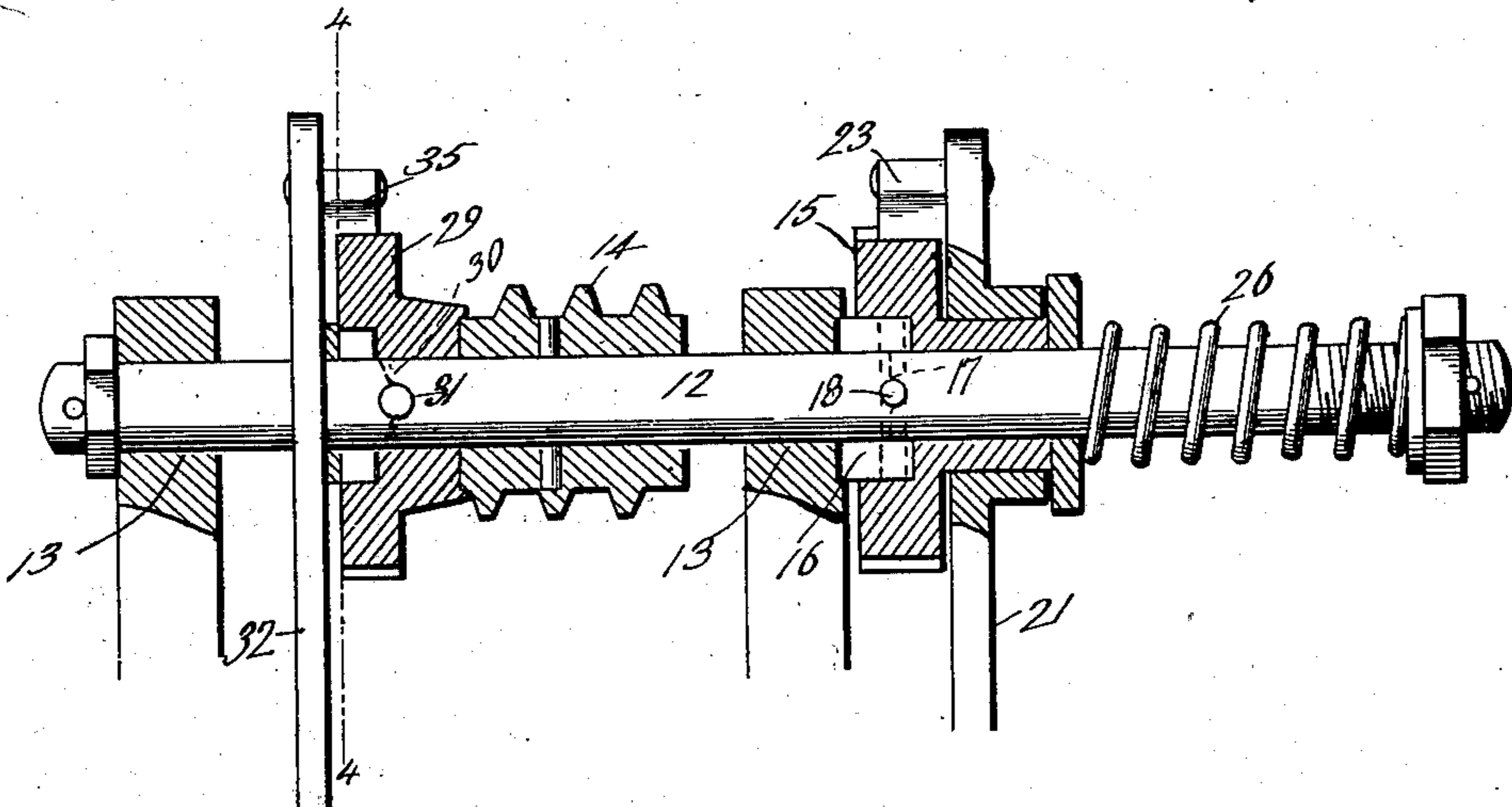


Fig. 3.



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UNITED STATES PATENT OFFICE

OLE O. KITTLESON, OF LEE, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 661,612, dated November 13, 1900.

Application filed June 2, 1900. Serial No. 18,845. (No model.)

To all whom it may concern:

Be it known that I, OLE O. KITTLESON, a citizen of the United States, residing at Lee, in the county of Lee and State of Illinois, have invented a new and useful Lubricator, of which the following is a specification.

My invention is an improved lubricator of that class wherein the lubricant is located within a cylinder and is forced gradually therefrom by means of an automatically-driven piston, the object of my invention being to provide improved means whereby the reciprocating movement of the piston is automatically stopped when it reaches the limit of its working stroke and when the pressure of the piston becomes so great as to endanger the parts of the lubricator and its connections, hence avoiding breakage of the same.

My invention consists in the peculiar construction and combination of devices hereinafter fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical sectional view of a lubricator embodying my improvements. Fig. 2 is a top plan view of the same. Fig. 3 is a detail view taken on the line 3 3 of Fig. 2. Fig. 4 is a detail transverse sectional view taken on the line 4 4 of Fig. 3.

The cylinder 1, in which the oil or other lubricant is placed, is provided with a vertically-extending yoke 2, which rises from one side thereof and extends transversely across the upper end of the cylinder at a suitable distance above the same and is connected to the cylinder by a guide-rod 3. The piston or plunger 4, which operates in the cylinder, is provided with a removable head 5 at its upper end, and suitable packing 6 is employed between the inner side of the cylinder and the exterior of the piston or plunger, as shown.

A screw-shaft 7 extends through a threaded opening in the center of the piston-head. The said screw-shaft extends upwardly through a bushing 8, which is revoluble in an opening in the yoke 2, as shown, the said screw-shaft being provided with a flange 9, which bears against the lower side of the bushing and being secured to the bushing by a cross-pin 10. A worm gear-wheel 11 is secured to the upper portion of the screw-shaft 7 above the yoke 2.

A transversely-disposed shaft 12 is journaled and movable lengthwise in suitable bearings 13, with which the yoke 2 is provided. On the said shaft is a worm 14, which engages one side of the worm-gear 11, and loose on the said shaft is a ratchet-wheel 15, which is provided with a recess or counter-sink 16 on its outer side, in the face of which are radially-disposed notches 17, which are open on their outer sides. The shaft 12 is provided with projecting studs 18, which may be formed by inserting a pin through a transverse opening in the said shaft and allowing the ends of said pin to project beyond opposite sides of the shaft, as here shown; but said studs may be formed in any other suitable manner. The said studs are adapted to engage the open notches 17 and lie therein, and thereby lock the ratchet-wheel to the shaft 12. It will be understood by reference to Figs. 2 and 3 of the drawings that the said studs, owing to the shape thereof and the shape of the sides of the notches 17, will slip and become disengaged from the said notches under certain conditions hereinafter described.

A lever 21 is fulcrumed at a suitable distance from its upper end on the shaft 12 and is connected, by means of a pitman, (indicated at 22,) to a crank or eccentric on the engine or machine in connection with which the lubricator is used, and the said lever 21, while the engine or machine is in operation, is caused to constantly rock or oscillate on the shaft 12. The said rocking lever carries at its upper end a pawl 23, which engages the upper side of the ratchet-wheel 15, and hence while the said lever is caused to rock by the means hereinbefore described the same and its pawl 23 by rotating the ratchet-wheel cause the shaft 12 and worm 14 to revolve slowly and through the worm-gear and screw-shaft depress the piston or plunger in the cylinder 1, and hence compress the lubricant therein and cause the same to be fed therefrom. When the piston reaches the downward limit of its stroke, and hence offers increased resistance to the rotation of the worm-gear and worm, the shaft will move endwise a slight distance against the tension of the spring 26 and slip the studs 17 from the open notches 18, thereby disengaging the shaft

from the ratchet-wheel 15. Hence the continued oscillation of the lever 21 imparts no further rotatory motion to the train of gears, and all danger of breaking any of the parts of the lubricator or its connections is avoided. The spring (indicated at 26) is employed for the purpose of reengaging the studs 17 with the notches in the ratchet-wheel at one limit of each stroke of the said lever 21, and thereby again start the piston in operation if the latter has been arrested in its downward movement by the pressure thereof on the lubricant before the piston reaches the lower limit of its movement.

It will be understood from the foregoing that whenever the resistance to the descent of the piston becomes so great as to seriously retard the rotation of the train of gears which actuate the piston, whether this resistance arise from the pressure of the piston on the lubricant or by the fact that the piston has reached the lower limit of its stroke, the studs 17 will disengage the open notches of the ratchet-wheel, as before stated, thereby unclutching and disconnecting the ratchet-wheel operatively from the oscillating lever, hence permitting the continued oscillation of the lever under the impulse of the engine or machine, while disconnecting the action of the piston in the cylinder on the lubricator until the resistance to the operation of the piston is removed.

An arm 28, which projects from the piston-head, engages and slides on the guide-rod 3 to prevent the said piston-head from rotating with the screw-shaft. A ratchet-wheel 29 is also loose on the shaft 12 and has open notches 30, which are adapted to be engaged by studs 31 to lock said ratchet-wheel to the said shaft.

A spring-bar 32 is secured to the standard 2, as at 33 34, and has an opening near its upper end, through which the shaft 12 passes. A pawl 35, carried by the said spring-bar, by engagement with the ratchet-wheel 29 prevents reverse rotation of the shaft 12, and hence contributes to the rotation of the latter in the required direction by the means hereinbefore described. The spring-bar 32 coöperates with the spring 26 to keep the studs of the shaft normally in engagement with the open notches of the ratchet-wheels.

My improved lubricator is specially adapted to feed oil properly and regularly under heavy steam-pressure to the valves of a high-pressure steam-engine working at a pressure of

from one hundred and fifty to two hundred and fifty pounds.

By means of the nut 36, screwed on the shaft 12, the tension of the spring 26 may be regulated so as to predetermine the pressure in the cylinder 1, at which the downward movement of the piston 4 shall be arrested by the endwise movement of the shaft 12, hereinbefore described. Hence my lubricator may be so adjusted as to automatically discontinue the operation of its piston at any desired pressure before the piston reaches the bottom of the cylinder.

Having thus described my invention, I claim—

1. In a lubricator, the combination with a piston, a screw-shaft to actuate the same, a worm-gear on said screw-shaft, an endwise-movable shaft having projecting studs, a worm on said shaft, a ratchet-wheel loose on said shaft, said worm engaging the worm-gear and said ratchet-wheel having open notches in its outer side to receive said studs, of an oscillating lever having a pawl to engage the ratchet-wheel, means to prevent reverse rotation of said shaft, a tension-spring on said endwise-movable shaft and means to regulate the tension of said spring for the purpose set forth, substantially as described.

2. In a lubricator, the combination with a piston, a screw-shaft to actuate the same and a worm-gear on said screw-shaft, of an endwise-movable shaft having projecting studs, a worm fast on said shaft and engaging the said worm-gear, a ratchet-wheel loose on said shaft and having open notches in its outer side adapted to receive the said studs, a spring bearing on said shaft and normally retaining said studs in engagement with said notches, an oscillating lever having a pawl to engage the ratchet-wheel, a ratchet-wheel 29 on the said endwise-movable shaft and having open notches on its outer side to engage studs with which said shaft is provided, a spring-bar bearing against the outer side of said ratchet-wheel 29, and a pawl on said spring-bar engaging said ratchet-wheel 29, substantially as described.

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

OLE O. KITTLESON.

Witnesses:

THOS. NELSON,
S. M. MOAKESTAD.