No. 706,570. Patented Aug. 12, 1902.

O. G. KIPP.

LUBRICATOR.

(Application filed Apr. 15, 1901.)

(No Model.)

Fig. 1.

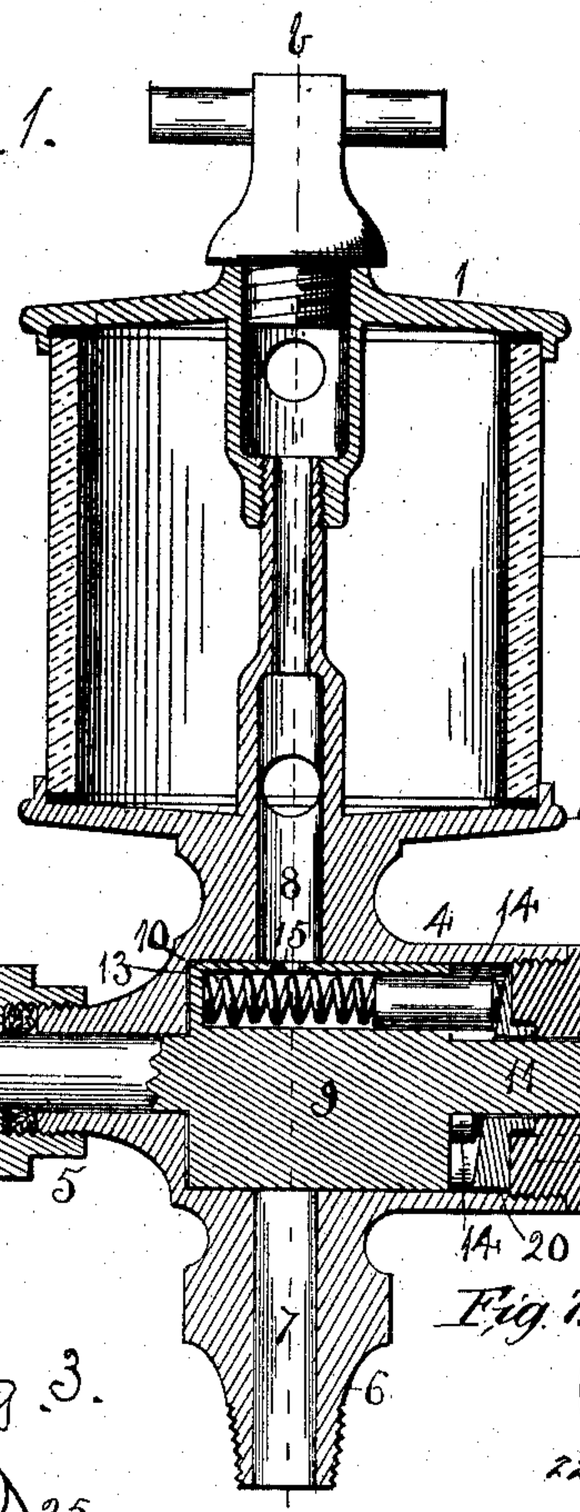


Fig. 2.

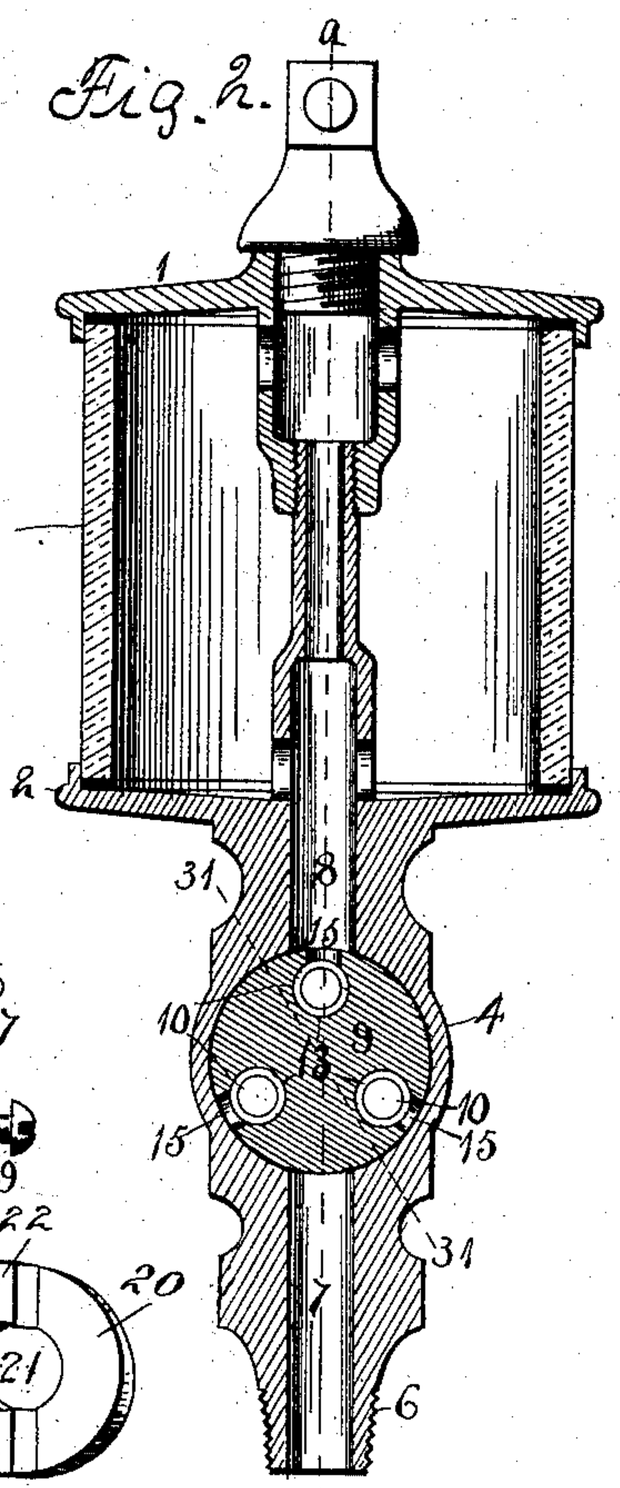


Fig. 3.

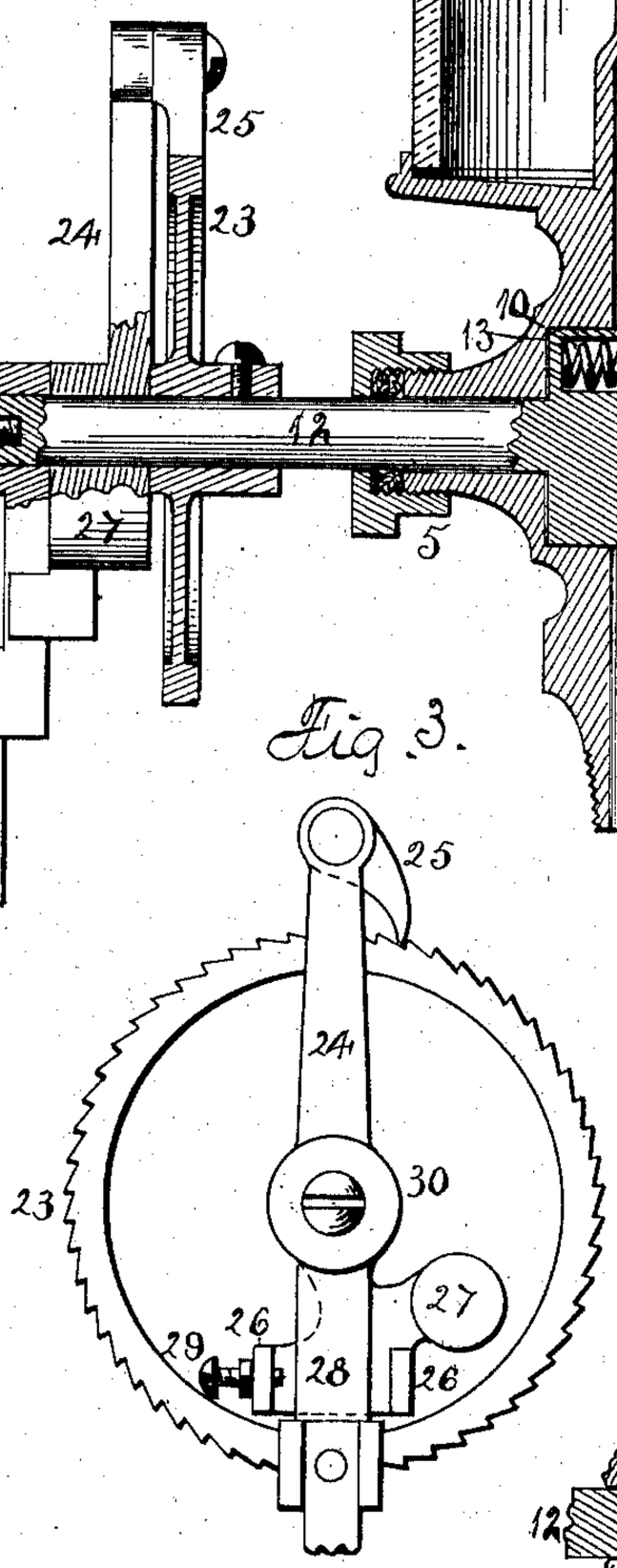


Fig. 7.

Fig. 6.

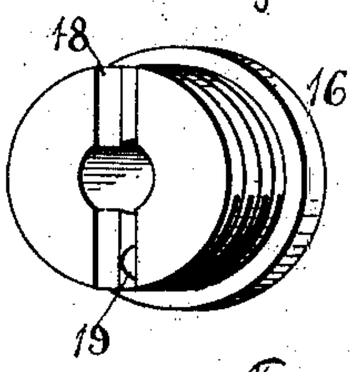


Fig. 4.

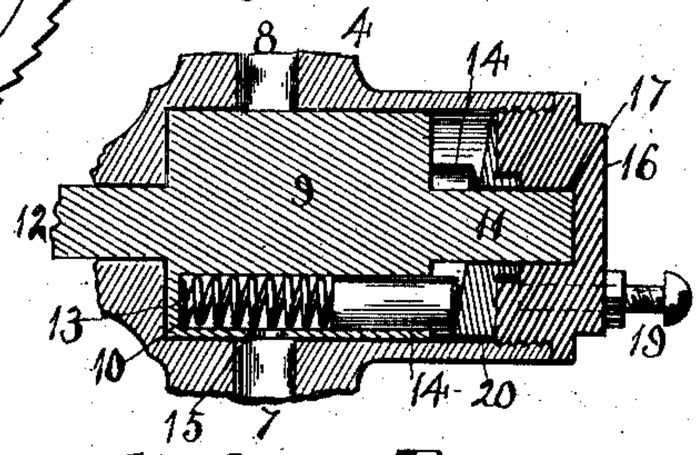


Fig. 5.

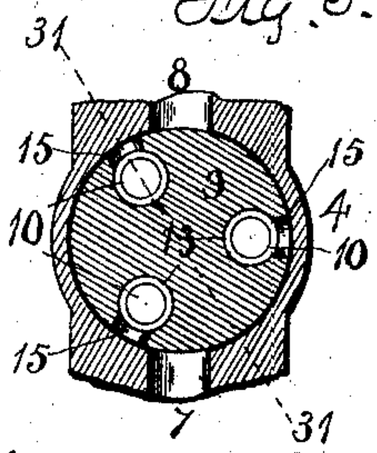
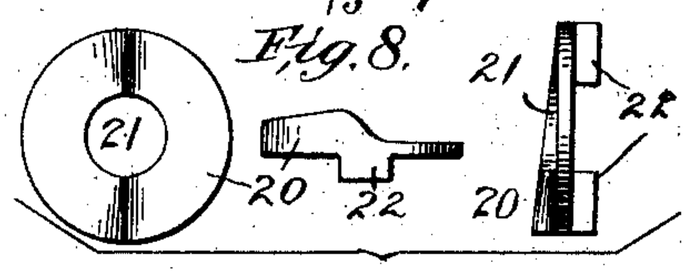


Fig. 8.



Witnesses:
I Sovereign
E. Behel.

Inventor:
Oliver G. Kipp
By A. O. Behel
Atty.

UNITED STATES PATENT OFFICE.

OLIVER G. KIPP, OF ROCHELLE, ILLINOIS.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 706,570, dated August 12, 1902.

Application filed April 15, 1901. Serial No. 55,981. (No model.)

To all whom it may concern:

Be it known that I, OLIVER G. KIPP, a citizen of the United States, residing at Rochelle, in the county of Ogle and State of Illinois, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

The object of this invention is to construct a lubricator for explosive-engines in which a positive feed is secured and which is operated by the engine.

In the accompanying drawings, Figure 1 is a vertical section taken through the complete lubricator on dotted line *a*, Fig. 2. Fig. 2 is a vertical section on dotted line *b*, Fig. 1. Fig. 3 is an elevation showing the pawl-and-ratchet feed mechanism. Fig. 4 is a vertical section showing one of the plungers in the act of discharging oil into the duct leading to the engine. Fig. 5 is a transverse vertical section showing the position of the parts when the upper plunger is fully extended. Fig. 6 is an isometrical representation of the plug. Fig. 7 is an isometrical representation of the cam. Fig. 8 shows different views of the cam.

An oil-reservoir employed in connection with my improvements is of the usual construction, having the end caps 1 and 2 connected by a glass 3. Below the end cap 2 and connected therewith extends a cylinder 4, having its open end screw-threaded and its other end having a horizontal opening and provided with a stuffing-box 5. From the cylinder extends a screw-threaded extension 6, having a vertical opening 7, communicating with the cylinder, and a vertical opening 8 connects the cylinder with the oil-reservoir. A cylindrical head 9 is located within the cylinder and is provided with three lengthwise pockets 10. From one end of this cylinder-head extends a guide 11, and from its other end extends a shaft 12, passing through the stuffing-box 5. Within each pocket is located a spiral spring 13 and a plunger 14, and an opening 15 extends from the pocket in line with the vertical openings 7 and 8, extending from the cylinder. Within the screw-threaded open end of the cylinder is inserted a plug 16, having a socket 17, receiving the projection 11 of the head 9, located within the cylinder. A radial groove 18 is formed in the inner face of the plug, and an adjusting-screw 19 is supported by the plug and projects into the radial groove. A cam 20 has a central opening 21, and from its rear face extends a projection 22, adapted to fit within the radial groove 18 of the plug 16, and its central opening receives the projection 11, extending from the head located within the cylinder.

An intermittent rotary movement is imparted to the shaft 12, and the means for imparting such movement consists of the saw-toothed wheel 23, secured to the shaft. An arm 24 is loosely mounted on the shaft and supports a dog 25 at its upper end. From the lower end of this arm extend two projections 26 and a weight 27. An arm 28 is loosely mounted on the shaft and is located between the projections 26 of the arm 24, and this arm has a connection with some moving part of the engine in a manner to oscillate it. An adjusting-screw 29 has a connection with one of the projections 26. A washer and screw 30 hold the arms 24 and 28 from lengthwise movement on the shaft, but permitting their oscillatory movement. As the arm 28 is oscillated by the engine it will alternately engage one of the projections 26 and the adjusting-screw 29 of the arm 24, thereby imparting movement to this arm, and cause the dog 25 to engage the teeth of the wheel 23 and move the wheel, and by means of the screw 29 the movement imparted to the arm 24 can be varied, so that the dog will engage one tooth or a greater number of teeth, and the weight 27 will keep the dog in engagement with a tooth after the arm 28 has been removed from its engagement with the set-screw. As the shaft 12 is intermittently rotated the head 9 will be likewise rotated and the plungers 14 will be forced in against the action of their springs during a portion of a revolution of the head by the incline of the cam, and the springs will force the plungers out as they revolve another portion of a revolution of the heads. The upper portion of the cam is the thinnest, and the dotted line 31 shows the thickest and thinnest portion of the cam. During the upward portion of the movement of the plungers—that is, from the thickest portion of the wedge-shaped block to the thin-

nest portion thereof—the springs will force the plungers out, thereby creating a vacuum within the pockets in the space occupied by the springs, and when the openings 15 of the pockets enter the vertical opening 8 connecting with the oil-reservoir a communication will be formed between the pocket and oil-reservoir and oil from the reservoir will be drawn into the pocket and will continue to be drawn in until the opening of the pocket has passed out of communication with the opening leading from the oil-reservoir. In the downward portion of the movement of the plunger it will be forced in until the opening of the pocket has passed the opening leading to the engine-cylinder, and the oil within the pocket will be expelled therefrom during the time the opening of the pocket is in communication with the opening leading to the engine. By locating the thickest and thinnest portion of the cam on the dotted lines 31 the pocket will continue to draw in oil until its opening has passed out of communication with the opening leading from the oil-cup and continue to force oil out of the pocket until its opening has passed out of communication with the opening leading to the engine.

In the drawings I have shown three plungers; but it is evident that more or less can be used without departing from the scope of my invention.

By means of the screw 19 the thickest portion of the cam 20 can be moved so as to force the plungers in a greater extent, thereby expelling a greater quantity of oil and creating a greater vacuum which will receive a greater quantity of oil from the oil-reservoir. The opening in the cam 20 is somewhat larger than the shaft which supports it, which allows a wabbling movement of the cam.

I claim as my invention—

1. The combination of an oil-reservoir, an outlet-passage leading from the reservoir, a cylindrical opening having a communication with the outlet-passage, a discharge-opening leading from the cylindrical opening, a cap for the cylindrical opening, a head located within the cylindrical opening having a shaft extension, means for imparting an intermittent rotary movement to the shaft, the head having a series of lengthwise chambers each having an opening through the periphery of the head, each chamber having a plunger, a spring for each plunger moving it in one direction and a cam moving the plungers in the opposite direction.

2. The combination of an oil-reservoir, an outlet-passage leading from the reservoir, a cylindrical opening having a communication with the outlet-passage, a discharge-opening leading from the cylindrical opening, a cap for the cylindrical opening, a head located within the cylindrical opening having a shaft extension, means for imparting an intermittent rotary movement to the shaft, the head having a series of lengthwise chambers each having an opening through the periphery of the head, each chamber having a plunger, a spring for each plunger moving it in one direction and a cam moving the plungers in the opposite direction, the cam being adjustable.

OLIVER G. KIPP.

Witnesses:
A. O. BEHEL,
E. BEHEL.