

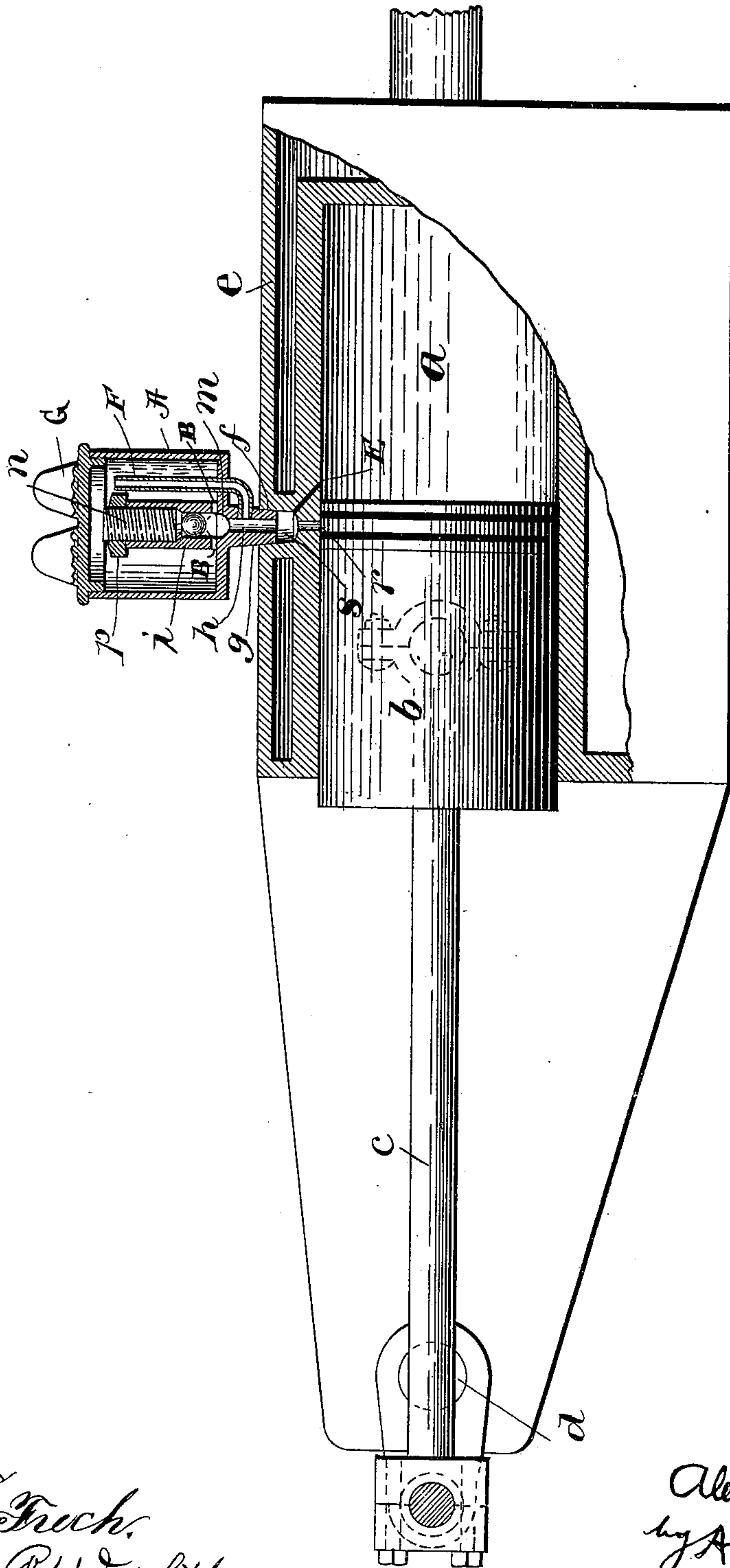
No. 635,217.

Patented Oct. 17, 1899.

A. WINTON.
PISTON LUBRICATOR.

(Application filed June 7, 1898.)

(No Model.)



Witnesses
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UNITED STATES PATENT OFFICE.

ALEXANDER WINTON, OF CLEVELAND, OHIO.

PISTON-LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 635,217, dated October 17, 1899.

Application filed June 7, 1899. Serial No. 719,713. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WINTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Piston-Lubricators, of which the following is a specification.

My invention relates to improvements in piston-lubricators, and pertains to a lubricator which is especially adapted for use in connection with an explosive-engine.

The object of my invention is to provide a mechanism actuated by the pressure of the gas in the explosive cylinder or chamber when the piston has reached the outward limit of its stroke whereby a predetermined quantity of oil is fed to the piston at each stroke thereof.

The accompanying drawing represents a longitudinal sectional view of an engine with my invention applied thereto.

In the accompanying drawing, *a* indicates the cylinder, *b* the piston, *c* the pitman, and *d* the crank-shaft, all of which may be of the usual construction. Surrounding the cylinder *a* is the usual water-jacket *e*, and formed in the outer surface of the cylinder *a* and passing through the water-jacket is a cavity or recess *f*, which receives the nipple *g* of an oil cup or chamber A. The nipple *g* is provided with a longitudinal bore or opening *h*, which is in communication at its inner end with the inner end of the cavity or recess *f*, and at its upper end is in communication with an upwardly-projecting tube *i*, extending within the cup or chamber A. Situated within this tube and normally registering in the upper end of the bore or opening *h* of the nipple is a ball-valve *m*, the upper end of the said bore being constructed to form a seat for the said ball and the tube *i* being constructed at its lower portion sufficiently large to permit the upward movement therein of the said ball-valve. The upper end of this tube *i* is screw-threaded to receive a screw-threaded rod *n*, which will limit the upward movement of the ball within the tube, for a purpose to be hereinafter explained, and by which the amount of upward movement of the ball can be regulated. A lock-nut *p* surrounds the upper projecting end of the screw-threaded rod *n* and forms a locking-nipple therefor.

Extended within the oil cup or chamber A and having its open upper end adjacent the upper end of the cup or chamber is a tube F, the lower end of which communicates with the nipple bore or opening *h* at a point below the ball-valve.

The cavity *f* communicates at its lower end with the interior of the cylinder *a* through the medium of an opening *r*, which opening is always covered by the engine-piston. Passing through the cylinder and communicating therewith at a point between the opening *r* and the explosion end of the cylinder *a* is a passage E, which has its outer end also in communication with the lower end of the cavity *f*, and consequently in communication with the nipple-bore *h*. It will be noted that the lower end of the nipple does not extend to the lower end of the cavity *f*, which forms a chamber *s* at a point below the end of the nipple, and with this chamber the upper ends of the passages *r* and E communicate.

The chamber or cup A is closed by means of a cover G for the purpose of making it practically air-tight.

In operation a predetermined quantity of oil is fed through the passage-ways B, made in the lower end of the tube *i*, within the said nipple-bore, and thence to the engine-piston through the opening or passage-way *r*. This operation is accomplished by the pressure of the gas within the explosion-chamber when the piston has about reached the outer limit of its stroke, as illustrated in the accompanying drawing, which uncovers the inner end of the passage E, and the pressure of the gases within the chamber passes through the said passage E to the nipple-bore *h*, lifting the ball-valve and also passing through the tube F to cause an equilibrium upon the oil, and thus cause it to pass through the openings B into the nipple-bore while the ball is elevated, so that as soon as the passage-way E is closed by the inward movement of the piston the ball-valve descends and closes the upper end of the nipple-bore *h* and prevents further passage of oil from the cup or chamber A, but permits that portion of the oil which has passed within the nipple-bore to feed to the piston *b*. In this way each time the passage E is uncovered by the outward movement of the piston the pressure of the gases

automatically causes the lifting of the ball-valve and an equilibrium of the pressure of the oil within the cup, and thereby automatically feeding a predetermined quantity of oil to the piston at each movement thereof, the amount of oil being fed being regulated by the amount of upward movement given to the said ball-valve, as will be readily understood. This upward movement is regulated, as before stated, by the adjustable member or screw-threaded rod *n* within the tube *i*. This arrangement is found to be very effective in properly furnishing a lubricant to the piston and to prevent an oversupply of oil thereto.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A lubricating device comprising a cylinder, an oil cup or chamber, an oil passage-way in communication at its upper end with the lower portion of the chamber and at its lower end with the engine-cylinder, a valve adapted to open and close the upper end of said passage-way, a pressure passage-way having its upper end in communication with the upper portion of the chamber, and its lower end in communication with the oil passage-way at a point below the said valve, and a passage-way *E* in communication at one end with the cylinder at a point in advance of the oil passage-way and in communication at its upper end with the oil passage-way, substantially as described.

2. A lubricating device comprising a cylinder, an oil cup or chamber, an oil passage-way in communication at its upper end with the lower portion of the chamber and at its lower end with the engine-cylinder, a valve adapted to close and open the upper end of said passage-way, a tube having its upper end in communication with the upper portion of the chamber, its lower end in communication with said passage-way, and a passage *E* in communication at one end with the cylinder at a point in advance of the oil passage-way and in communication at its upper end with the oil passage-way, substantially as described.

3. A lubricating device comprising a cylinder, having an oil passage-way through one side thereof and at a point about at the outward limit movement of the piston, a piston therein, a closed oil-chamber in communication with said opening, a valve for said com-

munication, a pipe having its upper end in communication with the upper end of the oil-chamber and at its lower end with the said communication at a point below the said valve, and a passage-way in the cylinder having its inner end in communication therewith at a point inside of the outward limit of movement of the piston and its upper end in communication with said cylinder-opening, the parts adapted to operate as described.

4. A lubricating device comprising an engine-cylinder, a piston therein, a closed oil-chamber, a communication between the said oil-chamber and the interior of the cylinder at a point outside of the outward limit of movement of the piston, a passage *E* having its inner end in communication with the cylinder at a point inside of the outward limit of the said piston and its upper end in communication with said oil-cup communication, a ball-valve adapted to close the upper end of said communication, and a vertically-projecting tube within the oil-chamber and inclosing the said ball-valve, substantially as described.

5. A lubricating device comprising a cylinder, a piston therein, an oil cup or chamber, a communication with the interior of the cylinder at a point outside of the outward limit of movement of the said piston and with the interior of the said oil cup or chamber, a passage-way having communication with the cylinder at a point inside of the outward limit of movement of the piston and at its upper end with the said communication, a ball-valve adapted to close the upper end of the said communication, a vertically-disposed tube having oil passage-ways and inclosing the said ball-valve, and a vertically-adjustable member within the tube for regulating the upward movement of the ball-valve, and a pipe *F* having communication at its upper end with the upper portion of the oil chamber or cup and at its lower end with the communication at a point below the ball-valve, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALEXANDER WINTON.

Witnesses:

GEO. H. BROWN,
LYMAN H. REED.