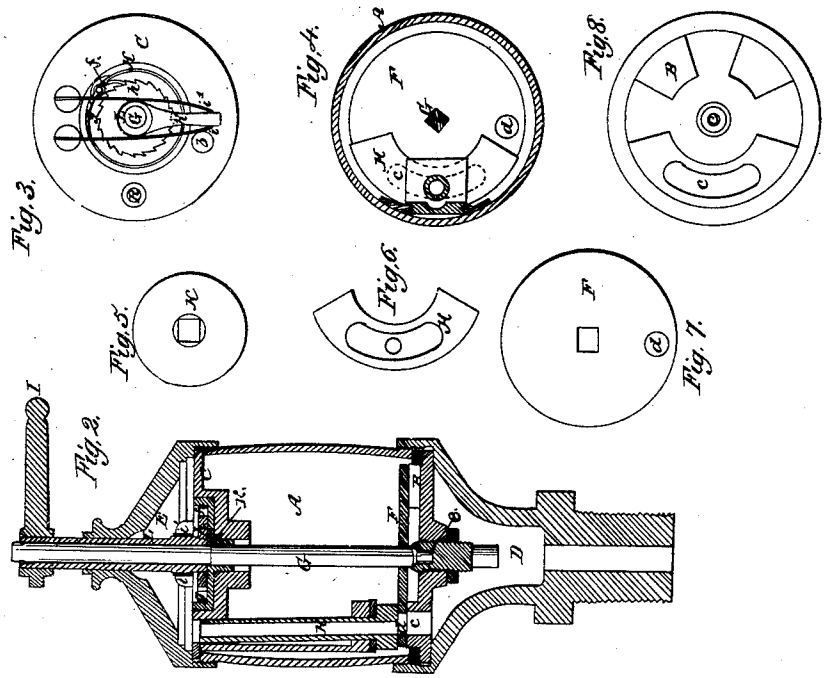
P. G. BROWN.

LUBRICATOR.

No. 23,661. Patented Apr. 19, 1859.



Witnesses.

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PETER G. BROWN, OF SCHENECTADY, NEW YORK.

LUBRICATOR.

Specification of Letters Patent No. 23,661, dated April 19, 1859.

To all whom it may concern:

Be it known that I, PETER GRANT BROWN, of the city and county of Schenectady and State of New York, have invented a certain new and useful Improvement in Lubricators, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 represents a side view of a lubricator constructed according to my improvement; Fig. 2 a vertical section thereof; Fig. 3 a plan of the top with the cap removed; Fig. 4 a horizontal section through the cup part or reservoir; and Figs. 5, 6, 7, and 8, views of certain portions, as hereinafter referred to, detached.

My improvement relates to oil-cups or lubricators for greasing the bearings of shafts and other running or working parts of machinery, in which it is desired to discharge the lubricating material from the oil cup on to the part or parts to be greased at regular or irregular intervals and in any given quantity or quantities. Such lubricators necessarily employ a valve or its equivalent, and these valves have been variously constructed and arranged to effect the discharge, some being in direct, and others in indirect communication, at intervals, with the reservoir, and passing off the oil in various ways to the discharge.

Again, some lubricators have had in connection with them means for giving an artificial increased pressure on the oil to be discharged, to insure its free delivery; and others have been constructed to give a slow discharge by producing a partial vacuum on the surface of the oil in the cup.

Most or all of these previous arrangements are defective in certain respects, and, as will be seen from the following description by those conversant with such contrivances, essentially or importantly differ from the present improvement.

The portion marked A, in the accompanying drawing, represents the oil reservoir, provided with top and bottom plates, B, C, lower discharging stem D, and top covering or cap E, through which latter the oil may be introduced to the reservoir by an aperture, *a*, and corresponding aperture, *b*, in the top plate C.

The bottom plate, B, has a curved oblong or other suitably shaped aperture, *c*, in it, in communication with the interior of the discharging stem, D.

F, is a valve, here shown of disk form, with a hole, *d*, through it, at such a distance from its center as in the transverse of the valve, said hole will pass over the opening, *c*, in the bottom plate B, the valve being arranged to lie on and travel over said bottom plate.

G, is the valve shaft working in a socket, *e*, at bottom, and projecting up through the reservoir, top plate, and cap.

H, is an air chamber or tube, arranged to lie on top of the valve over the aperture, *c*, in the bottom plate B, and projecting upward through the oil in the reservoir so as to be in communication with the air outside of or above the oil, say with the air space of the cap E. Said air chamber (H) may be hung so as to press down upon the valve by its weight, or it may be forced down by a spring into close contact therewith.

Now, supposing the valve, F, to be in such position in or in relation to the reservoir, A, as that the aperture, *d*, in the valve is out of communication with the air chamber H and discharge aperture, *c;* said hole, *d*, will receive and become charged with oil from the reservoir; and on the valve being moved, reciprocated or turned so as to cause its aperture, *d*, to come under cover of or in communication with the air chamber H and discharge aperture, *c*, the drop or portion of oil contained in the aperture, *d*, of the valve will be detached and discharged or distributed through the opening, *c*, down into the stem, or otherwise, to the journal or part to be lubricated; and on the valve being moved so as to pass its aperture, *d*, out of communication with the discharge and into communication with the oil in the reservoir, it will become again charged to repeat the supply to the journal when brought again in connection with the discharge. It is in connection with such action that the air chamber, H, performs an important part. It may, as it does here, act as a "striker" or

cut-off to limit the amount discharged by the valve each time to the quantity contained in the valve aperture, *d;* but, its prominent function is, to insure a free end direct, or good atmospheric pressure on or above the "drop" of oil in the aperture, *d*, when the same is conveyed or being conveyed over the discharge aperture, *c*, by the movement of the valve. This direct pressure on the "drop," or pressure of the atmosphere on it when separated from the main body of oil in the cup, lessens the tendency of the "drop" to hang and insures its discharge or distribution at the proper time and place. The receiving aperture, *d*, in the valve may be of any suitable size not less than will make the oil therein form a drop capable of relieving itself under the circumstances named as regards atmospheric pressure.

The same action may be carried out under various forms, which it is not necessary here to specify at length, including difference in the shape of the cup, its valve, air chamber, or discharge, or in the arrangement of the same. The action of the valve may be reciprocating, or revolving, or intermittent-revolving; and, as I design such lubricator, in its general application, to be automatic in its action and to be set in motion by or in connection with the machinery which it serves to lubricate, so as to discharge oil at regular or irregular intervals as required,—automatic lubricators of different kinds being common,—I prefer to adopt an intermittent-revolving motion to the valve which governs the discharge from the cup, by employing such an arrangement of mechanical means as that, on an operating lever, I, or its equivalent, connected with the lubricator, being struck and moved intermittently, either in the same direction or in opposite directions, by any suitable stop attached to the machinery in motion, the valve itself will only be caused to move in the one direction, so as to avoid interference with the timely discharging action of the lubricator on the motion of the machinery being reversed or from any other cause. The means for accomplishing this may be varied, but the following will suffice to explain.

Secured to or on a square portion of the valve shaft, G, so as to turn with it, is a flange socket, K, arranged to sit in a recessed bearing in the top plate, C. This flange socket (K) has pivoted to it a dog, *f*, acted on by a spring, *g*, and made to bite into a ratchet, *h*, which is fast, to a sleeve, L, that fits and turns on the upper or rounded portion of the valve shaft, G, and that carries the operating lever, I, of the lubricator. Attached to this sleeve, L, is also an arm, h^1; braced or acted on at either side by springs, *i*, i^1, which are secured to the top plate C.

Now, supposing the traveling stop of the machinery, that serves to actuate the lubricator, be moving so as in its course to strike and move the lever, I, to the left, and with it the sleeve, L, and ratchet, *h*, a given number of teeth; the spring, *i*, will be moved or acted upon so that, on the stop freeing itself from contact with the lever, I, said spring (*i*) will throw the arm, h^1, and ratchet, *h*, back to their normal position, and the ratchet, *h*, thus moving back, will act upon the dog, *f*, and flange-socket, K, which latter being fast to the valve shaft, G, gives a corresponding motion to and turns the valve, F, a given distance.

On the contrary, supposing the traveling stop to act upon the lever, I, so as to move it to the right, then, the ratchet, *h*, being set in motion by such action, will, through the dog, *f*, and flange socket, K, move the valve, F, in the same direction as before, for another given distance, and on the stop freeing itself from contact with the lever, I, the spring, i^1, acting on the arm, h^1, will throw the ratchet back to its original position, and with it the operating arm, I, which, by means of the springs *i*, i^2 is thus kept or returned to one and the same position to insure its uniform action by the traveling stop. Thus, the aperture, *d*, in the valve, F, having been passed over the discharge, will not be filled again and returned to the discharge, other than in its due course, by any reversal in the motion of the device which actuates the lever, I.

To govern the frequency of discharge, the arm, I, may be made to contract or expand, or the stop which operates it be constructed to set in or out, so as to give more or less motion, each intermittent action, to the valve, and so cause it to be a longer or shorter time in bringing its aperture around to the discharge. Instead of the valve moving, it might be stationary and the cup with its air chamber be set in motion, to produce a like effect; which arrangement could only be regarded as equivalent. Also, where the lubricator is attached to a traveling portion of the machinery so as to move along with it, instead of the operating lever, I being struck by a traveling stop, it may be set in motion by coming in contact with a stationary stop.

I claim—

1. The combination of the reservoir, A, provided with a discharging aperture, *c;* valve, F, having a receiving aperture, *d*, in it; and air chamber, H; or the equivalents thereof; when said air chamber is arranged to control or assist the discharge substantially as specified.

2. I likewise claim giving to the valve, constructed and arranged as above described which conveys the oil from the reservoir to the discharging aperture, an intermittent revolving motion in one and the same direction for and by the action of the handle, I, or its equivalent, in either direction of the travel of the latter, or in reverse directions thereof, essentially as herein set forth.

In testimony whereof, I have hereunto subscribed my name.

PETER G. BROWN.

Witnesses:

J. F. CALLAN,

A. GREGORY.