(No Model.)

J. POWELL.

LUBRICATOR.

No. 326,517. Patented Sept. 15, 1885.

FIG. 1.

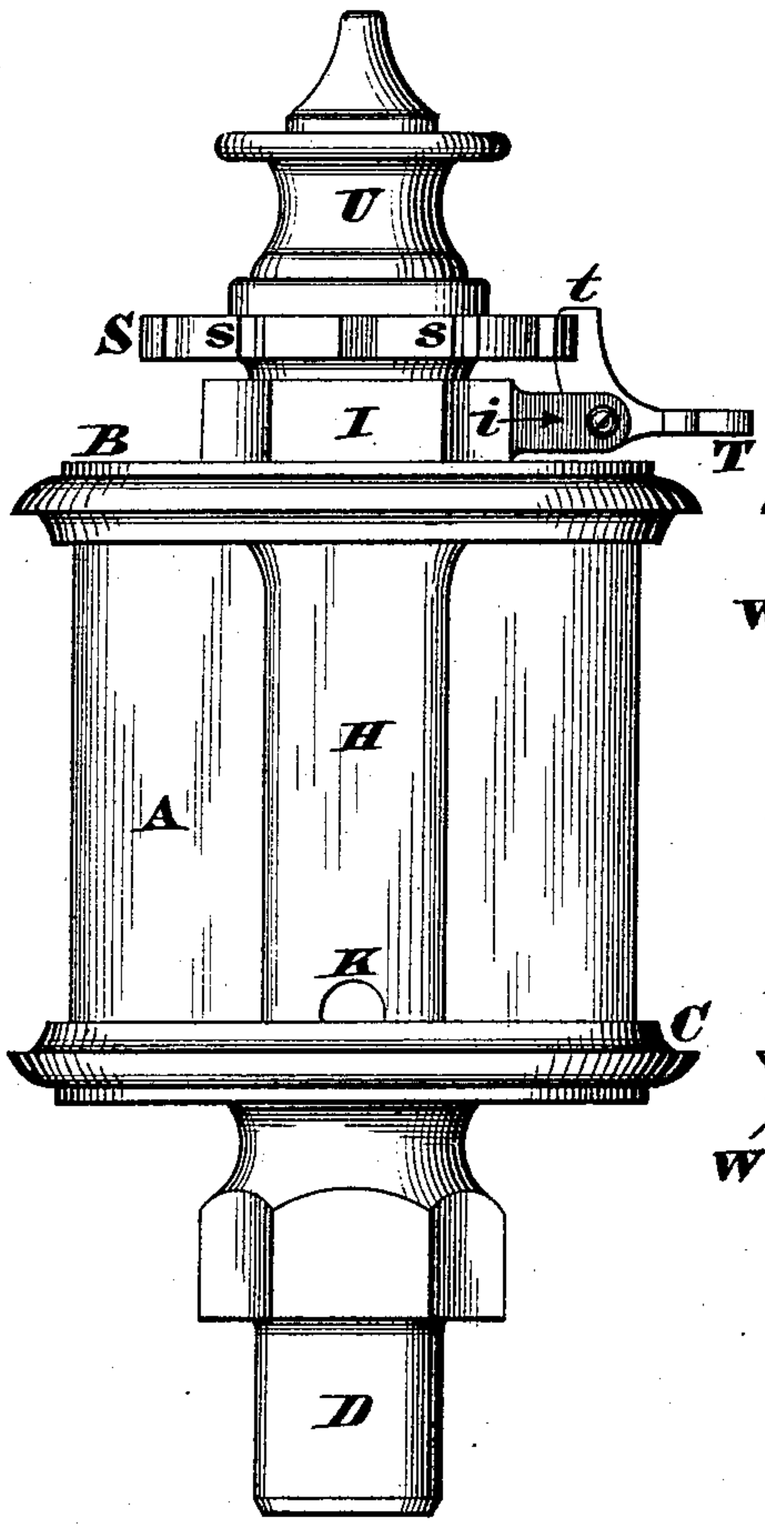


FIG. 2.

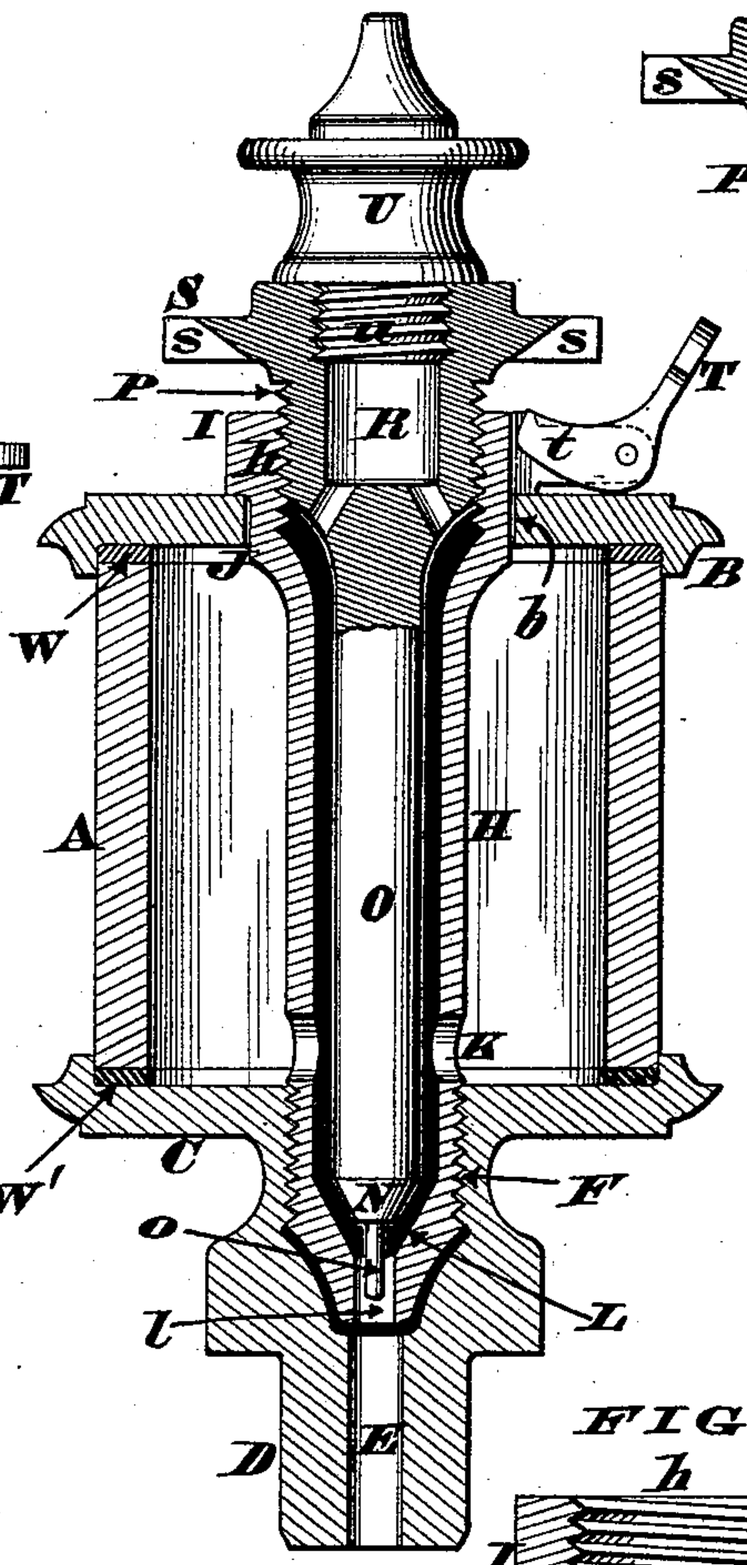


FIG. 4.

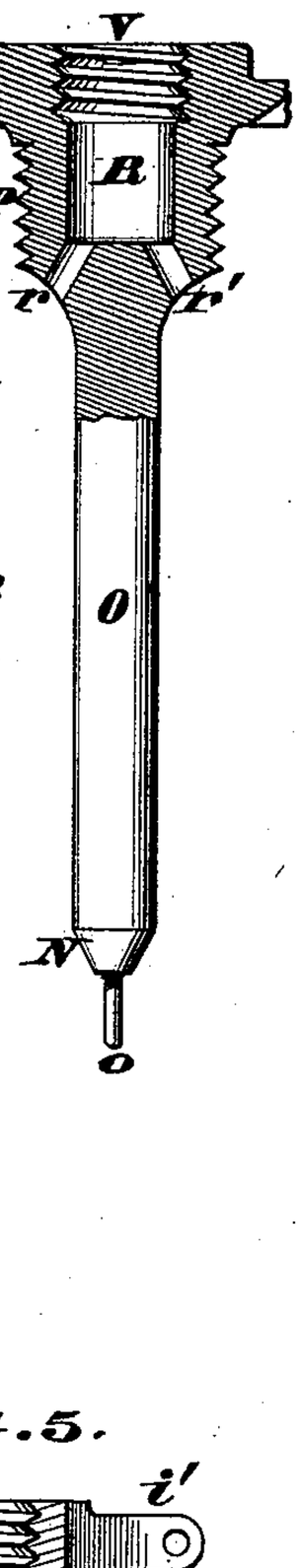


FIG. 5.

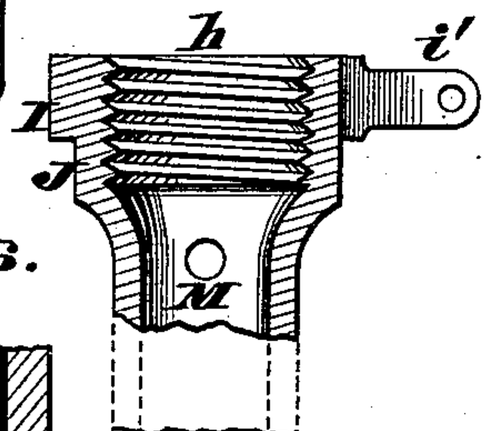


FIG. 3.

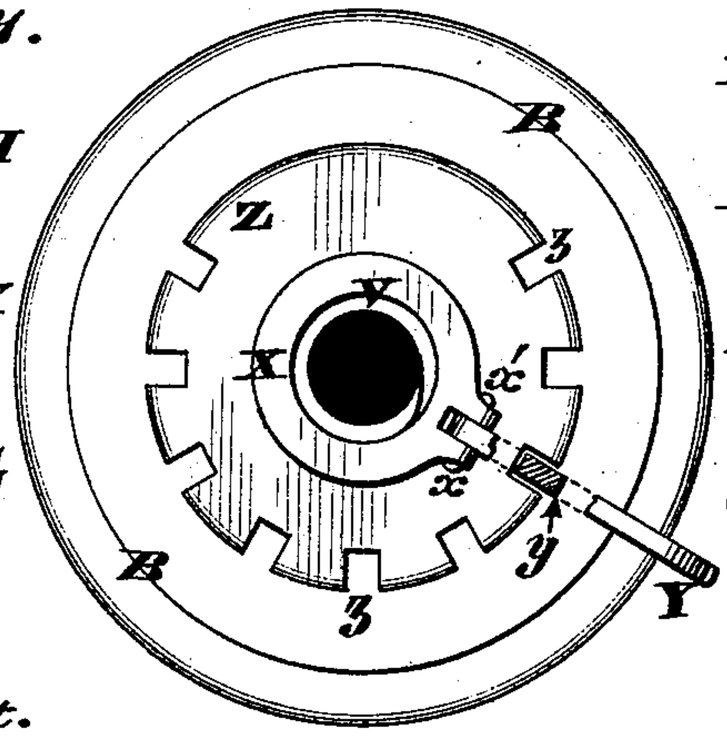


FIG. 4.

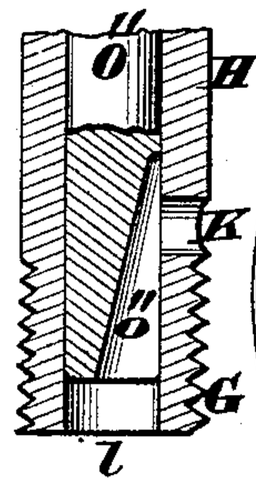
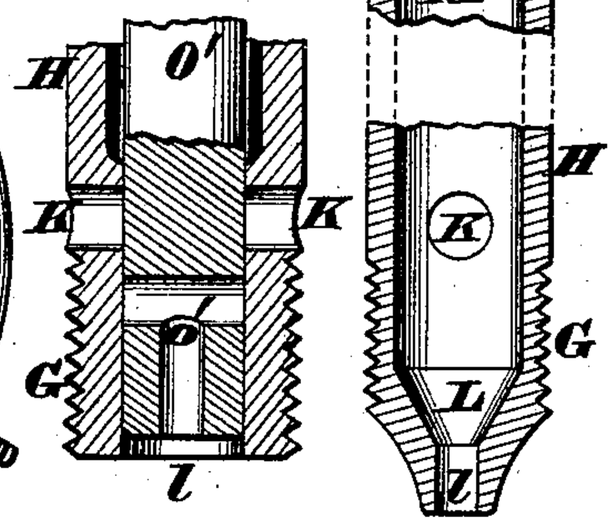


FIG. 6.



Attest.
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Inventor,
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by James H. Layman
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UNITED STATES PATENT OFFICE.

JAMES POWELL, OF CINCINNATI, OHIO.

LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 326,517, dated September 15, 1885.

Application filed April 6, 1885. (No model.)

To all whom it may concern:

Be it known that I, JAMES POWELL, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to those lubricators or oil-cups, which consist, essentially, of a reservoir or fount having a pair of heads that are clamped against the opposite ends of the fount by means of an axial tube; and the first part of my improvement consists in providing the lower end of the tube with a channel or other outlet that permits the discharge of oil, the flow of the same being regulated by an adjustable rod, plug, or stem traversing said axial tube. I prefer to regulate this discharge of oil by means of a conical valve at the lower end of the stem, which valve is readily adjusted with reference to a suitable seat, the latter being located at the bottom of the axial tube, although the same result can be obtained by means of a channeled rod, or ported plug operating in conjunction with openings in the side of said tube, as hereinafter more fully described.

The second part of my improvement comprises a novel combination of devices wherewith the regulating-valve can be opened to a greater or less extent and then locked, so as not to be effected by the vibrations of the machine, engines, &c., to which such oilers are usually applied. Said combination includes a valve-stem, a notched or indented wheel, disk, or ring, and a locking-lever capable of being readily engaged with said disk, which latter is usually cast with or rigidly attached to the outer end of said stem, while the locking-lever is pivoted to the upper portion of the tube that contains said stem. By this arrangement the stem, rod, or plug can be turned either for the purpose of raising or lowering the valve, and can then be locked by engaging said lever or a detent of the same with the appropriate pocket or notch of the disk or ring; or this arrangement can be exactly reversed—that is to say, the retaining-ring can take the shape of a collar projecting from the tube, while the lever or its equivalent detent can be hung from the valve-stem, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a side elevation of my improved oiler, the locking device being shown engaged with the notched disk, and the regulating-valve being closed. Fig. 2 is an axial section of the device, the locking-lever being disengaged from the disk and the regulating-valve opened. Fig. 3 is a plan of a modification of the invention. Fig. 4 is a sectionized elevation of the valve-stem. Fig. 5 is a section of the axial tube that contains said stem. Figs. 6 and 7 are sections of modifications of the devices that regulate the discharge of oil.

A represents the oil-fount, reservoir, or shell, which is usually made of glass, and has an upper head, B, and lower head, C, the latter being provided with a spindle or shank, D, capable of being applied to a journal-bearing or other device to be lubricated. E is a channel in said shank to permit the escape of the lubricant. Furthermore, this head has a female screw, F, wherewith is engaged the male screw G at the lower end of a tube, H, that occupies an axial position within the lubricator, the upper end of said tube having a square or collar, I, that bears against the exterior of the head B. Situated below this collar is a cylindrical neck, J, that enters a circular orifice, *b*, in the upper head, one or more slots or other openings, K, being made in the tube H at or near the level of the lower head, C.

L is a valve-seat, and *l* the discharge-passage of the tube H.

M is a hole that may be made to permit the escape of air in the act of filling the reservoir in case the air could not find sufficient ventage between the neck J and orifice *b*.

N is a valve adapted to close against the seat L, said valve being located at the lower end of a stem, O, that traverses the tube H, sufficient space being afforded between these two members H and O to permit a free flow of oil.

o is a guide at the lower end of valve-stem O, said guide being adapted to traverse the channel *l* of tube H.

The upper portion of valve-stem O has a male screw, P, that engages with the female screw *h* of the tube H, this portion of the stem

being chambered at R and provided with one or more ports, *r r'*.

Cast with or otherwise immovably attached to the top of valve-stem O, is a disk, ring, wheel, or collar, S, having a series of peripheral notches, pockets, indentations, or slots, *s*, either of which is adapted to receive the toe *t* of a locking-lever or equivalent detent, T, said lever being preferably pivoted to a pair of lugs, *i i'*, that project laterally from the collar I of tube H.

U is a plug or stopper having a screw, *u*, that engages with a thread, V, cut in the upper end of the chamber R.

W W' are packing rings or washers that afford tight joints between the ends of cylinder A and its heads B C, said rings being preferably of cork.

Before charging the reservoir A the stem O *o* is first turned so as to screw its valve N firmly down onto the seat L, after which act the plug U *u* is detached and the lubricant is poured into the chamber R, from whence it escapes through the ports *r r'*, and flows down the annular passage between said stem and tube H. The oil then flows through the openings K into reservoir A, and fills the latter, the air in the upper portion of the same finding free ventage either at the hole M or at the orifice *b* of the head B. Plug U *u* is now reengaged with the stem O, and the latter is then properly turned so as to raise the valve N from off of its seat L, as seen in Fig. 2, thereby permitting the oil to escape through the openings K and communicating-channels *l* E. After turning this stem as far as may be necessary to produce the desired flow, said stem is secured against accidental rotation by simply engaging the toe *t* of the locking-piece T with the appropriate notch, pocket, or groove *s* of the collar or ring S, and as said collar is immovable with reference to said stem it is evident the locking device must be intentionally disengaged therefrom before the stem can be again turned.

It will also be noticed that as the square or nut I bears upon the head B while the screw G engages with the thread F, the tube H acts as a tie or binder for securely clamping the heads B C against the opposite ends of the reservoir A; hence there is no necessity for rods or other special retaining devices to accomplish this result, neither is there any need of a separate seat for the discharge-valve to close against, as is customary with most lubricators of this class.

In the modification of the invention seen in Fig. 3 the head of valve-stem O has a collar, X, provided with a pair of ears, *x x'*, to support a drop-catch, Y, whose detent *y* is adapted to engage with pockets or notches *z* of a collar or ring, Z, the latter being either cast with or rigidly applied to the upper end of tube H. Whichever of these constructions may be adopted it is apparent the locking device and retaining-disk always maintain a certain relation to each other, which relation is entirely independent of the other parts of the lubricator. Consequently any shrinkage of the washers or turning of the cylinder A or heads B C will not in the least interfere with the proper working of the regulating devices that control the flow of oil, because the locking-lever and disk always maintain the same position with reference to each other.

In the modification of the invention seen in Fig. 6 the plug O' has a T-shaped port, *o'*, in its lower end, and as soon as said plug is elevated so as to bring the transverse channel of this port in line with the openings K K of tube H, the discharge of oil takes place through these communicating holes and port; but in the modification represented in Fig. 7 the rod O'' has a groove or channel, *o''*, made in it, which groove is materially wider at bottom than at top, in order that an increased area for the discharge of oil may be afforded in proportion to the elevation of the rod. This rod, together with the plug O', is to be raised and lowered in the same manner as the valve-stem O, and is to be locked to any specific adjustment by means of a notched ring and detent, or their equivalents. As the oil-discharge appliances in all of these devices are situated at the lower end of the tube H, it is apparent that by simply unscrewing said tube such appliances can be readily inspected or repaired, and without being compelled to unscrew or detach the lower head, C, from the engine or machine to which the lubricator is applied, which advantage cannot be obtained with those oil-cups whose valve-seats or other discharge appliances are formed in said head. It is also apparent that any turning either of the oil-cup A or upper head, B, cannot in the least interfere with the proper working of the lever T and disk S, as said devices S T have no connection whatever with the cup and head, but operate solely in conjunction with the tube and its inclosed stem or plug.

In two other applications, filed in the Patent Office April 6, 1885, which applications are numbered, respectively, 161,412 and 161,413, I have shown different combinations of the bodily-detachable tube and inclosed valve-stem. Therefore I expressly disclaim in this application the features shown and claimed in the cases above referred to.

I claim as my invention—

1. The combination, in a lubricator, of a bodily-detachable tube that is screwed into the lower head and has a bearing upon the upper head of the oil-cup or reservoir, said tube being provided near its lower end with with one or more inlets, a discharge-channel and a seat for the valve that regulates the flow of oil, which valve is carried by a rod or stem traversing said tube, substantially as herein described.

2. The bodily-detachable tube H, having a thread, G, to engage with the lower head, C, a bearing, I, to rest upon the upper head, B,

one or more inlets, K, a discharge-channel, *l*, and a valve-seat, L, in combination with the stem O, traversing said detachable tube, this stem being provided with a valve, N, closing against said seat and being screwed into the upper end of said tube so as to be adjusted for the purpose of regulating the flow of lubricant, as herein described.

3. In combination with a lubricator whose upper and lower heads are clamped together by a bodily-detachable tube provided with an inlet, an outlet, and a seat for a valve carried by a stem traversing said tube, in the manner described, the lateral projection S, having a series of detents, *s*, for the engagement of a locking device wherewith said valve-stem is retained at any specific adjustment, for the purpose specified.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES POWELL.

Witnesses:

JAMES H. LAYMAN,

SAML. S. CARPENTER.