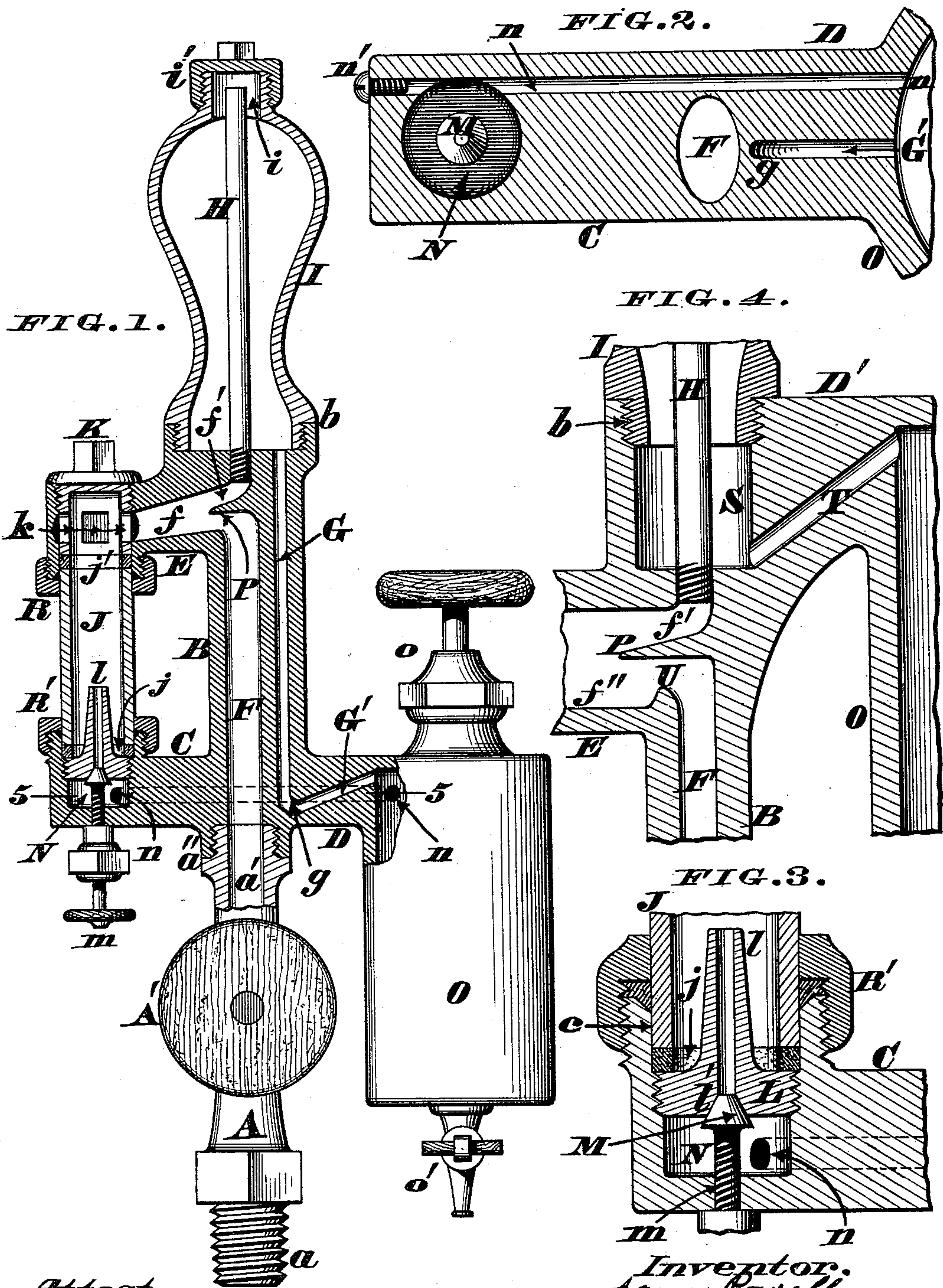


(No Model.)

J. POWELL.
LUBRICATOR.

No. 403,695.

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Attest.
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LUBRICATOR.

SPECIFICATION forming part of Letters Patent No. 403,695, dated May 21, 1889.

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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, State of Ohio, have
5 invented certain new and useful Improvements in Lubricators, of which the following is a specification, reference being had therein to the accompanying drawings.

The first part of my present improvements
10 comprises a novel combination of standard, oil-reservoir, supporting-arms, channels, and ascending sight-feed tube, whereby a cheap and reliable lubricator is produced, the details of these devices being hereinafter more
15 fully described.

The second part of my improvements comprises a specific combination of devices for forming a "trap" in the channel or tube that
20 conducts water from an elevated condenser through a lateral arm to the oil-reservoir of a lubricator, the object of this trap being to prevent oil ascending said channel, tube, or passage, as hereinafter more fully described.

In the annexed drawings, Figure 1 is a sectioned elevation of my improved lubricator, the nipple-valve being closed. Fig. 2 is an enlarged horizontal section of the lower arms of the standard, said section being taken at
25 the line 5 5 of Fig. 1. Fig. 3 is an enlarged axial section of the discharge-nipple and its accessories. Fig. 4 is an enlarged vertical section of a modification of the trap.

A represents the base-connection of the lubricator, said base being provided with a screw-threaded shank, *a*, an axial channel, *a'*, and a
35 hand-wheel, *A'*, that controls a valve or regulating-cock.

Attached to this base-connection at *a''* is the tubular standard B, having at bottom a
40 pair of lateral arms, C D, and at top a single lateral arm, E, said arms C D E being preferably integral with said standard and the arm E being vertically above the arm C. Furthermore, this standard has a main channel, F, and
45 a secondary channel, G, the lower end of channel F communicating with the base-channel *a'*, while its upper end takes the shape of an inclined duct, *f*, leading into the sight-tube, this duct *f* being arranged longitudinally of
50 the upper arm, E. *f'* is an upward branch of this duct, which branch communicates with a steam-pipe, H, leading up almost to the top of

the neck *i* of condenser I, said neck being closed by a screw-threaded cap, *i'*. Condenser I is coupled to the tubular standard at *b*. The
55 upper arm, E, is bored vertically to admit the glass cylinder or sight-feed tube J, and is threaded to permit the engagement of a screw-plug, K. This plug retains the sight-tube in place, and is pierced with one or more lateral
60 ports, *k*, that allow a free communication between said tube and the duct *f*.

The lower end of tube or cylinder J rests within a socket, *c*, of arm C, as more clearly
65 represented in Fig. 3, and has a packing-ring, *j*, beneath it. *j'* is a similar ring interposed between the tube J and plug K. Ring *j* rests upon the head L of the oil-discharge nipple *l*, said head being screwed into the socket *c*, and being furnished with a seat, *l'*, for a valve, M,
70 that regulates the ascent of oil through said nipple. *m* is the stem or handle of said regulator.

Situated beneath the head L is an enlarged oil-receiving chamber, N, having a feed-duct,
75 *n*, leading into the upper part of reservoir O, which depends from the arm D, and is preferably integral therewith, said reservoir being provided with a filling-plug, *o*, and drain-cock *o'*. Feed-duct *n* may be made by means
80 of a "core," or it can be drilled through the arms C D and its outer end be closed with a screw, *n'*, as seen in Fig. 2.

The secondary channel G of standard B is carried down almost to the under side of arm
85 D, and then runs up toward the top of reservoir O, as at G', thus forming a bend or trap, *g*, which is constantly filled with condensed water.

P is a barrier or ledge beneath the lower
90 end of steam-pipe H.

R and R' are the stuffing-box glands for the sight-feed tube J.

The operation of this lubricator is as follows: The apparatus is first attached to a pipe
95 or steam-chest in the usual manner and the reservoir O is charged with oil, after which act cap *i'* is slightly unscrewed and the valve or cock in the base-connection is opened for the purpose of expelling air from the lubri-
100 cator and then said cap is tightened. When steam is thus admitted, sufficient condensation takes place to fill the vessel I, while the water running down within the pipe H into

the duct *f* and thence through the ports *k* of plug *K* insures the rapid filling of sight-tube *J* with clear water. The water from the condenser flows down the secondary channel *G* of standard *B*, and thus obtains access to the reservoir *O* after ascending the channel *G'*, by which means the trap *g* is constantly filled and the oil in said reservoir is subjected to a hydrostatic pressure equal to the column of water within the condenser *I*. Consequently the oil has a tendency to escape from the reservoir; but no flow can occur until the valve *M* is opened. When this is done, oil escapes from the reservoir, flows along the horizontal duct *n* into the receiving-chamber *N*, where it collects in a considerable quantity, and finally escapes through the nipple *l* and sight-tube *J* into the duct *f*. The oil then flows along this duct, and is discharged over the upper or elevated end of the same directly into the main channel *F* of standard *B* and descends the channel *a'* on its way to the engine. During this operation of the lubricator the ledge or shelf *P* serves as a barrier that prevents the falling water from pipe *H* dropping directly into the main channel *F*, the water being thus deflected or shed into the inclined duct *f*, so as to insure a constant filling of the sight-tube *J*.

From the above description it is apparent that a considerable pressure is exerted against the oil in the reservoir; but this pressure can never force the lubricant up the channel *G* and thence into the condenser *I*, because the bend or trap *g* is always filled with water, thereby "sealing" or closing the lower end of said channel.

In the modification of my invention seen in Fig. 4 the oil-reservoir *O* depends from a lateral arm, *D'*, projecting from the upper part of the tubular standard *B*, which is here shown as being provided with a single channel, *F*, the secondary channel *G* being omitted. The upper end of the standard is counterbored at *S*, and the condenser *I* opens directly into

this counterbore, in order that the water from the condenser may ascend the inclined channel *T* and thus obtain access to the reservoir. It will be noticed that the delivery end of this channel *T* is considerably higher than its receiving end, by which arrangement a water-trap is formed that prevents oil "backing up" into the condenser. This illustration shows a horizontal duct, *f''*, for conducting water to the sight-feed chamber or tube, the advantage of an inclined duct being obtained by a curb or dam, *U*, that insures the complete filling of said duct before the water can flow over said dam and run down the channel *F*.

I claim as my invention—

1. A lubricator having a supporting-stand provided at bottom with a pair of lateral arms and at top with a condenser and a single lateral arm traversed by a duct communicating with the sight-feed chamber, steam-pipe, and main channel in the manner described, while the lever-arms are traversed by a channel extending from the top of reservoir to the bottom of said chamber, said reservoir being pendent from the arm, and being supplied with water by a channel or pipe leading up to the condenser, all of said parts being combined to operate substantially as set forth.

2. The combination, in a lubricator, of a channeled and counterbored standard, *B F S*, steam-pipe *H*, elevated condenser *I*, oil-reservoir *O*, and lateral arm *D'*, which arm connects said reservoir *O* with the upper part of said standard *B F S*, and has an inclined channel, *T*, connecting the upper portion of said reservoir with the lower part of said counterbore *S*, all as herein described, and for the purpose set forth.

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

JAMES POWELL.

Witnesses:

JAMES H. LAYMAN,
SAML. S. CARPENTER.