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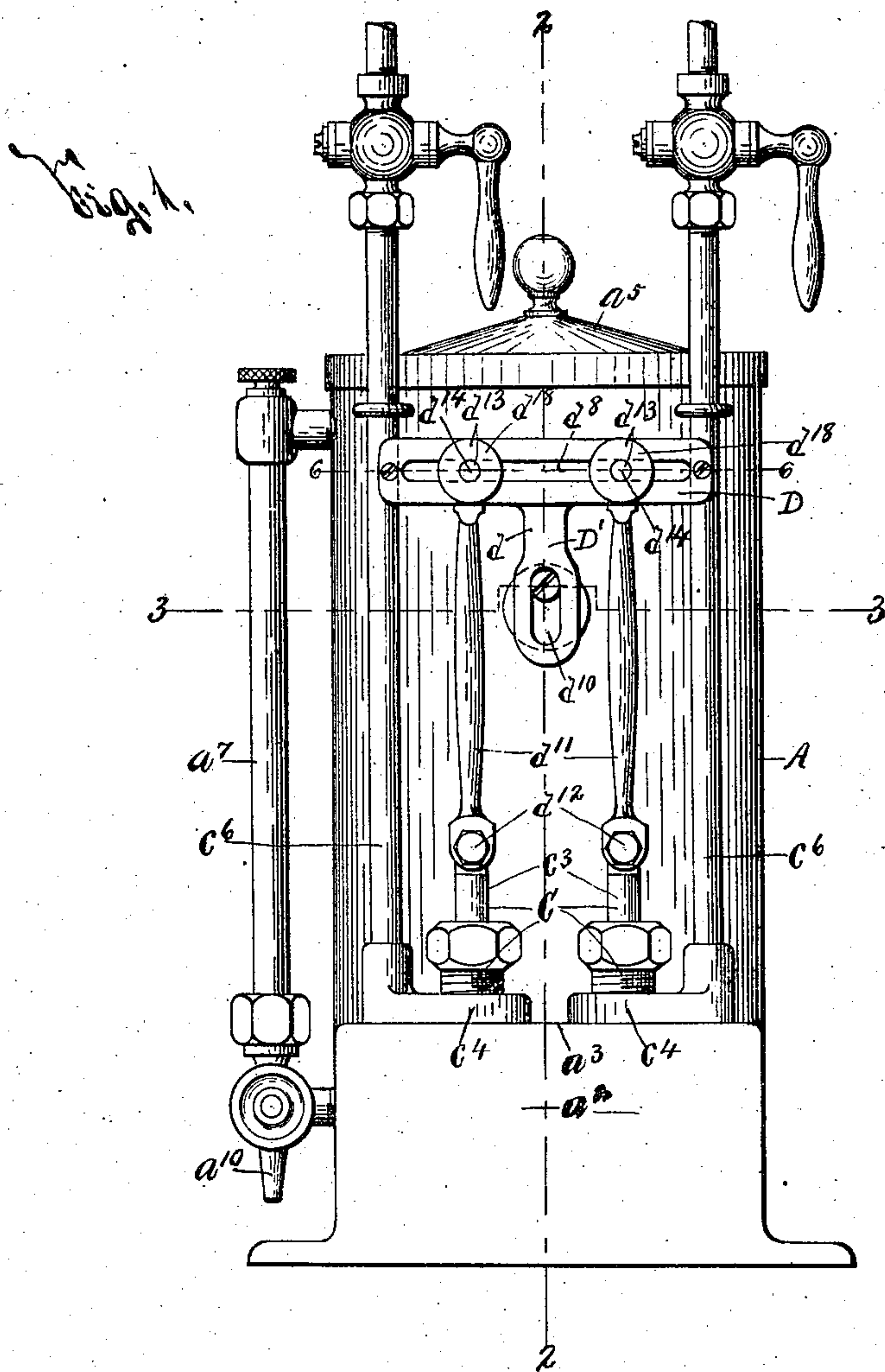
PATENTED FEB. 19, 1907.

J. BUCKLEY & J. SHERRY.

LUBRICATOR.

APPLICATION FILED NOV. 3, 1899.

3 SHEETS—SHEET 1.



WITNESSES:

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INVENTORS

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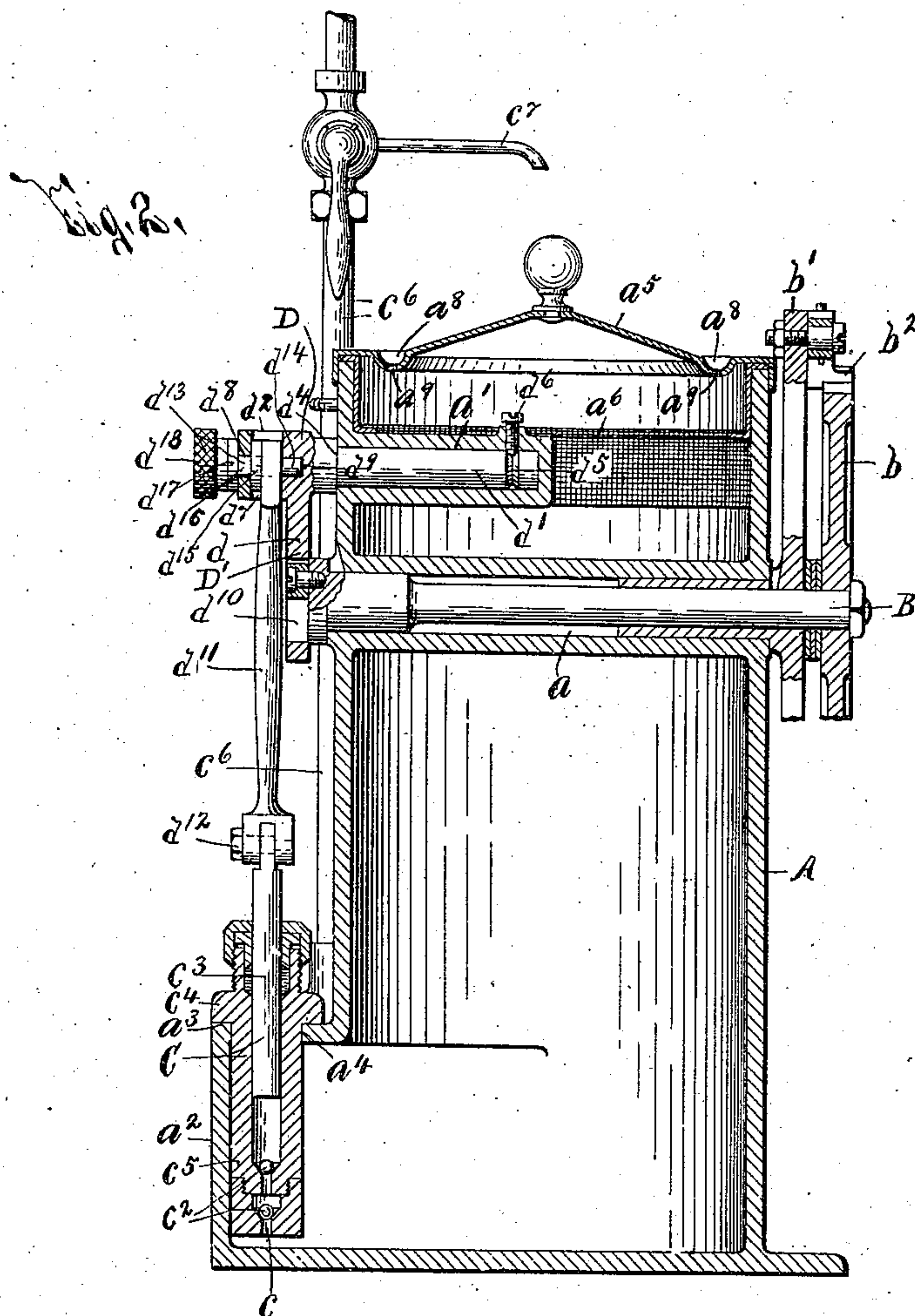
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3 SHEETS—SHEET 2.



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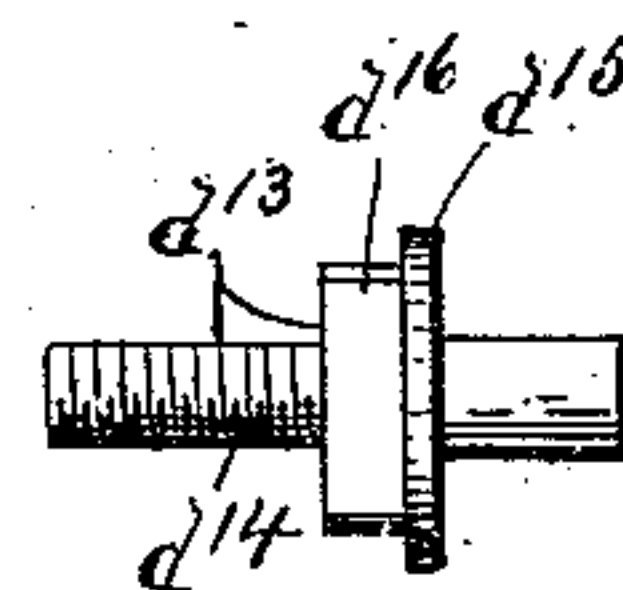
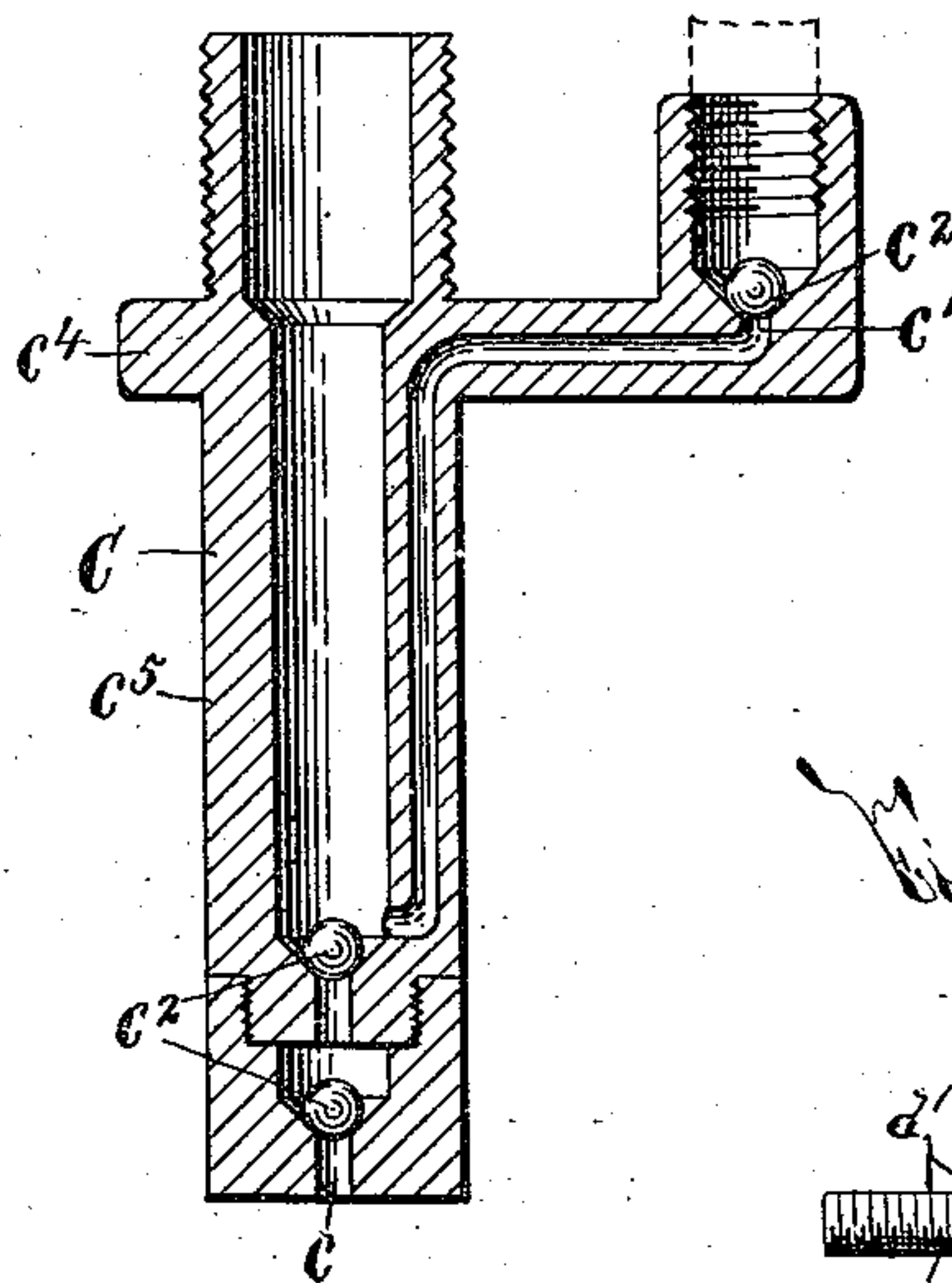
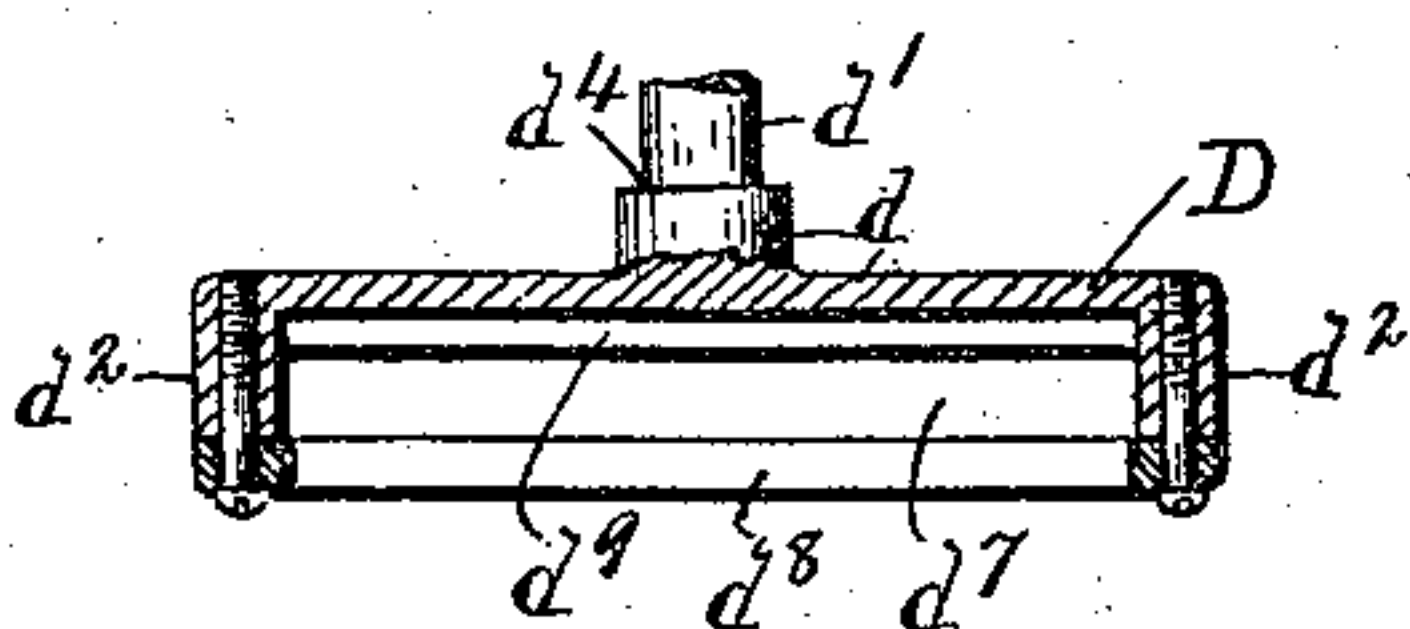
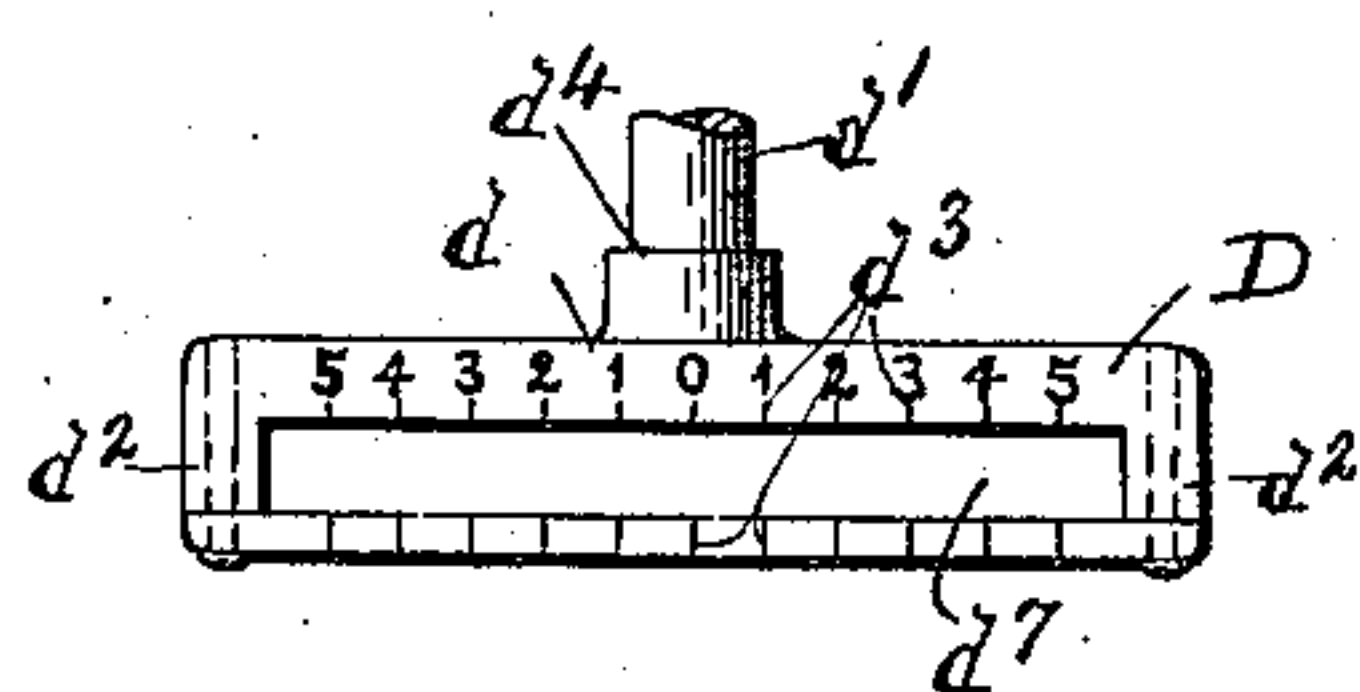
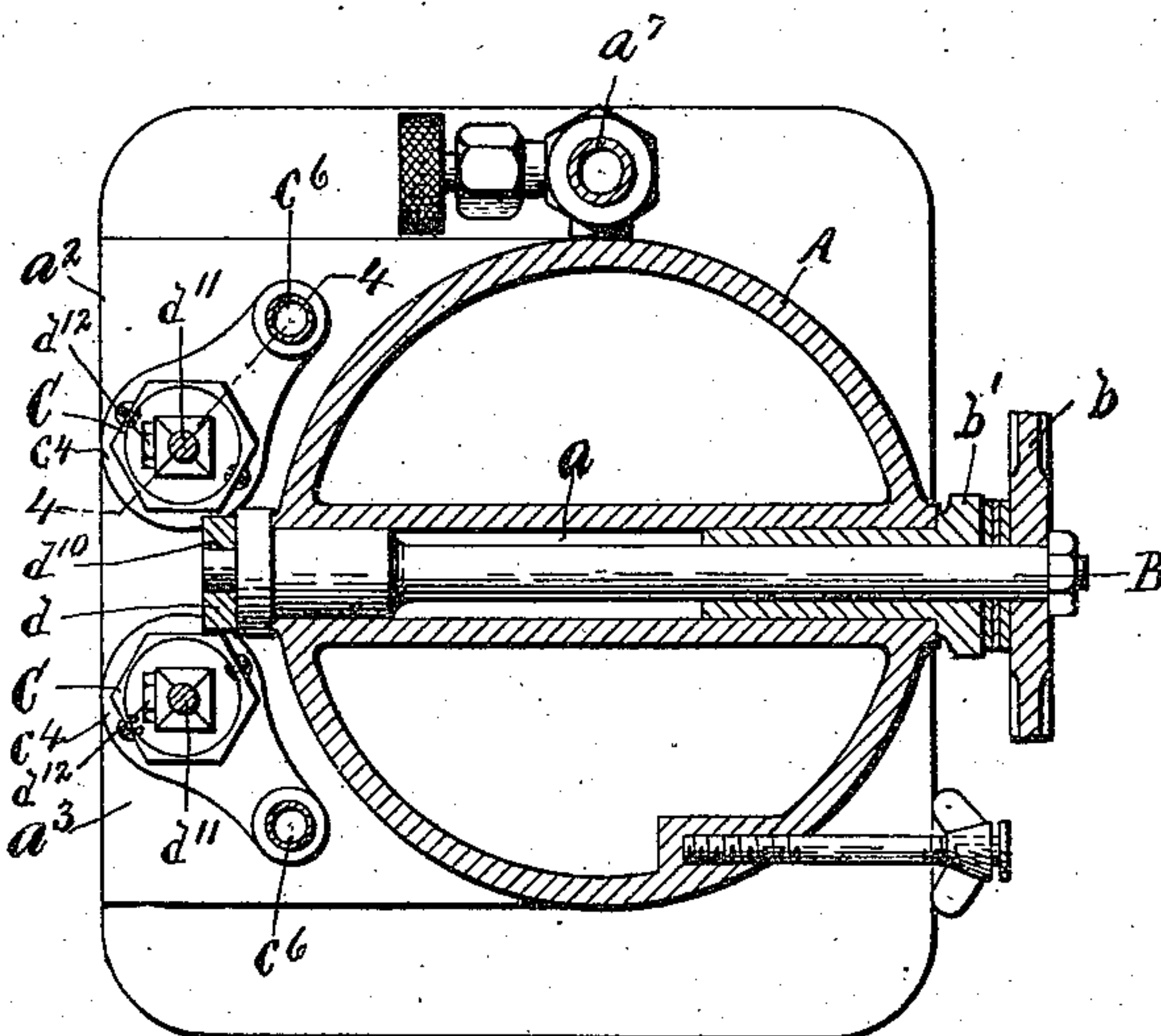
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UNITED STATES PATENT OFFICE.

JOHN BUCKLEY AND JOHN SHERRY, OF ROCHESTER, NEW YORK, ASSIGN-
ORS, BY MESNE ASSIGNMENTS, TO STERLING LUBRICATOR COMPANY,
OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

LUBRICATOR.

No. 844,324.

Specification of Letters Patent.

Patented Feb. 19, 1907.

Application filed November 3, 1899. Serial No. 735,649.

To all whom it may concern:

Be it known that we, JOHN BUCKLEY and JOHN SHERRY, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Lubricators, of which the following is a specification.

Our invention relates to force-feed lubricators, and has for its object the production of a device which is particularly simple in construction, is highly effective in use, and is capable of a maximum adjustment, even when in operation; and to this end it consists in the combination, construction, and arrangement of the component parts of a force-feed lubricator, as hereinafter fully described, and pointed out in the claims.

In describing this invention reference is had to the accompanying drawings, in which like letters indicate corresponding parts in all the views.

Figure 1 is a face view of our improved force-feed lubricator. Figs. 2, 3, and 4 are sectional views taken, respectively, on lines 2 2, 3 3, and 4 4, Figs. 1 and 3. Fig. 5 is a top plan view of the detached actuating member for the pumps of our invention. Fig. 6 is a sectional view of the actuating member, taken on line 6 6, Fig. 1. Fig. 7 is a plan view of the shank of one of the clamps secured to said actuating member.

Our improved lubricator preferably comprises in its organization a reservoir A, a shaft B, one or more pumps C, and means for connecting the shaft to the pump or pumps.

The reservoir A is of any desirable form, size, and construction and is provided with transverse chambers a' , a lateral extension a^2 , a supporting-face a^3 , one or more passages a^4 , extending through the face a^3 and communicating with the internal chamber of the reservoir, a removable top wall a^5 , a removable screen a^6 , and an indicating-glass a^7 . Said chamber a extends through the upper parts of the opposite walls of the reservoir A, beneath the top wall a^5 , forms a bearing for the shaft B, presently described, and braces and unites said upper parts of the opposite walls of the reservoir. The chamber a' is arranged above the chamber a and beneath the top wall a^5 in a plane substantially parallel with the chamber a , extends through the wall of one side of the reservoir A, and is

formed with a closed inner end. Said lateral extension a^2 projects from the base of the reservoir A and is provided with an internal chamber forming a lateral extension of the internal chamber of said reservoir. The face a^3 is substantially flat and forms the upper face of the extension a^2 . The passages a^4 extend vertically through the face a^3 and the top wall of the extension a^2 and communicate with the internal chamber of the reservoir. Said removable top wall a^5 is of any suitable form and construction and is generally provided with a depending groove a^8 in its upper face and with passages a^9 , extending from the groove a^8 through the lower face of said wall. The screen a^6 is also of any desirable form and construction and is suitably supported beneath the top wall a^5 . The indicating-glass a^7 is connected at its upper end to the internal chamber of the reservoir and is connected at its lower end to a valve having passages communicating, respectively, with said glass and chamber and also having an additional passage a^{10} for permitting the discharge of the liquid from the reservoir and the indicating-glass.

The shaft B is passed through the chamber a and generally projects beyond both ends thereof. One end of said shaft is connected to suitable actuating means, here illustrated as consisting of a power-transmitting wheel b , a rocking lever b' , and an actuating member or pawl b^2 , engaged with the periphery of the wheel b and carried by the lever b' . Said actuating means forms no part of our present invention, and hence it is unnecessary to fully illustrate and describe the same herein, it being understood that any suitable actuating means may be used for rotating the shaft B.

The pumps C are all interchangeable with each other, being formed of the same size and construction, and are each provided with a lengthwise internal chamber, inlet and outlet ports c c' , suitable valves c^2 , a piston c^3 , an enlargement or shoulder c^4 , and a lower portion c^5 of less diameter than the shoulder c^4 . The internal chambers of the pumps are substantially cylindrical, extend longitudinal from their top faces into their reduced lower portions, and receive the pistons c^3 . Said inlet-ports extend lengthwise of the pumps from the lower ends of their internal cham-

bers through the bottom faces of said lower portions c^5 and are each provided with upper and lower seats and an enlargement directly above the lower seat. The outlet-ports are
 5 formed with upper and lower lateral extensions, and their intermediate portions extend longitudinally in corresponding side walls of the pumps C in planes substantially parallel with the internal chambers thereof. The
 10 lower lateral extensions of the ports c' open from the lower ends of said internal chambers above the upper seats of the ports c , and the upper lateral extensions of said ports c' extend longitudinally through the enlarge-
 15 ments or shoulders c^4 and are each provided with a seat and an enlargement above said seat, which communicates with a suitable outlet-conduit, having a branch passage c^7 , discharging into the groove a^8 . Said valves
 20 c^2 preferably consist of balls normally engaged by gravity with the seats of the ports c c' . The valves engaged with the upper seats of the ports c and the seats of the ports c' are readily admitted and withdrawn
 25 through the internal chambers of the pumps and the enlargements of the ports c' , and access is permitted to the valves engaged with the lower seats of the ports c by forming the portions c^5 of the pumps C with detach-
 30 able lower ends, having upper faces thereof arranged substantially coincident with the top faces of the enlargements of the inlet-ports directly above said lower seats. The enlargements or shoulders c^4 are of any suit-
 35 able size, project laterally from the upper portions of the pumps C, and are detachably fixed by any suitable securing means to the face a^3 of the extension a^2 .

From the foregoing description it will be
 40 noted that the pumps C are interchangeable, communicate independently with the reservoir A, and that each of said pumps, with its inlet and outlet ports, its valves, and its piston, may be removed from the face a^3 and
 45 the corresponding passage a^4 and conduit c^6 independently of the remaining pumps. This is a feature of great advantage, as the pumps are more or less liable to derangement or imperfect operation, and when capable of
 50 ready withdrawal and replacement a continued stoppage of the lubricator is avoided. Moreover, by forming the pumps separable from the reservoir A considerable economy in the manufacture of our force-feed lubri-
 55 cator is effected, as if said pumps were integral with the casing the weight of the lubricator would be materially increased and all of the pumps would be rendered useless in case one were spoiled either in machining
 60 the same or in the operation of the lubricator.

The means for connecting the shaft B to the pumps C preferably consists of an actuating member d and independently-movable connections between the member d and the
 65 pistons of said pumps. The member d is

substantially T-shaped and, as clearly seen in Figs. 1, 2, and 5, its transverse branch or top D, Fig. 2, is formed with a pivotal pin d' , a projecting portion or member d^2 , and graduations d^3 , and its lengthwise branch D' is
 70 suitably connected to the shaft B. Said pivotal pin d' is journaled in the chamber a' of the reservoir A and is generally provided with a shoulder d^4 and a groove d^5 . The shoulder d^4 engages the adjacent face of the
 75 reservoir, and the groove d^5 receives a set-screw d^6 , passed through the wall of the chamber a' . The projecting portion or member d^2 , Figs. 2 and 5, extends substantially lengthwise of the transverse branch D of
 80 the member d , upon the front face thereof, and is formed with a lengthwise passage or guide d^7 , opening through its top and bottom faces, and a second lengthwise passage or guide d^8 , extending from its front face to
 85 the passage or guide d^7 . The top portion D of the member d is formed with a third passage or guide d^9 , extending from the rear side of said passage or guide d^7 . Said graduations d^3 are preferably formed
 90 upon the top face of the member d and facilitate the adjustment of the connections between said member and the pump C. The means for connecting the lengthwise branch D' of the member d to the shaft B rocks
 95 the member d as the shaft is revolved and usually consists of an eccentrically-arranged pin provided in the adjacent end of the shaft B and movable in a slot d^{10} , extending lengthwise of the lower end of said branch
 100 beneath the pivotal pin d' .

The connections between the member d and the pistons of the pumps C preferably consist of links d^{11} , pivots d^{12} , and clamps d^{13} . The links d^{11} are arranged in substantially
 105 vertical planes, with their upper ends movable in the passage or guide d^7 and in front of the portion of the actuating member d beneath the projection d^2 . The pivots d^{12} connect corresponding ends of the links to the
 110 pistons c^3 , and the clamps d^{13} connect the opposite ends of the links to the actuating member d and permit the adjustment of said opposite ends toward and away from the
 115 pivotal pin d' during the movement of said actuating member and the pump-pistons c^3 . Said clamps d^{13} are here illustrated as each consisting of a shank or spindle d^{14} , arranged crosswise of the guides d^7 d^8 d^9 and movable
 120 lengthwise thereof and having its intermediate portion provided with fixed shoulders d^{15} d^{16} and one extremity extended beyond the front face of the projection d^2 and provided with a movable shoulder or washer d^{17} and a
 125 nut d^{18} . The shoulders d^{15} engage the inner face of the front wall of the guide d^7 . The shoulders d^{16} are movable in the guide d^8 . The shoulders d^{17} engage the outer face of the front wall of the guide d^7 , and the nuts d^{18}
 130 firmly clamp said shoulders d^{17} in position

for holding the corresponding links d^{11} in their adjusted position, said links being freely pivoted on the inner ends of the shanks e^{14} . The nuts d^{18} may be readily loosened, even when the lubricator is in operation, and by moving the same lengthwise of the transverse branch of the member d into alignment with any predetermined graduation the desired amount of throw of the links d^{11} is obtained, even during the operation of the pump-pistons, whereupon said nuts may be firmly clamped in position.

The construction and operation of our improved lubricator will now be readily understood upon reference to the foregoing description and the accompanying drawings.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. A lubricator comprising a reservoir, a plurality of pumps communicating with the reservoir and provided with pistons; a shaft supported by the reservoir, a lever pivoted to the reservoir and actuated by the shaft, means connecting the pistons to the lever, and means for varying the throw of the pistons independently of each other during the operation of the shaft, substantially as and for the purpose specified.

2. A lubricator comprising a reservoir provided with a transverse chamber connecting opposite walls thereof and opening through said walls, a plurality of pumps communicating with the reservoir and provided with pistons, a shaft for actuating the pistons passed through the transverse chamber, and means connecting the pistons to the shaft for independently varying the throw of the pistons while in operation, substantially as and for the purpose described.

3. A lubricator comprising a reservoir, a plurality of pumps communicating with the reservoir and provided with pistons, a shaft journaled in the reservoir, an actuating member consisting of a rocking substantially T-shaped lever pivoted to the reservoir and having its lengthwise branch connected beneath its axis to the shaft, and means connecting the pistons to the transverse branch of the actuating member, and means for varying the throw of the pistons independently of each other during the operation of the lever, substantially as and for the purpose set forth.

4. A lubricator comprising a reservoir provided with a transverse chamber, a pump communicating with the reservoir and provided with a piston, an actuating member having a pivotal pin journaled in the transverse chamber of the reservoir, means for actuating said member, and means connecting the piston to the actuating member for varying the throw of the piston while in operation, substantially as and for the purpose specified.

5. A lubricator comprising a reservoir provided with a pair of substantially parallel chambers, one connecting opposite walls of the reservoir and opening through said walls and the other opening through one of said walls and formed with a closed inner end, a pump communicating with the reservoir and provided with a piston, a rocking actuating member having a pivotal pin journaled in the chamber having the closed inner end, a shaft journaled in the other chamber and connected to the actuating member, and means connecting the piston to the actuating member for varying the throw of the piston while in operation, substantially as and for the purpose described.

6. A lubricator comprising a reservoir provided with a pair of substantially parallel chambers, one connecting opposite walls of the reservoir and opening through said walls and the other opening through one of said walls and formed with a closed inner end, a plurality of pumps communicating with the reservoir and provided with pistons, an actuating member consisting of a rocking substantially T-shaped lever having a pivotal pin journaled in the chamber having the closed inner end, a shaft journaled in the other chamber and connected to the lengthwise branch D' of the actuating member beneath the pivotal pin, and means connecting the pistons to the transverse branch D of the actuating member for independently varying the throw of the pistons while in operation, substantially as and for the purpose set forth.

7. A lubricator comprising a reservoir, a pump communicating with the reservoir and provided with a piston, a shaft, an actuating member having a horizontally-disposed pivot, and a guide arranged in advance of one end of the latter and extending upon opposite sides thereof, and a link connected to the piston at its lower end and movable at its upper end in said guide, substantially as and for the purpose specified.

8. A lubricator comprising a reservoir, a plurality of pumps communicating with the reservoir, each provided with a piston, a shaft, an actuating member having a horizontally-disposed pivot, and a guide arranged in advance of one end of the latter and extending upon opposite sides thereof, and a plurality of links having their upper ends movable in the guide and their lower ends connected respectively to the pistons, substantially as and for the purpose described.

9. A lubricator comprising a reservoir, a pump communicating with the reservoir and provided with a piston, a shaft, an actuating member having a horizontally-disposed pivot, and a guide arranged in advance of one end of the latter and extending upon opposite sides thereof, other guides arranged in advance and at the rear of the first guide and

extending on opposite sides of said pivot, a link connected at its lower end to said piston and having its upper end movable in the first guide, and a pivot-pin for the link movable
5 in the second-named guides, substantially as and for the purpose set forth.

10 10. A lubricator comprising a reservoir, a pump communicating with the reservoir and provided with a piston, an actuating member having a portion thereof formed with a plurality of lengthwise guides d^7 d^8 d^9 , one d^7 being extended through the top and bottom faces of said portion of the actuating member, a second d^8 being extended from the
15 outer face of said portion to the contiguous side of the first guide, and a third d^9 being extended inwardly from the opposite side of said first guide, a link connected to the piston and movable in the first guide, and a
20 clamp extending crosswise of the guides d^7 d^8 d^9 and adjustable lengthwise thereof, said clamp being normally fixed to the actuating member and pivoted to the link for connecting said actuating member and the link, sub-
25 stantially as and for the purpose specified.

11. A lubricator comprising a reservoir provided with a transverse chamber, a pump communicating with the reservoir and provided with a piston, an actuating member
30 having one side provided with a pivotal pin journaled in the chamber of the reservoir and its opposite side provided with a projection formed with a lengthwise guide, a link connected to the piston, and a clamp adjustable
35 lengthwise of the guide for connecting the actuating member to the link, substantially as and for the purpose described.

12. A lubricator comprising a reservoir provided with a pair of substantially parallel
40 chambers, one connecting opposite walls of the reservoir and opening through said walls and the other opening through one of said walls and formed with a closed inner end, a plurality of pumps communicating with the
45 reservoir and provided with pistons, an actuating member consisting of a rocking substantially T-shaped lever having one side provided with a pivotal pin journaled in the chamber having the closed inner end, and its oppo-
50 site side provided with a projection formed with a lengthwise guide, a shaft journaled in the other chamber and connected to the lengthwise branch of the actuating member beneath the pivotal pin, links, and clamps
55 movable lengthwise of the guide for pivotally connecting the actuating member to the links, substantially as and for the purpose set forth.

13. A lubricator comprising a reservoir,
60 and a pump provided with inlet and outlet ports and valves for controlling the passage of the oil through the ports, said pump having its portion provided with the inlet-port extended into the internal chamber of the
65 reservoir, and means for adjustably securing

the pump to the reservoir, substantially as and for the purpose specified.

14. A lubricator comprising a shell forming a reservoir, said shell having a bottom extension or offset provided with a top having an opening leading to the reservoir-chamber, and a pump having a body portion supported upon said top and depending through said opening into the reservoir-chamber, valve-controlled inlet and outlet ports in said
75 body, a piston, and means for actuating the latter, substantially as and for the purpose described.

15. A lubricator comprising a shell forming a reservoir, said shell having a bottom extension or offset provided with a top having an opening leading to the reservoir-chamber, and a pump having a body portion supported upon said top and depending through said opening into the reservoir-chamber,
80 means for detachably securing the body portion to said top, a piston and means for actuating the latter, substantially as and for the purpose set forth.

16. A lubricator comprising a reservoir
90 having a lateral extension formed with an internal chamber communicating with the internal chamber of the reservoir, said extension being provided with a supporting-face and a passage extending from said face into the internal chamber of the lateral extension, and a pump provided with valves and inlet and outlet ports, said pump having a shoulder engaged with the supporting-face and having the portion thereof provided with the
95 inlet-port extended through the passage into the internal chamber of the lateral extension, and means for securing the pump to the lateral extension substantially as and for the purpose specified.

17. A lubricator comprising a reservoir having a lateral extension formed with an internal chamber communicating with the internal chamber of the reservoir, said extension being provided with a supporting-face and a plurality of passages extending from said face into the internal chamber of the lateral extension, a plurality of pumps provided with pistons, valves and inlet and outlet ports, said pumps having shoulders removably fixed to the supporting-face and having the portions thereof provided with the inlet-ports extended through the passages into the internal chamber of the lateral extension, means for actuating the pistons, and means
100 connected to the pistons and the former means for independently varying the throw of the pistons while in operation, substantially as and for the purpose described.

18. A lubricator comprising a shell having a lateral extension provided with a top having an opening therethrough, and a pump including a body portion having a part thereof depending through said opening and a lateral extension resting upon said top, a piston-
105

chamber in the body portion, a valve-controlled inlet-port, and an outlet-port having a portion extending through said body parallel to the piston-chamber and in communication with the latter, and a part extending through the lateral extension of the body, substantially as and for the purpose described.

In testimony whereof we have hereunto

signed our names, in the presence of two attesting witnesses, at Rochester, in the county of Monroe, in the State of New York, this 5th day of October, 1899.

JOHN BUCKLEY.
JOHN SHERRY.

Witnesses:

HAMPDEN HYDE,
K. H. THEOBALD.