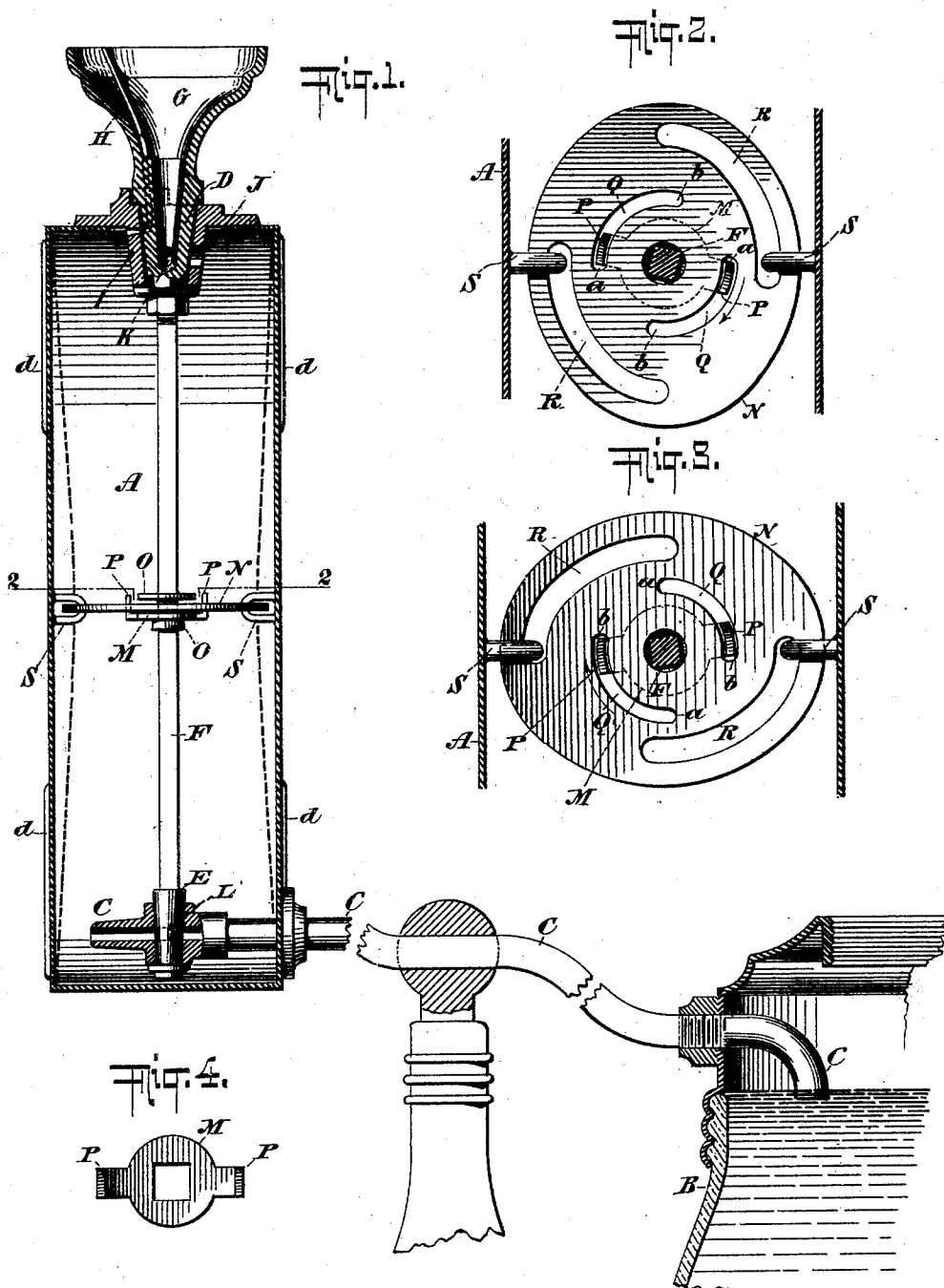


(No Model.)

G. P. KATO, Jr.
LAMP.

No. 503,266.

Patented Aug. 15, 1893.



WITNESSES:
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GEORGE P. KATO, JR., OF JERSEY CITY, NEW JERSEY.

LAMP.

SPECIFICATION forming part of Letters Patent No. 503,266, dated August 15, 1893.

Application filed May 22, 1893. Serial No. 475,035. (No model.)

To all whom it may concern:

Be it known that I, GEORGE P. KATO, Jr., a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Lamps, of which the following is a specification.

The invention relates to improvements in lamps, and particularly to the class of lamps described and claimed in Letters Patent of the United States No. 362,536, granted to E. B. Regua, May 10, 1887.

The present invention pertains more especially to the reservoir which contains the oil and permits the same to be fed to the oil fount or lamp proper, and said invention consists in novel means for creating a vacuum in said reservoir for the purpose of holding the oil therein and preventing it from flowing to the fount except in such quantity as may be required.

By means of my invention any tendency of the oil to overflow the fount is effectually obviated, and the passage of the oil to the fount is regulated automatically and is in proportion to the consumption from the fount.

Referring to the accompanying drawings Figure 1 is a central vertical longitudinal section, partly broken away, of a reservoir and lamp constructed in accordance with and embodying the invention. Fig. 2 is a transverse horizontal section through the reservoir on the dotted line 2—2 of Fig. 1 and illustrating the position of the eccentric when turned to draw the opposite sides of the reservoir toward each other to the position indicated by dotted lines in Fig. 1. Fig. 3 is a like section of same illustrating the position of said eccentric when turned to force the opposite sides of the reservoir outward from each other as denoted by solid lines in Fig. 1, and Fig. 4 is a detached plan view of a key carried by the rotary valve rod and which engages said eccentric.

In the drawings A designates the oil reservoir; B the oil fount or lamp proper, and C the pipe leading from the said reservoir to said fount and through which the oil passes from the former to the latter. In the fount B the end of the pipe C turns downward into the

upper surface of the oil so as to be sealed by the oil except at such times as the consumption of the latter may so reduce its quantity that the end of the pipe C will be exposed, and with each such exposure of the end of the pipe C in the fount B air will pass upward through said pipe and into the reservoir A and have the effect of discharging enough oil through the pipe C into the fount B to again seal the end of said pipe C. The oil in the fount B is maintained at a substantially uniform level, since when the end of pipe C is immersed no oil will pass into the fount and as soon as the end of said pipe is exposed the oil will flow into the fount until the end of the pipe is again covered.

The reservoir A may be of tin and supplied with the inlet valve D and outlet valve E, the latter being in the pipe C and having its port so arranged that it will close the pipe C upon the valve D being opened and open the pipe C only when the valve D is closed. The valves D, E, are connected by a rod F, which insures a simultaneous movement in said valves.

The valve D is provided with the filling cup G and air vent H, as shown in said Letters Patent No. 362,536 and said valve is mounted in the inclosing seat I whose port J opens into the reservoir A and serves, when in alignment with the port K of the valve D to permit the entrance of the oil. The valve E contains a port L indicated by dotted lines in Fig. 1, which either opens or closes the passage through the pipe C according as said port is in communication with or turned across said passage.

Upon the valve rod F, at about the center of the reservoir, are the key M and eccentric N, the former being by its squared aperture, or otherwise, arranged to turn with said rod, while the aperture in the eccentric admits of the rod turning within it. Above and below the key M and eccentric N are provided on the rod F the collars O which aid in preserving the key in position and the due relation of the eccentric with the key. The key M consists of a disk having the engaging arms P, P, at opposite sides of its center; and the eccentric N consists of a plate of elliptic out-

line provided with the slots Q, Q, and R, R, the slots Q, Q, being substantially concentric with the axis of the valve rod F and the slots R, R, eccentric thereto and serving as cams to
 5 either draw the opposite sides of the reservoir A toward or force them away from each other according as the eccentric is rotated toward the right or left, as hereinafter explained. The arms P, P, of the key M are retained within
 10 the concentric slots Q, Q; and within the slots R, R, are the loops or arms S, S, whose outer ends are secured to the opposite sides of the reservoir A.

When it is desired to fill the reservoir A,
 15 the valves D, E, by means of the cup G and rod F, will be turned from the position shown in Fig. 1 to open the valve D, close the valve E, and, through the key M and eccentric N, draw the opposite sides of the reservoir A toward each other, as indicated by dotted lines
 20 in Fig. 1 and solid lines in Fig. 2, after which the oil will be poured into the cup G and escape thence into the reservoir A. After a sufficient quantity of the oil has entered the
 25 reservoir A, the cup G, rod F and valves D, E, will be turned in a reverse direction and during the first part of this movement (which will be in the direction of the arrow shown in Fig. 2) the arms P, P, will travel from the
 30 ends a, a, to the ends b, b, of the slots Q, Q, without affecting the eccentric N, and the valve D will close, while the valve E will not during said movement open. Thus during the first portion of the rotation of the rod F after the reservoir has been charged with the
 35 oil the valve D will close and the valve E not become open, and hence the reservoir at such time will be in the condition of being sealed. Upon the arms P, P, reaching the ends b, b,
 40 of the slots Q, Q, the further rotation of the valve rod F to complete its movement, causes the valve E to open and the eccentric N to rotate from the position in which it is shown in Fig. 2 to the position illustrated in Fig. 3,
 45 thereby through its eccentric or cam slots R, R, and the engaging loops or arms S, S, forcing the opposite sides of the reservoir outward from each other and increasing the size of the interior of the reservoir A for the purpose of creating a sufficient vacuum to hold
 50 the oil and prevent it from escaping through the pipe C except at such times, as above described, as the discharge end of the pipe may be exposed by the level of the oil in the fount B lowering below it.

After the oil in the reservoir A has been consumed and it is desired to re-fill the reservoir, the valve rod F by means of the cup G will be reversed, and during the first part of
 60 this reverse movement the arms P, P, of the key M will travel freely from the ends b, b, to the ends a, a, of the slots Q, Q, and the valve E will close, and thereafter during the remainder of the reverse movement of the rod
 65 F the valve D will open and the arms P, P, will force the eccentric N to rotate back to

the position shown in Fig. 2, thus causing the eccentric slots R, R, to draw the opposite sides of the reservoir inward toward each other. Thus when preparing to fill the reservoir with
 70 oil, the valve E will be closed, the valve D opened and the opposite sides of the reservoir drawn toward each other to contract the interior area of the same, and after the reservoir has been filled the valve D is closed, the
 75 valve E opened and the opposite sides of the reservoir forced outward to extend the interior area of same and create a vacuum. The length of the slots Q, Q, is such that after the reservoir has been filled the valve D may
 80 close before the arms P, P, force the eccentric N to rotate and move the sides of the reservoir outward, and that after the oil in the reservoir has been consumed the valve E may
 85 close before the arms P, P, force the eccentric N to rotate and draw the sides of the reservoir toward each other. The slots R, R, follow the line of an ellipse and serve as cams to draw the sides of the reservoir inward or
 90 or force them outward, according as the minor or major axis of the ellipse is extended between said sides.

It has been my practice to corrugate the opposite sides of the reservoir, as indicated
 95 at d and thereby create sufficient spring therein to cause them to readily move inward or outward under the action of the eccentric N.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The reservoir having the feed pipe leading to the fount, and the inlet and outlet valves connected by a rod within the reservoir, combined with the key on said rod, and the eccentric on the said rod and connected
 100 with the opposite sides of the reservoir, the said key being adapted to engage the said eccentric during the rotation of the rod and cause it to draw toward or force outward from each other the opposite sides of said reservoir; substantially as and for the purposes
 105 set forth.

2. The reservoir having the feed pipe, and the inlet and outlet valves connected by a rod and so timed with respect to each other that the opening of one valve will be followed by
 115 the closing of the other, combined with connections intermediate said rod and the sides of the reservoir whereby on the rotation of the rod the sides of the reservoir are drawn toward each other preparatory to the filling of
 120 the latter and are thereafter forced outward to create a vacuum in the reservoir; substantially as and for the purposes set forth.

3. The reservoir having the feed pipe, and the inlet and outlet valves connected by a rod,
 125 combined with the key M having arms P, P, and secured on the said rod, and the eccentric N, having slots Q, Q, and R, R, and connected with the opposite sides of the reservoir; substantially as and for the purposes
 130 set forth.

4. The reservoir having the feed pipe, and

the inlet and outlet valves, combined with means whereby the opposite sides of the reservoir may be drawn toward each other preparatory to the reservoir being filled and then
5 forced outward to create the vacuum; substantially as and for the purposes set forth.

Signed at New York, in the county of New

York and State of New York, this 19th day of May, A. D. 1893.

GEORGE P. KATO, JR.

Witnesses:

CHAS. C. GILL,
ED. D. MILLER.