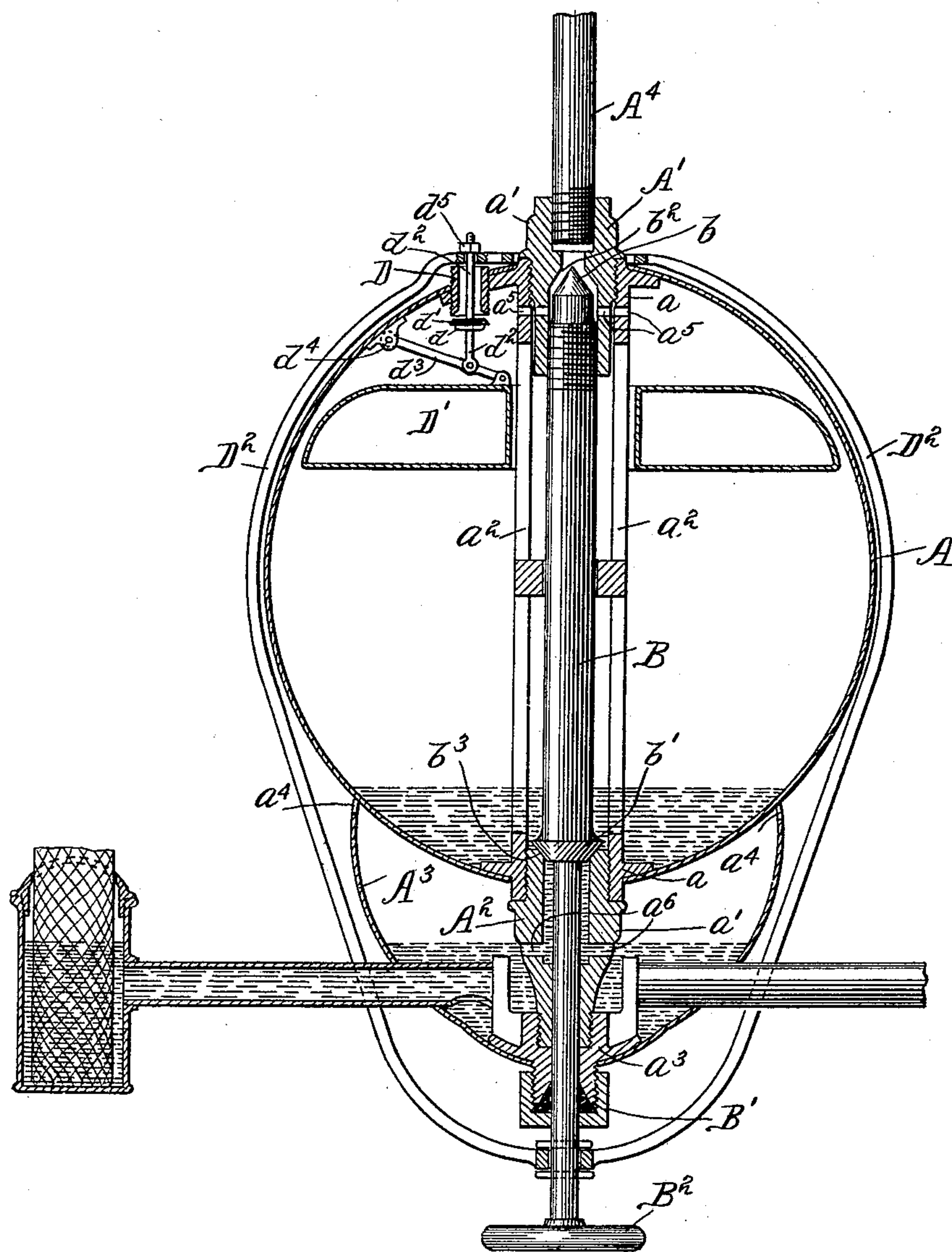


(No Model.)

E. W. RIDER.  
RESERVOIR LAMP.

No. 583,510.

Patented June 1, 1897.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

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## RESERVOIR-LAMP.

SPECIFICATION forming part of Letters Patent No. 583,510, dated June 1, 1897.

Application filed October 31, 1896. Serial No. 610,683. (No model.)

*To all whom it may concern:*

Be it known that I, EBENEZER W. RIDER, a citizen of the United States, residing at Bay City, in the county of Bay and State of Michigan, have invented certain new and useful Improvements in Reservoir-Lamps, of which the following is a specification.

This invention relates to oil-burning lamps of the familiar type in which the oil is supplied to the lamps from a tank or reservoir which communicates therewith and to which oil is delivered from a controlled source of supply.

Primary objects of the invention are to provide an improved valve mechanism for controlling the admission-opening to and the discharge-opening from said oil tank or reservoir whereby opening either of said openings will operate to close the other, and to provide an improved vent for said tank which will be opened by opening the admission-valve of said tank or reservoir, thus allowing the oil to flow into said tank or reservoir, and which will close automatically when said tank or reservoir is full.

To this end the invention consists of the various features, combinations of features, and details of construction hereinafter described, and then pointed out in the claims.

In the accompanying drawing a lamp embodying my invention is fully illustrated.

The figure is a vertical sectional view of the tank or reservoir of an oil-burning chandelier which embodies my improvements.

Referring now to the drawing, A is an air-tight tank or reservoir, which will preferably be made of suitable sheet metal and which may be of any usual or approved construction. Secured to the top and bottom of the tank or reservoir A are alined bosses A' A<sup>2</sup>, which in the preferable construction shown both comprise interior and exterior sections a a', secured together by engaging screw-threads formed thereon. Preferably, also, said bosses are connected by tie-rods a<sup>2</sup>, which, as shown, are formed integral therewith and operate in an obvious manner to take the strain due to the weight of the parts below the tank or reservoir A and also operate to

take the strain caused by the operation of the controlling-valves of said tank, as will hereinafter fully appear.

Below the tank or reservoir A is a cup A<sup>3</sup>, into which oil is delivered from the tank or reservoir A. As shown, the cup A<sup>3</sup> is supported upon a downward extension of the bottom boss A<sup>2</sup> by means of a nut a<sup>3</sup>, secured in the bottom thereof, which is threaded to the lower end of said boss A<sup>2</sup>.

The top of the cup A<sup>3</sup> is open, or, if closed, holes a<sup>4</sup> are formed adjacent to its top or edge, thus allowing the air free access to the interior thereof.

The upper ends of both of the bosses A' A<sup>2</sup> are tubular. The tubular portion of the upper boss A' is connected with a suitable source of oil-supply by means of a pipe A<sup>4</sup>, which is threaded thereto and which in the construction shown also forms the stem of the chandelier. Lateral openings a<sup>5</sup> in said boss A' connect the tubular portion thereof with the interior of the tank or reservoir A.

The tubular portion of the lower boss A<sup>2</sup> communicates directly with the interior of the tank or reservoir A, and lateral openings a<sup>6</sup> in said boss allow oil to flow from said tank or reservoir into the cup A<sup>3</sup>.

In my improved construction the admission and discharge openings are controlled by needle-valves b b', corresponding valve-seats b<sup>2</sup> b<sup>3</sup> being formed on the bosses A' A<sup>2</sup>, respectively.

The valves b b' open in opposite directions and are secured to or are formed on the same valve-stem B, the upper end of which is threaded to the lower end of the upper boss A', and the lower end thereof being fitted to a sleeve formed in the downward extension of the lower boss A<sup>2</sup>. A packing-gland B' prevents leakage around said valve-stem, and a hand-wheel B<sup>2</sup>, secured to the lower end thereof, affords convenient means for manipulating said valves. It is obvious that with the described construction opening either of said valves will operate to close the other, thus effecting the object of my invention as it relates to this feature. It is also obvious that the rods a<sup>2</sup> will sustain the en-



tire strain due to operating said valves, thus relieving the walls of the tank A therefrom.

Another feature of my invention is the improved vent-valve for controlling the escape  
5 of air from the tank or reservoir A, whereby it is rendered possible to supply oil to tanks or reservoirs arranged at different levels, as in different stories of a building, from a common source. To the best of my knowledge  
10 this has heretofore been impossible, or at least entirely impracticable, owing to the fact that as oil was admitted to a tank or reservoir the air therein escaped through an upward extension of said admission-pipe, the  
15 top of which was left open and was necessarily higher than the level of the oil in the main supply-tank. Thus in a four-story building if it were desired to feed tanks on different floors from a common source of supply it would be necessary to extend the vent-tubes on the lower floors above the highest tank on the top floor; otherwise the oil would overflow said vent-pipe. A similar effect  
20 would be produced if a pressure-tank were used instead of a gravity system and with greater danger of overflowing said vent pipes or tubes, as it would be more difficult to properly regulate the pressure therein.

The construction of my improved vent-valve is as follows: Secured in the top of the tank or reservoir A, preferably as near as practicable to the boss A', is a vent-tube D, the lower end of which is adapted to be closed  
30 by a disk  $d$ , to the upper surface of which is secured a gasket  $d'$ , of soft rubber or other suitable material, said valve being supported and actuated as hereinafter described.

In the preferable construction shown means are provided to automatically close said vent-valve when the oil reaches a desired level in the tank or reservoir A, separate and independent means being provided for positively securing said vent-valve in closed position. Preferably, also, the means for so securing  
45 said vent-valve in closed position are connected to the valve-stem B in such manner that manipulating said valve-stem to close the admission-valve  $b$  will secure said vent-valve in closed position, and opening said  
50 valve  $b$  will release said vent-valve, allowing it to open. I will now describe the means for operating said vent-valve.

The valve-disk  $d$  is provided with a valve-stem  $d^2$ , the lower end of which is pivoted between the ends of a lever  $d^3$ , one end of which  
55 is pivoted to a lug  $d^4$ , secured to the wall of the tank and the free end of which is connected to a float D'. Raising said float D' will operate in an obvious manner to raise the free end of the lever  $d^3$ , thus forcing the valve-disk  $d$  upon the end of the vent-tube D and closing the same. The relation of parts is such that said vent-tube will be closed before the oil reaches the vent-tube D. The particular object of this construction is to prevent  
65 the oil from coming into contact with the gasket  $d'$ , as soft rubber and most other suitable

soft substances are acted upon by the oil, which eats them out and renders them useless.

The float D' will preferably be large enough to fill the air-space left at the top of said tank as nearly as practicable, thus preventing any considerable quantity of air being contained in said tank, as, if it were subjected to pressure, it might cause the cup A<sup>3</sup> to overflow  
70 when the valve  $b'$  is opened.

The preferable means shown for positively securing the vent-valve closed are as follows: The upper end of the valve-stem  $d^2$  extends  
80 through the vent-tube D and projects above the tank or reservoir and is articulated to a ring or circular link D<sup>2</sup>, which extends downward outside of the tank or reservoir A and is secured to the projecting end of the valve-stem B in such manner that longitudinal  
85 movement of said valve-stem B will impart a corresponding movement to said ring or link D<sup>2</sup>, at the same time allowing said valve-stem to turn freely. In the construction shown the upper end of said valve-stem  $d^2$  passes  
90 freely through an elongated hole or slot formed in said ring or link, and a nut  $d^5$  is threaded thereto above said link or ring in such position that as said link or ring is raised it will  
95 strike said nut, and the relation and adjustment of parts are such that when the admission-valve  $b$  is closed the ring or link D<sup>2</sup> will be raised so as to secure the valve-disk  $d$  over the end of the vent-tube D, closing the same.

With the construction described it is obvious that the vent-valve will be closed automatically whenever the oil reaches a proper level in the tank A, and that it may be positively secured in closed position by manipulation of the valve-stem B to close the admission-valve  $b$ . It is also obvious that said vent-valve will be maintained closed until said admission-valve  $b$  is again opened, when said vent-valve will open by gravity if the level  
100 of the oil has lowered so as to allow the float D' to fall.

I claim—

1. The combination with the admission-valve of an oil-burning chandelier, or the like,  
115 of a vent-valve for the tank or reservoir of said chandelier and connection between said vent-valve and admission-valve whereby closing the admission-valve will secure the vent-valve closed and opening the admission-valve  
120 will release the vent-valve, substantially as described.

2. The combination with the tank or reservoir of an oil-burning chandelier or the like, of an admission-opening thereto and a discharge-opening therefrom, valves controlling  
125 said admission and discharge openings, connection between said admission and discharge valves whereby opening one thereof closes the others and vice versa, a vent-valve for said tank or reservoir and connection between said  
130 vent-valve and the means controlling said admission and discharge valves, whereby closing the admission-valve will secure said vent-



valve closed and opening said admission-valve will release said vent-valve, substantially as described.

3. The combination with the tank or reservoir of an oil-burning chandelier or the like, of a vent-valve therefor, a lever to which the lower end of the valve-stem is pivoted, one end of said lever being pivoted to the wall of the tank and the other end thereof being secured to a float, which will operate to raise the free end of said lever and close the vent-valve when the oil reaches a desired level in said tank or reservoir, said float being as large as practicable as compared with the size of the air-space in said tank or reservoir, substantially as described.

4. The combination with the tank or reservoir of an oil-burning chandelier or the like, of an admission-opening in the top and a discharge-opening in the bottom thereof, needle-valves controlling said openings, said valves opening in opposite directions and being secured to the same valve-stem, a vent-valve for said tank or reservoir, a lever to which the lower end of the valve-stem is pivoted, one end of said lever being pivoted to the wall of the tank and the other end thereof being connected to a float, which operates automatically to close said vent-valve when the oil reaches a desired level in said tank and connection between the upper end of said vent-valve stem and the stem of the needle-valves controlling the admission and discharge openings of said tank, whereby manipulation thereof to close the admission-opening to said tank will close said vent-valve positively and

opening said admission-opening will release said vent-valve, substantially as described.

5. The combination with the tank or reservoir of an oil-burning chandelier or the like, of an admission-opening in the top and a discharge-opening in the bottom thereof, needle-valves controlling said openings, said valves being secured to the same stem and opening in opposite directions, said stem projecting below said tank and attached parts, a vent-valve in said tank, a lever to which the lower end of said vent-valve stem is pivoted, one end of said lever being pivoted to the wall of the tank and the other end thereof being connected to a float, which operates to close said vent-valve whenever the oil reaches a desired level in said tank, the upper end of the vent-valve stem projecting above said tank or reservoir and passing freely through an opening in a ring or link, which passes downward outside of said tank and is connected to the needle-valve stem and a nut threaded to said vent-valve stem above said link or ring, the relation of parts being such that closing the admission-valve to said tank will secure said vent-valve closed and opening said admission-opening will release said vent-valve, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand this 28th day of October, 1896.

EBENEZER W. RIDER.

Witnesses:

BYRON B. CARTER,  
CHAS. W. HARPER.