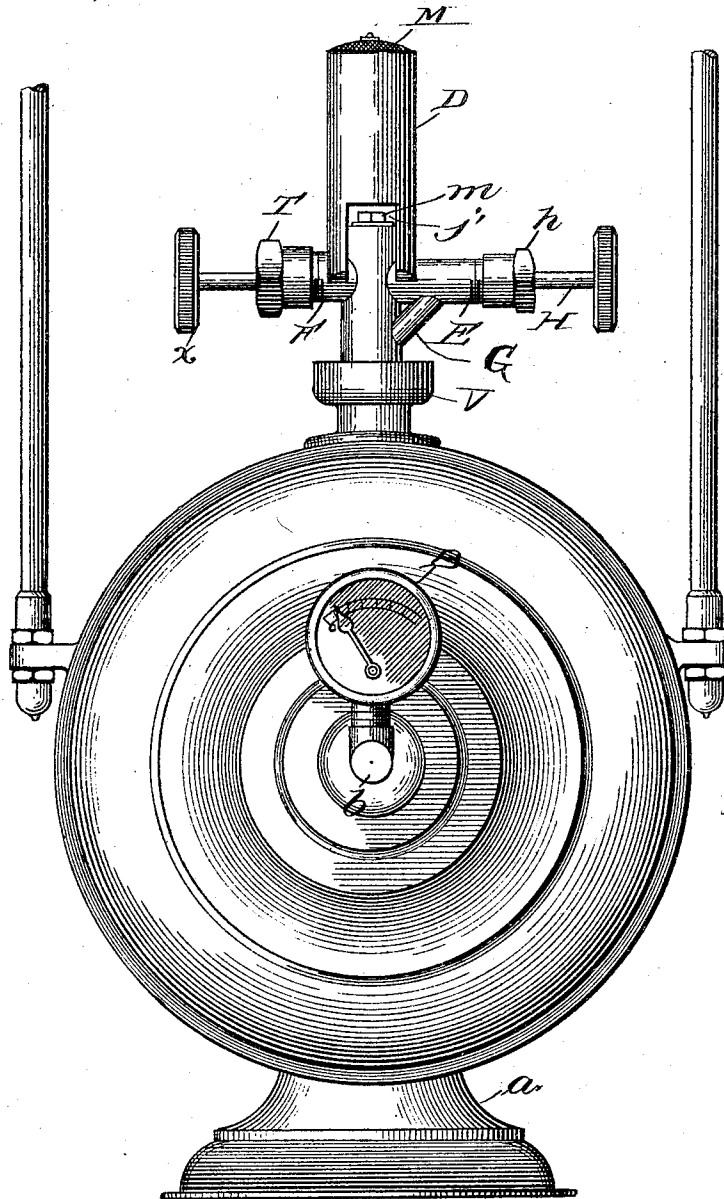


B. A. ESTEP.
GASOLENE LAMP.
APPLICATION FILED APR. 30, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:

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E. K. Lundy.

Inventor:

Blair A. Estep.

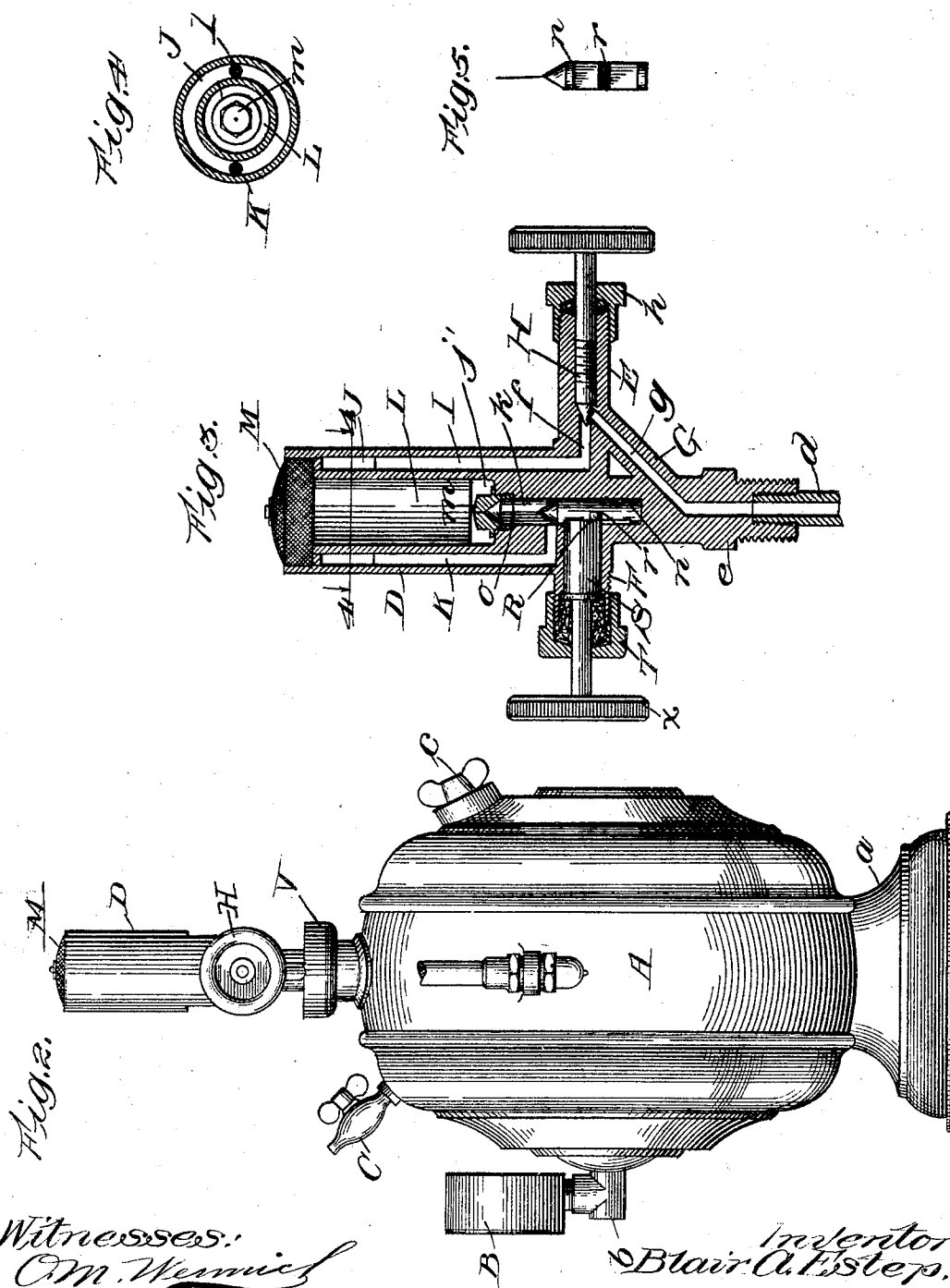
by Frank D. Thompson
Attorney.

No. 794,972.

PATENTED JULY 18, 1905.

B. A. ESTEP.
GASOLINE LAMP.
APPLICATION FILED APR. 30, 1904.

2 SHEETS--SHEET 2.



Witnesses:
 Am. Wernick
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Inventor:
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UNITED STATES PATENT OFFICE.

BLAIR A. ESTEP, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO
JOHN HALIHAN, OF SAGINAW, MICHIGAN.

GASOLENE-LAMP.

SPECIFICATION forming part of Letters Patent No. 794,972, dated July 18, 1905.

Application filed April 30, 1904. Serial No. 205,842.

To all whom it may concern:

Be it known that I, BLAIR A. ESTEP, a citizen of the United States, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Gasolene-Lamps, of which the following is a full, clear, and exact description.

My invention relates to gasolene pressure-lamps. Heretofore the tanks of these lamps have been arranged in such a position that, considering the size it is necessary to make them in order to hold sufficient oil, they cast a very large shadow. As heretofore constructed the burner of these lamps had to be separated from the tank by a sinuous pipe in order to accommodate the presence of the cleaning-needle valve thereof, and thus deprive the tank of the benefit of the heat generated in the burner to promote the generation of gas. The object of my invention is to overcome these objections. This I accomplish in a simple and effective manner, substantially as hereinafter fully described and as particularly pointed out in the claims.

In the drawings, Figure 1 is a front elevation of a gasolene-lamp embodying my invention, having the upper portion of the hanger thereof broken away. Fig. 2 is a side elevation of the same. Fig. 3 is a vertical transverse section of the burner separated from the tank and drawn to an enlarged scale. Fig. 4 is a horizontal transverse section taken on dotted line 4 4, Fig. 3, looking in the direction indicated by the arrows. Fig. 5 is a front elevation in detail of the cylindrical piston employed to admit gas into the combustion-chamber.

Referring to the drawings, A represents a circular or other suitably-shaped tank, which stands on edge, as shown in the drawings, and is supported by a suitable base *a*. The front of this tank has a suitable elbow *b* projecting therefrom, which has a suitable pressure-gage B secured to the end of its vertical branch, and preferably at a point above this pressure-gage the walls of the tank are pierced by and have secured therein an ordinary valve-controlled air-inlet C. The tank has a suitable plugged inlet *c*, through which

the gasolene is supplied thereto, extending through the rear side thereof, and the gasolene thus supplied to said tank is forced up by the air-pressure through the pipe *d* into the screw-threaded stud *e* of the burner, which latter is tapped into the circumference of the tank at a point opposite and in alignment with the center of the base of the same. The burner D consists of a suitable casting extending vertically upward in alinement with the stud *e*, which is provided at a suitable point above the tank with two diametrically opposite laterally-projecting arms E and F, the latter of which is preferably slightly longer than the former. The upper part is drilled longitudinally and centrally from its upper end to form a combustion-chamber L, and it has lateral openings or air-ports *j'* at its lower end and has seated in its rabbeted upper edges a wire-gauze cap M. The longer arm E has a longitudinal central passage *f* drilled or otherwise made therein, which extends from its outer end into the vertical portion of the burner D, and this passage *f* communicates with the upper end of the bore of the stud *e* by means of the passage *g*, extending centrally through the brace *g*, connecting said arm E and said stud, substantially as shown in the drawings. The communication between passages *f* and *g* is controlled by a screw-threaded spindle-valve H, whose conical end is adapted to engage a corresponding seat at the confluence of said passages, and this valve H extends longitudinally and centrally out through a gland-nut *h* at the outer packed end of arm E and is manipulated by a suitable milled wheel on its extremity.

The inner end of the passage *f* strikes into the lower end of a vertical passage I, that extends to and communicates with an annular chamber in the upper end of the burner D. At a point diametrically opposite the passage I said burner is provided with a vertical passage K, extending downward therefrom, which has its lower end extended horizontally and diametrically into the longitudinal central vertical gas-chamber *k* in the burner. This chamber *k* is made by drilling a smaller hole into the body of the burner below the combustion-chamber and in alinement there-

with, and it extends from a point preferably below the plane of the arms E and F up into said central combustion-chamber. The upper end of the gas-chamber *k* is closed by the tip *m* up through a very small central orifice in which the gas is forced into the combustion-chamber L. Seated in the lower portion of the chamber K is a cylindrical piston *n* of such length that when at the limit of its downward movement the discharge-opening of the passage *h* will be uncovered. This piston has extending centrally from the apex of its upper conical end a needle *o*, which as said piston moves to the limits of its upward throw projects through the central discharge-orifice of the tip and keeps the same clean. This piston *n* has one side thereof facing the arm F of the burner flattened in a plane transverse to the axis of said arm, and about the center of length of this flattened portion it is provided with a transverse recess *r*, which is engaged by the eccentrically-located stud R, extending from the adjacent end of the transverse shaft S, which latter is journaled in the bore of arm F and has its outer reduced end extend out through a suitable packing-chamber in the end of said arm and through a suitable gland-nut T and is provided with a suitable milled wheel *x* on its outer end with which to turn the same. When this wheel *x* is in the position shown in Fig. 3, the piston will be at the lower limit of its movement and by giving said wheel a half turn or revolution said piston will move in the chamber *k* to the limit of its upward movement. This reciprocation can be done rapidly and repeatedly without the necessity of laboriously screwing the carrier for the needle *o* upward from below in the manner now done and, besides, permits both the initial heat generated in the pan V, surrounding the lower end of the burner just above the tank when the lamp is first started, and likewise the heat transmitted to the burner by the burning of the gas from the jet to be imparted to pipe *d* into the tank to assist in the volatilizing of the gasolene therein.

By placing the tank A endwise, as hereinbefore described and shown, the light from the burner is not obstructed to the extent it would be were the flattened sides of the tank in a horizontal position, and a much greater area below said lamp is made light than is now possible.

What I claim as new is—

1. A gasolene-lamp comprising a suitable burner having a straight body from the tank of said lamp to the upper end of the same; a longitudinal central gas-chamber; a combustion-chamber; a sinuous passage from the tank to said gas-chamber on the exterior of said combustion-chamber; a valve controlling the inlet portion thereof; a heating-chamber consisting of an annular enlargement of said passage mediate said valve and gas-chamber,

surrounding the upper portion of the walls of the combustion-chamber; in combination with a longitudinally-movable piston in said gas-chamber; a needle secured in and extending from the upper end thereof, adapted to penetrate the discharge-orifice in the end of the same farthest from said tank; and means for actuating said piston.

2. A gasolene-lamp comprising a suitable burner having a straight body from the tank of said lamp to the upper end of the same; a longitudinal central gas-chamber; a combustion-chamber; a sinuous passage from the tank to said gas-chamber on the exterior of said combustion-chamber; a valve controlling the inlet portion thereof; a heating-chamber consisting of an annular enlargement of said passage mediate said valve and gas-chamber, surrounding the upper portion of the walls of the combustion-chamber; in combination with a longitudinally-movable piston in said gas-chamber; a needle secured in and extending from the upper end thereof, adapted to penetrate the discharge-orifice in the end of the same farthest from said tank; and laterally-disposed means for actuating said piston.

3. A gasolene-lamp comprising a suitable burner having a straight body from the tank of said lamp to the upper end of the same; a longitudinal central gas-chamber; a combustion-chamber; a sinuous passage from the tank to said gas-chamber on the exterior of said combustion-chamber; a valve controlling the inlet portion thereof; a heating-chamber consisting of an annular enlargement of said passage mediate said valve and gas-chamber, surrounding the upper portion of the walls of the combustion-chamber; in combination with a longitudinally-movable piston in said gas-chamber; a needle secured in and extending from the upper end thereof, adapted to penetrate the discharge-orifice in the end of the same farthest from said tank; and a laterally-disposed rotatable spindle operatively connected to and actuating said piston.

4. A gasolene-lamp comprising a suitable burner having a straight body from the tank of said lamp to the upper end of the same; a longitudinal central gas-chamber; a combustion-chamber; a sinuous passage from the tank to said gas-chamber on the exterior of said combustion-chamber; a valve controlling the inlet portion thereof; a heating-chamber consisting of an annular enlargement of said passage mediate said valve and gas-chamber, surrounding the upper portion of the walls of the combustion-chamber; in combination with a longitudinally-movable piston in said gas-chamber having a transverse groove therein mediate its ends; a needle secured in and extending from the upper end thereof, adapted to penetrate the discharge-orifice in the end of the same farthest from said tank; and a laterally-disposed rotatable spindle having an eccentrically-located stud extending

from its end adjacent to said piston which engages said groove.

5 5. A gasoline-lamp comprising a suitable burner having a straight body from the tank of said lamp to the upper end of the same; a longitudinal central gas-chamber; a combustion-chamber; a sinuous passage from the tank to said gas-chamber, on the exterior of said combustion-chamber; a valve controlling
10 the inlet portion thereof; a heating-chamber consisting of an annular enlargement of said passage mediate said valve and gas-chamber, surrounding the upper portion of the walls of the combustion-chamber; in combination
15 with a longitudinally-movable piston in said gas-chamber having a portion of its side flat-

tened and having a transverse groove therein mediate its ends; a needle secured in and extending from the upper end thereof, adapted to penetrate the discharge-orifice in the end 20 of the same farthest from said tank; and a laterally-disposed rotatable spindle having an eccentrically-located stud extending from its end adjacent to said piston which engages said groove. 25

In testimony whereof I have hereunto set my hand this 22d day of March, 1904.

BLAIR A. ESTEP.

Witnesses:

FRANK D. THOMASON,
E. K. LUNDY.