

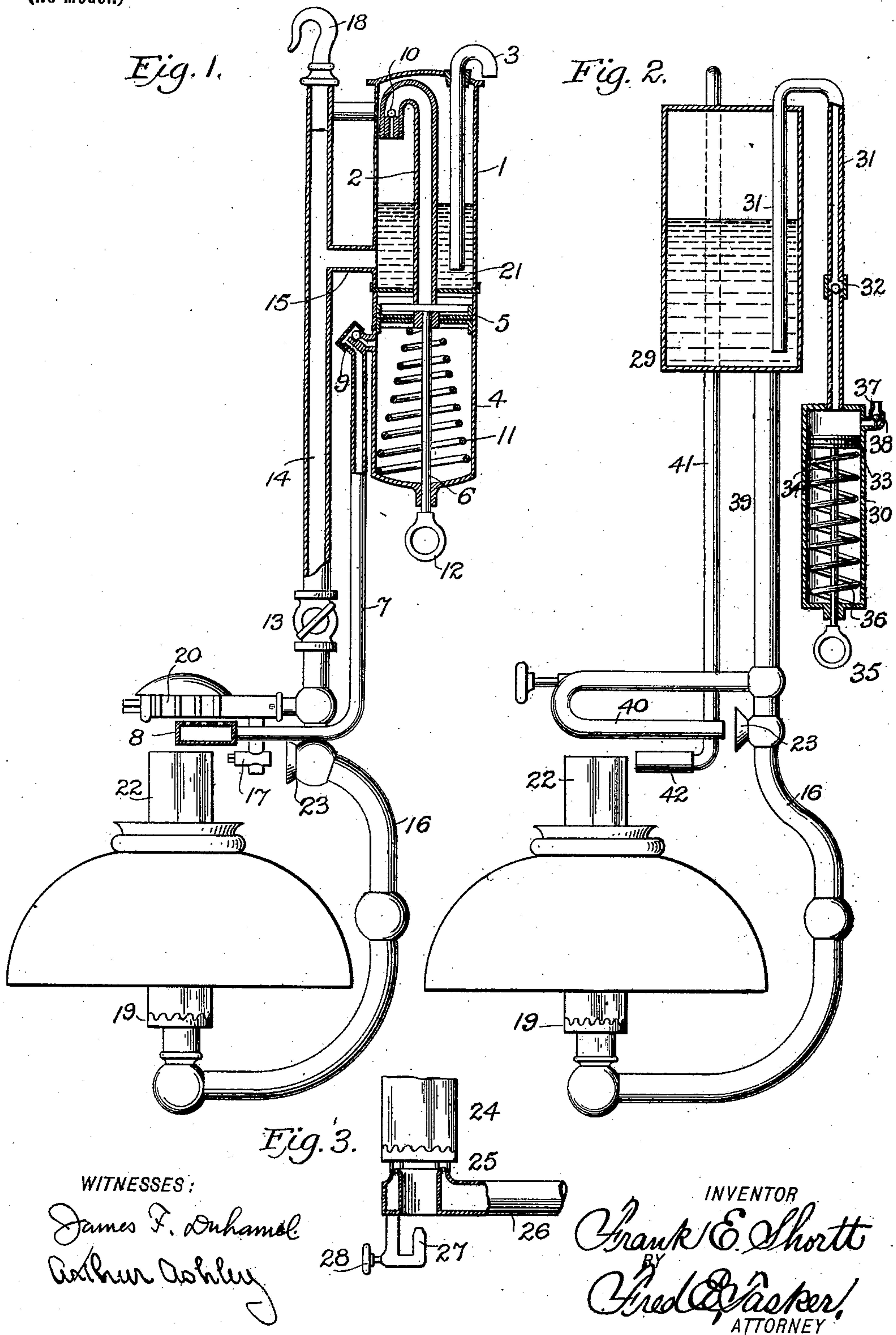
No. 689,656.

Patented Dec. 24, 1901.

F. E. SHORTT.
GASOLENE LAMP.

(Application filed July 19, 1900.)

(No Model.)



UNITED STATES PATENT OFFICE.

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GASOLENE-LAMP.

SPECIFICATION forming part of Letters Patent No. 689,656, dated December 24, 1901.

Application filed July 19, 1900. Serial No. 24,142. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. SHORTT, a citizen of the United States of America, and a resident of Carthage, in the county of Jefferson, State of New York, have invented certain new and useful Improvements in Gasolene-Lamps, of which the following is a specification.

This invention has reference to a gasolene-lamp, its object being to simplify and perfect the construction and arrangement of a heating-flame device for use in connection with the generator or vaporizer.

Among many objects which might be mentioned is that of simplicity and efficiency, coupled with cheapness and convenience of construction.

The invention, therefore, may be said to consist, essentially, in the construction and combination of parts, substantially as will be hereinafter more fully described and claimed.

In the accompanying drawings, Figure 1 is a sectional side elevation of my improved gasolene-lamp. Fig. 2 is a similar sectional side elevation of a modified form of my invention. Fig. 3 is a detailed sectional view showing the oil supplied at a point contiguous to the lamp-burner and represents a still further modification of my improvement.

Similar numerals of reference designate corresponding parts throughout all the different figures of the drawings.

1 designates the oil-tank, which contains a greater or less quantity of oil or gasolene, as at 21. Centrally within the reservoir 1 is a draft-tube 2, curved at its upper end and provided at the upper extremity with a check-valve 10. This draft-tube extends, consequently, from the upper interior portion of the reservoir 1 above the oil downwardly through the lower end of said reservoir and enters the air-cylinder 4, which is supported vertically beneath the oil-tank 1. The said oil-tank is further provided with an air-inlet pipe 3; which leads downwardly into the oil or gasolene 21. Inside of the cylinder 4 is a piston 5, adapted to play up and down within said cylinder and provided with a rod 6, the lower end of which projects through the bottom of the cylinder 4 and is furnished with the terminal handle 12, by means of which

the piston 5 is reciprocated, there being a spiral spring 11 coiled between the piston 5 and the lower end of the cylinder 4, the function of which is to lift the piston 5 after it has been depressed by pulling downwardly the handle 12. A pipe 7 extends from a point in the wall of the cylinder 4, near the upper end of said cylinder, to the initial heater 8, which is situated at a point above the lamp-chimney 22 and below the generator or vaporizer coil 20. This pipe 7, which may be called a "gas-conducting" or "vapor-conducting" pipe, is furnished with a check-valve 9 at a bend in the pipe which is close to the wall of cylinder 4, said valve having the function of permitting the outflow of vapor from the cylinder 4 and preventing any inflow or backflow of the vapor at this point. The initial heater 8 may be of any suitable and ordinary construction to permit a heating-flame to be kindled beneath the generator-coil 20. From the side of the oil-reservoir 1 leads the branch pipe 15, which enters the oil-pipe 14, that leads downwardly to the generator 20, said pipe 14 being furnished with a cock 13 to turn on or off the flow of oil. At the upper end of pipe 14 is a hook 18, by means of which the entire lamp device is supported from a ceiling or other object.

The generator 20 is provided with the angle-pipe 17, through which gas passes from the generator and is delivered into the end 23 of the curved pipe 16, which leads to the lamp-burner 19, which is situated vertically below the generator 20 and likewise below the initial heater 8 of the heating-flame device.

In the operation of the construction which I have just described it will be observed that if the operator pulls downwardly upon the handle 12 and causes the piston 5 to descend as far as it will go a vacuum will be formed in the upper end of the cylinder 4, which vacuum will also be created in the draft-tube 2, which in turn forms a vacuum in the upper part of reservoir 1, a process which causes the atmospheric pressure to flow into and fill the vacuum through the air-inlet 3. This air passes through the gasolene 21 in reservoir 1 and into the upper or unoccupied space in the reservoir 1, from whence it is drawn to

the cylinder 4 by the movement of piston 5, as stated, the result being a charging of cylinder 4 with gas and a simultaneous compression of the spring 11. As this spring expands after the release of the handle the effect would be to lift piston 5 and compress the gas contained within the cylinder 4 above said piston, at the same time closing the check-valve 10, while at the same time this gas thus compressed passes out of cylinder 4 through the check-valve 9 into the conducting-pipe 7 to the initial heater 8, where it mingles with the atmosphere, forming a combustible mixture which is ignitable. The lighting of this initial heater 8 of course results in the application of heat to the generator 20 and causes gas to flow into pipe 16 to the burner 19, and the heat from said burner being directly against the generator 20 the process of evolving gas for the continuous operation of the lamp is easily solved.

Fig. 3 relates to a form of lamp in which the gas is not generated by a coil above the chimney, as it is in Fig. 1, but is generated below the burner.

In Fig. 3, 24 denotes the chimney; 25, the burner and generator; 26, the oil-supply; 27, the jet of gas for the ignition of my improved heating-flame, and 28 the valve for controlling the flow of gas to the jet 27. It is unnecessary to describe this modification in perfect detail, for it is seen at a glance that it presents merely the adaptation of my improved heating-flame device to that style of lamp wherein the gas is generated by simply heating the burner.

In the modified form of the invention represented in Fig. 2 I have shown means whereby my improved lamp can operate on the principle of pressure instead of by the creation of a vacuum.

As illustrated in Fig. 2, 29 designates the oil-reservoir. A pipe 31 leads from the bottom of said reservoir upwardly through the top thereof, and then out and downwardly, entering a cylinder 30. In the length of this conductor-pipe is a check-valve 32. Within cylinder 30 is a piston 33, having a piston-rod 34, provided with a handle 35 and a lifting-spring 36, which is coiled beneath the piston 33. In the wall of the cylinder 30, near the upper end thereof, is an atmospheric inlet 37, having a check-valve 38. 39 designates the oil-pipe which leads from the reservoir 29 to the generator 40. A vapor-conducting pipe runs from the reservoir 29 to the initial heater 42, which is situated near the upper end of the chimney 22 and to one side thereof. A pipe 16, having a mouth 23, located to receive the gas from the generator 40, is arranged in a manner similar to its location in Fig. 1 for the purpose of conveying gas to the burner 19. With this modified form of my invention it will be manifest that by pulling downwardly upon the piston 33 the spring 34 will be compressed, and at the same time air will be drawn into the cylinder 30 through the check-valve 38. After releasing the handle the spring 34 will force the piston 33 upwardly, thereby driving the amount of air that has been taken in upwardly through the pipe 31, forcing it through the gasoline to the top of the reservoir 29, from whence it will pass out through the conducting-pipe 41 to the heating-flame burner 42. Thus it will be seen that in this modification I simply apply the principle which is utilized in Fig. 1.

Having thus described my invention, what I claim is—

1. In a gasoline-lamp, the combination with the oil-reservoir, of an air-cylinder connected to the same, means for forming a vacuum in the air-cylinder, a draft-tube extending from the air-cylinder into the upper part of the oil-reservoir, a valve in said tube, an air-inlet tube extending into the reservoir beneath the fluid in the same, a generator, a tube connecting the air-cylinder with the initial heater, a tube connecting the reservoir with the generator, and an initial heater near the generator.

2. In a gasoline-lamp, the combination with the oil-reservoir, of an air-cylinder connected to the same, a spring-operated piston in the air-cylinder, an air-tube extending into the oil-reservoir beneath the fluid, a draft-tube connecting the air-cylinder and oil-reservoir, and having its upper end extending into the upper end of the reservoir, a valve in the end of said tube to prevent the outflow of the fluid from the air-cylinder, a generator, an oil-pipe connecting the oil-reservoir with the generator, an initial heater near the generator, a valve-controlled conducting-pipe connecting the air-cylinder and initial heater, and a pipe for delivering gas from the generator to the lamp-burner, substantially as described.

3. In a gasoline-lamp, the combination with the oil-reservoir, of an air-cylinder connected to the same, an air-inlet pipe extending into the oil-cylinder, a draft-tube extending from the oil-reservoir into the air-cylinder, and having its upper end extending into the upper end of the reservoir, a valve in said tube to prevent the outflow of the fluid from the air-cylinder, a spring-operated piston in the air-cylinder, a handle for retracting the piston against the power of said spring, a generator, an oil-pipe connecting the oil-reservoir with the generator, an initial heater near the generator, a valve-controlled conducting-pipe connecting the air-cylinder and initial heater, and a pipe for delivering gas from the generator to the lamp-burner, substantially as described.

Signed at Carthage this 13th day of July, 1900.

FRANK E. SHORTT.

Witnesses:

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D. B. GERNER.