

No. 697,015.

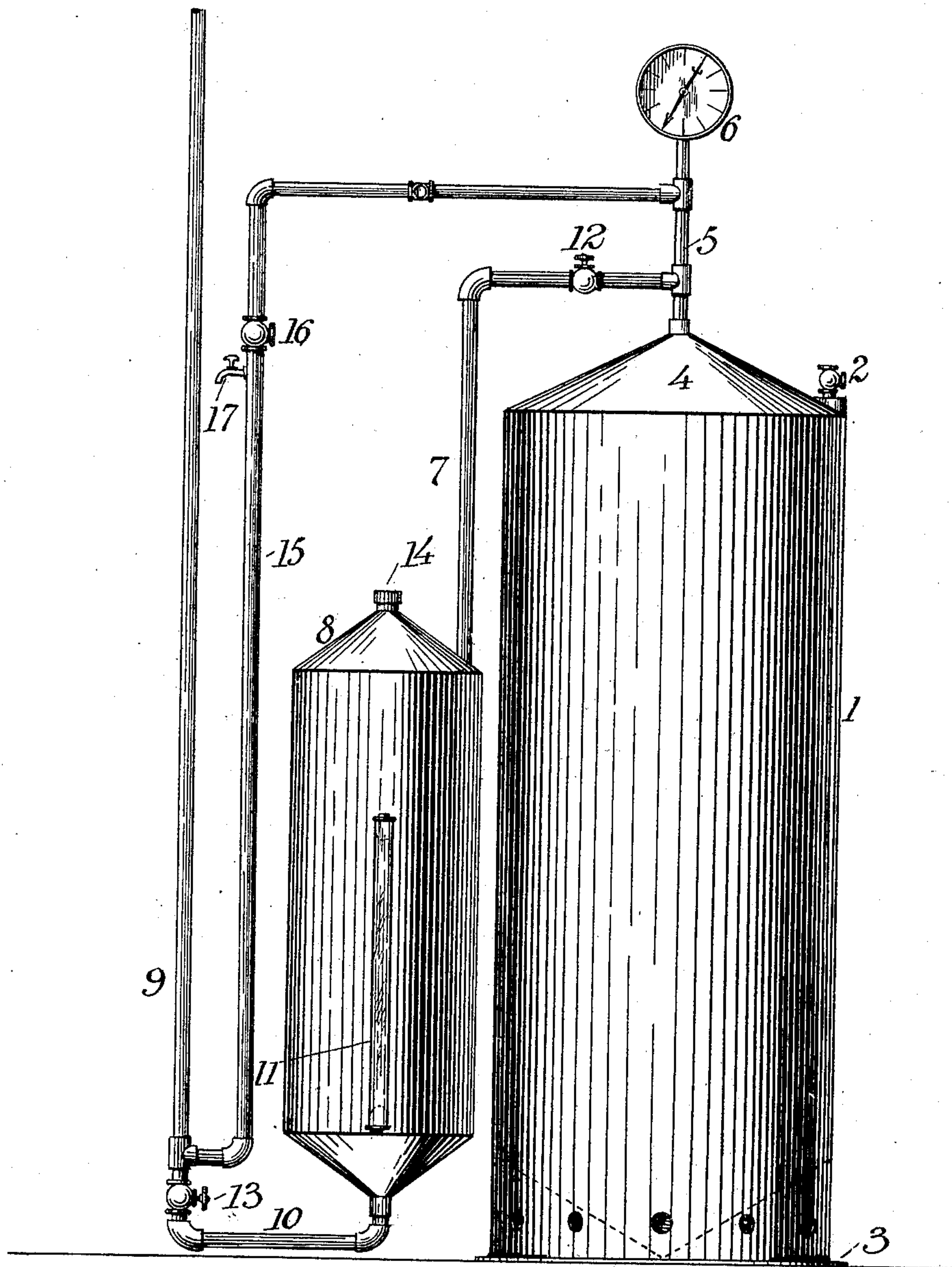
Patented Apr. 8, 1902.

J. E. RAFF.

AIR PRESSURE SYSTEM OF LIGHTING.

(Application filed Mar. 18, 1901.)

(No Model.)



Witnesses:

*J. S. Bowen*  
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# UNITED STATES PATENT OFFICE.

JAMES E. RAFF, OF GARWIN, IOWA, ASSIGNOR OF TWO-THIRDS TO HARRY V. MOYER AND EDWIN BEERY, OF GARWIN, IOWA.

## AIR-PRESSURE SYSTEM OF LIGHTING.

SPECIFICATION forming part of Letters Patent No. 697,015, dated April 8, 1902.

Application filed March 18, 1901. Serial No. 51,749. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES E. RAFF, a citizen of the United States, residing at Garwin, in the county of Tama and State of Iowa, have invented a new and useful Air-Pressure System of Lighting, of which the following is a specification.

The invention relates to improvements in lighting systems.

The object of the present invention is to improve the construction of lighting systems in which the supply-tank is located at a point remote from the lights, and to provide a simple and comparatively inexpensive one which will enable the supply-tank to be cut out for a limited length of time for supplying it with gasolene or other liquid hydrocarbon without affecting the lights.

The invention consists in the construction and novel combination and arrangement of parts hereinafter fully described, illustrated in the accompanying drawing, and pointed out in the claim hereto appended.

The figure of the drawing is an elevation of an apparatus constructed in accordance with this invention and forming a part of a lighting system.

Referring to the drawing, 1 designates a compressed-air reservoir, preferably in the form of a cylindrical receptacle, provided at the top with a suitable air-valve 2 and having a conical bottom, as indicated in dotted lines in the drawing, and provided with a depending annular flange 3, forming a base or support for the reservoir. The top 4 is also conical, and from the apex thereof extends a vertical pipe 5, upon which is mounted a suitable pressure-gage 6 for indicating the pressure of the air within the reservoir. The air within the reservoir may be compressed by any suitable means, preferably by connecting an air pump or compressor with the valve 2.

The reservoir is connected by a main air-pipe 7 with a tank 8, preferably cylindrical, and provided with conical ends and adapted to contain gasolene or other liquid hydrocarbon or other fuel which when mixed with air will produce an illuminating-gas. The main air-pipe extends from the top of the tank to the pipe 5 at a point adjacent to the

upper end of the reservoir, and the bottom of the tank is connected with a main supply-pipe 9, having a short connecting-arm 10 at the bottom and extending vertically at one side of the tank. The tank is provided with a suitable gage 11 for indicating the quantity of liquid within it, and it will be apparent that such liquid will rise in the main supply-pipe and will stand at the same level in the said supply-pipe as in the tank. The main air-pipe is provided with a suitable valve 12, and a similar valve 13 is mounted in the main supply-pipe adjacent to the lower end of the tank, so that the tank may be cut out of the system while it is being refilled, and it is provided at the top with a filling-opening 14, and it has a suitable closure for the same. The reservoir 1 is also connected with the main supply-pipe at a point beyond the valve 13 with an auxiliary pipe 15, adapted to contain a quantity of the gasolene or other fuel and to permit the same to be temporarily utilized for wholly supporting or supplying the system with gas while the tank is being refilled. The pipe 15 extends from the lower end of the vertical portion of the main supply-pipe 9 at a point above the valve 13 to the upper portion of the reservoir-pipe 5, and its lower portion is adapted to contain a quantity of gasolene or other fuel used. It is provided at its upper portion at a point above the tank with a valve 16, and it has a cock 17, arranged a short distance beneath the said valve 16 and adapted to permit the escape of air from the lower portion of the auxiliary pipe 15 to permit the gasolene or other liquid fuel to rise within the said lower portion of the pipe 15. By this construction a quantity of the fuel is forced into the lower portion of the auxiliary pipe 15, which is adapted to hold a sufficient quantity to maintain the system in operation while the supply-tank is being refilled. When the tank is cut out, as before explained, the air from the reservoir passes through the supplemental pipe 15 through the liquid hydrocarbon contained therein, and sufficient illuminating-gas will be thus produced to supply the burners with fuel and to enable a system of lights to be maintained uninterruptedly while the tank is being refilled. The reservoir 1 is adapted to contain sufficient



compressed air to force the fuel to the burn-  
ers, and the flow of the gas or fuel may be  
controlled by the several valves.

It will be seen that the construction and  
5 arrangement are exceedingly simple, and  
that the apparatus is inexpensive, and that it  
provides means for effectively producing illu-  
minating-gas and will enable the tank to be  
temporarily cut out for filling without inter-  
10 fering with the lighting system.

The main supply-pipe may be connected  
with the burners in any suitable manner, and  
the apparatus may be located in a cellar,  
basement, outhouse, or any other point re-  
15 mote from the burners, and I desire it to be  
understood that various changes in the form,  
proportion, size, and the minor details of con-  
struction within the scope of the appended  
claim may be resorted to without departing  
20 from the spirit or sacrificing any of the ad-  
vantages of this invention.

What is claimed is—

In an apparatus of the class described, the  
combination of an air-reservoir, a fuel-tank,

a main air-pipe extending directly from the 25  
air-reservoir to the fuel-tank, a main supply-  
pipe extending from the bottom of the fuel-  
tank, a supplemental pipe extending from  
the main supply-pipe at a point adjacent to  
the plane of the bottom of the fuel-tank to 30  
the air-reservoir and having an upright por-  
tion adapted to contain a portion of the fuel  
and provided with a valve 16 and with a cock  
17 located below the valve and adapted to be  
open to permit the fuel to rise in the upright 35  
portion of the supplemental pipe, said sup-  
plemental pipe forming a passage or conduit  
for the air when the tank is cut out for refill-  
ing, and valves for cutting out the tank, sub-  
stantially as described. 40

In testimony that I claim the foregoing as  
my own I have hereto affixed my signature in  
the presence of two witnesses.

JAMES E. RAFF.

Witnesses:

T. J. BEERY,

J. B. BYWATER.