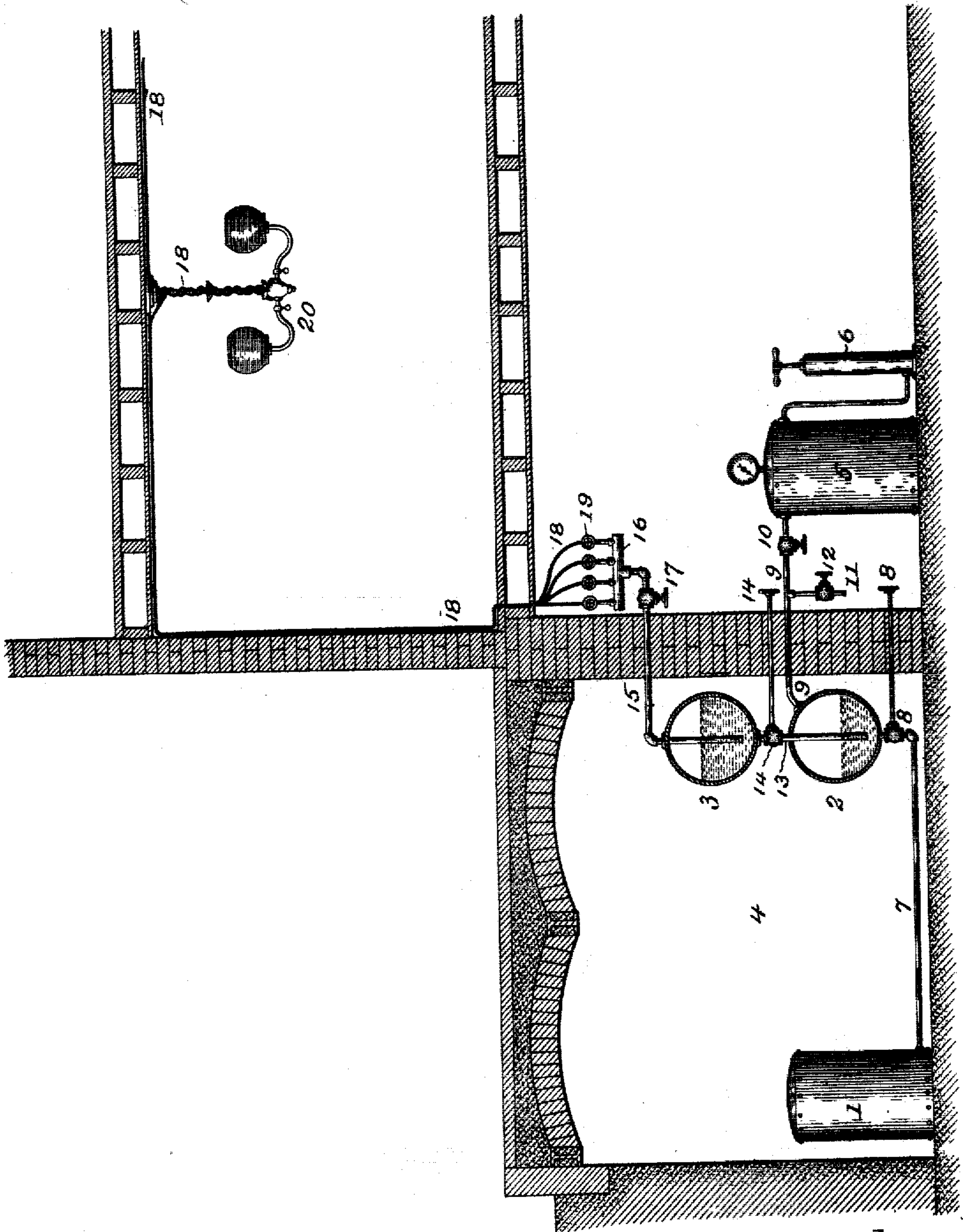


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J. B. CHRISTIAN.  
GASOLENE LIGHTING SYSTEM.

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# UNITED STATES PATENT OFFICE.

JOHN B. CHRISTIAN, OF MINNEAPOLIS, MINNESOTA.

## GASOLENE LIGHTING SYSTEM.

No. 811,823.

Specification of Letters Patent.

Patented Feb. 6, 1906.

Application filed August 2, 1902. Renewed July 19, 1905. Serial No. 270,438.

*To all whom it may concern:*

Be it known that I, JOHN B. CHRISTIAN, a citizen of the United States of America, and a resident of Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Gasolene Lighting Systems, of which the following is a specification.

The present invention relates to that type of gasolene lighting system in which the gasolene is piped in a fluid condition from a tank outside the building to the series of vapor-lamps within the building to be generated into vapor and utilized for lighting purposes in such lamps; and the present improvement has for its object to provide a simple, durable, and convenient apparatus for such purpose in which are combined the features of great safety, a uniform and continuous supply of the gasolene to the series of lamps, an easy and convenient control of the supply of gasolene to the series of lamps in an individual manner, and the prevention of a leakage of any large quantity of gasolene in case of accident to the apparatus by which the gasolene is supplied to the series of lamps, all as will hereinafter more fully appear and be more particularly pointed out in the claims. I attain such objects by the construction and arrangement of parts illustrated in the accompanying drawing, which represents in sectional elevation a gasolene lighting system embodying the present improvements.

Referring to the drawing, 1 represents the main storage or supply tank of the system, preferably of the gravity form and of a size large enough to contain an extended supply of gasolene for use in the system.

2 and 3 are twin supply-tanks superimposed one above the other and arranged intermediate of the main tank 1 and the lighting portion of the system. Such tanks are preferably of such size or capacity as to hold a supply of gasolene capable of running the particular lighting system for one day or for any other like period of time, as circumstances and the judgment of the constructor may indicate.

The described series of tanks 1, 2, and 3 are arranged outside in an isolated manner, preferably outside the building and within a vault 4 or other like inclosure, the valve mechanism by which the refilling and the feeding of the gasolene from the tanks 2 and 3 is regulated and controlled being extended through the walls of said inclosure and into

the interior of the building for convenient manipulation.

5 is a storage-tank for containing a supply of compressed air for use in the system, and 6 a compression-pump of any usual and suitable construction by means of which a supply of compressed air is maintained in said air-storage tank.

7 is a supply-pipe extending from the lower end of the main tank 1 to the lower end of the under tank 2 and provided with a valve 8, by which the flow of gasolene from the tank 1 can be shut off after a filling of the tank 2 has been effected.

9 is an air-supply pipe extending from the air-storage tank 5 to the top of the under tank 2 and adapted to introduce a supply of compressed air into such tank 2.

10 is a valve controlling the supply of air to the tank 2.

11 is a blow-off connected to the tank 2, preferably as a branch of the air-supply pipe 9, and provided with a controlling or blow-off valve 12, as shown.

13 is a vertical pipe connecting the tanks 2 and 3 together, its lower end extending to near the bottom of the tank 2, the arrangement being such that with a pressure of air existing in the lower tank the tendency will be to first force the gasolene contained therein into the upper tank and then introduce a supply of compressed air into such upper tank.

14 is a valve in the pipe controlling the described communication between the tanks 2 and 3.

15 is a gasolene-conducting pipe extending from the bottom of the upper tank 3 to a manifold 16 within the building and provided with a valve 17, by which the supply of gasolene to such manifold is regulated and controlled.

18 represents a series of individual conducting pipes or tubes extending in an individual manner from the manifold 16 to the lamps or burners in the building, and such series of pipes are provided with individual controlling-valves 19 in adjacent relation to the manifold 16, so as to admit of the control of the series of lamps in the building from a central point and in an individual manner. In this connection a material part of the present invention consists in the employment of wrought-metal tubing of extended lengths and very small diameter, as the gasolene-conducting tubes or pipes 18 afore-



said, in view of the advantages afforded in the present use thereof, as follows: A minimum of gasolene contained within the building in the actual use of the lighting system, in consequence of which the danger therefrom is correspondingly reduced in case of fire or accident, the avoidance of numerous joints, as in ordinary gas-fitting practice, in that each individual tube in the system can be a single piece extending from the manifold 16 to a lamp 20, and ease and cheapness of application in that said tubes can be arranged and applied in manner similar to ordinary electrical wiring in buildings and can be bent, twisted, and entwined to meet any usual and ordinary requirements met with in an application to a building.

20 represents the lamps in the building, which are preferably of the incandescent mantel type now in general use throughout the country.

In the operation of the present apparatus the valve 10, controlling the supply of compressed air to the lower tank 2, is closed, as well as the valve 14, controlling communication between the tanks 2 and 3, while the blow-off valve 12 and the valve 8, controlling communication between the main tank 1 and the lower tank 2, are opened. Under such conditions the gasolene flows by gravity from the main tank 1 into the tank 2, filling the same. The valves 8 and 12 are then closed, and the valves 10 and 14 opened, and under such conditions a supply of compressed air is introduced into the lower tank 2 to initially force the contained gasolene into the upper tank 3 and subsequently introduce a supply of compressed air into the upper end thereof through the pipe connection 13, so that on a subsequent closing of the valve 14 the upper tank will contain in an independent manner a supply of gasolene and compressed air and maintain continued supply of such gasolene to the lamps or burners for a period of time, so that the lower tank 2 may be again refilled in manner above described. Such arrangement affords an uninterrupted supply of gasolene to the lamps or

burners for any desired period of time in that the main tank, as well as the lower supply-tank 2, can be refilled as often as required without interfering with the constant flow of gasolene from the upper supply-tank 3.

Having thus fully described my said invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a gasolene lighting system of the class herein described, the combination of a main gasolene-storage chamber, an intermediate receiving-chamber of small capacity connected to the main chamber and adapted to be supplied therefrom by gravity, means for introducing and controlling a supply of compressed air to said intermediate chamber, a delivery-chamber of small capacity connected to said intermediate chamber and adapted to be supplied therefrom, means for controlling communication between the chambers aforesaid, a series of stationary lamps, and pipe connections between said lamps and the delivery-chamber aforesaid, substantially as set forth.

2. In a gasolene lighting system of the class herein described, the combination of a main gasolene-storage chamber free from pressure, an intermediate receiving-chamber of small capacity connected to the main chamber and adapted to be supplied therefrom by gravity, means for introducing and controlling a supply of compressed air to said intermediate chamber, a delivery-chamber of small capacity connected to said intermediate chamber and adapted to be supplied therefrom, means for maintaining pressure in said delivery-chamber, means for controlling communication between the chambers aforesaid, a series of stationary lamps, and pipe connections between said lamps and the delivery-chamber aforesaid, substantially as set forth.

Signed at Minneapolis, Minnesota, this 31st day of July, 1902.

JOHN B. CHRISTIAN.

Witnesses:

F. J. LYMAN,

W. M. BRUGGER.