No. 698,364. Patented Apr. 22, 1902.

J. G. BRANCH.

APPARATUS FOR DISTRIBUTING HYDROCARBON UNDER PRESSURE TO HYDROCARBON LAMPS.

(Application filed Apr. 27, 1900.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 1.

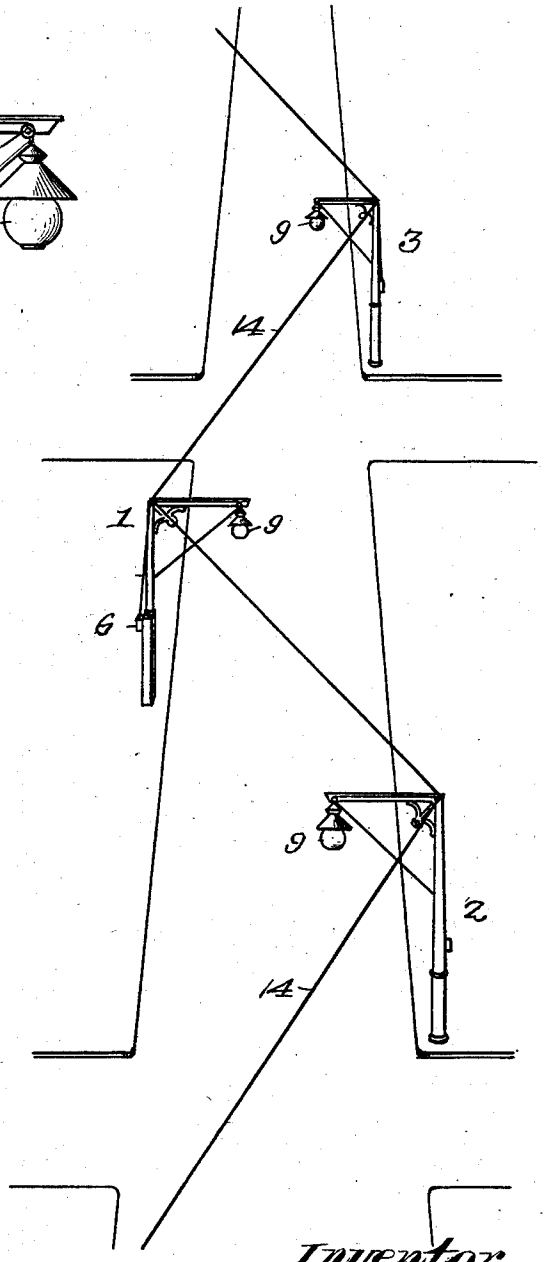
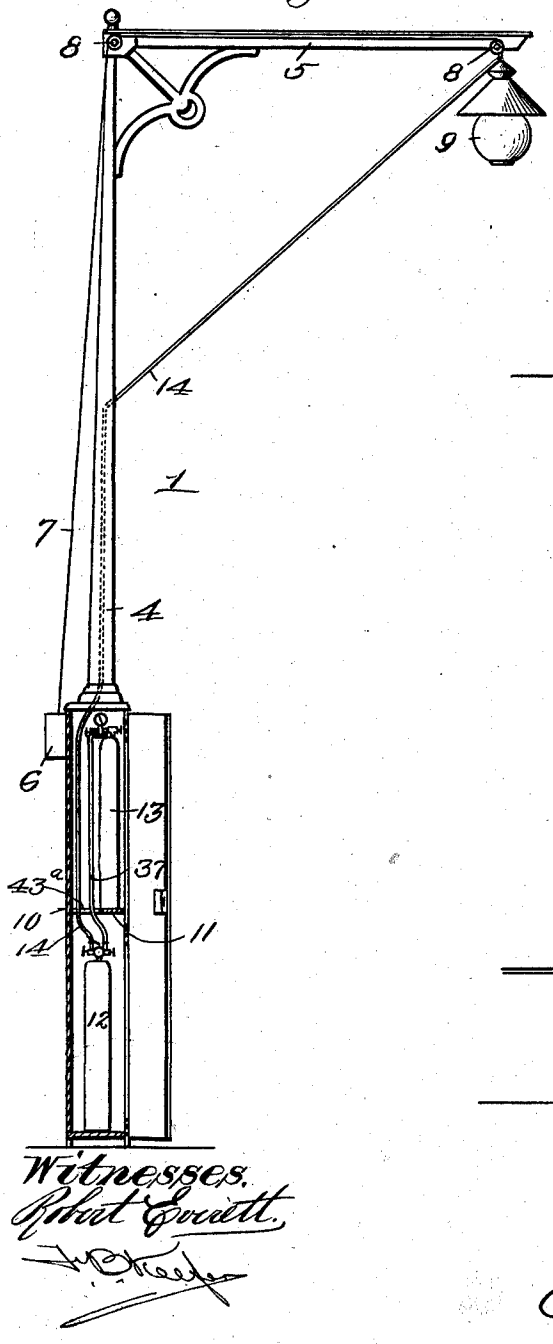


Fig. 2.



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Fig. 3.

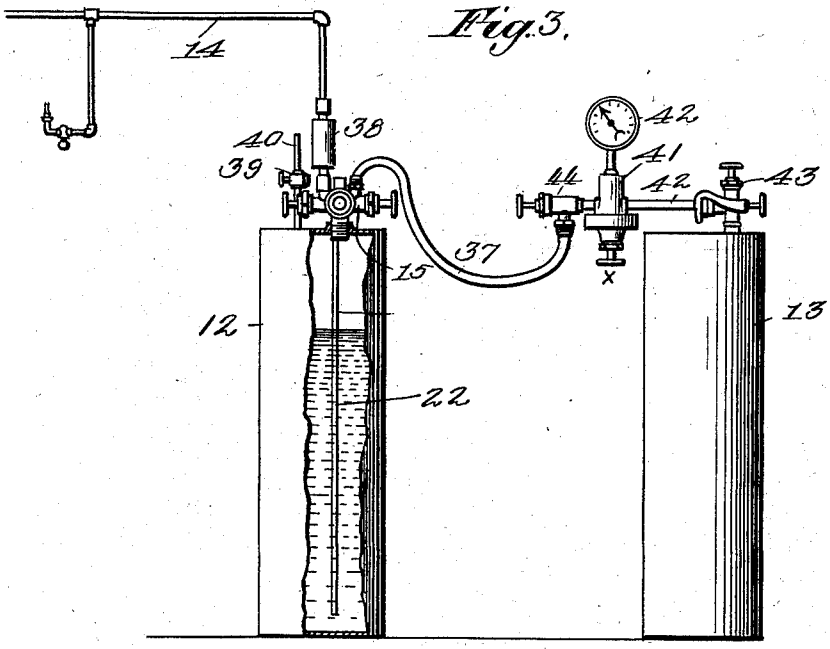


Fig. 4.

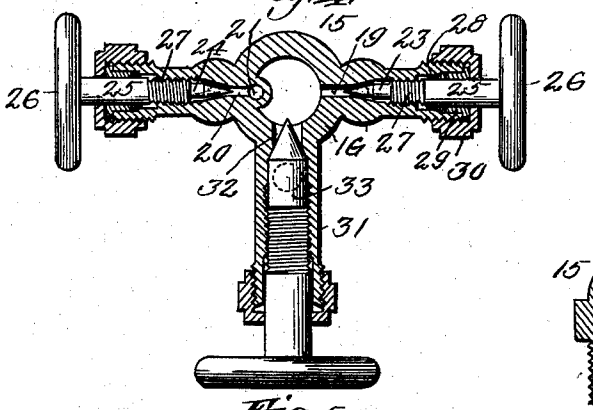


Fig. 6.

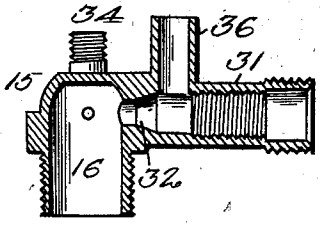
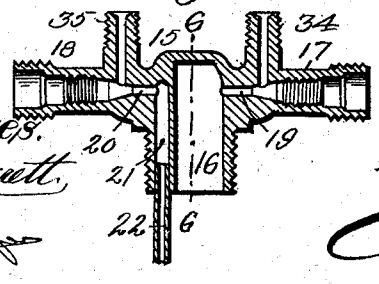


Fig. 5.



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UNITED STATES PATENT OFFICE.

JOSEPH G. BRANCH, OF ST. LOUIS, MISSOURI.

APPARATUS FOR DISTRIBUTING HYDROCARBON UNDER PRESSURE TO HYDROCARBON-LAMPS.

SPECIFICATION forming part of Letters Patent No. 698,364, dated April 22, 1902.

Application filed April 27, 1900. Serial No. 14,613. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH G. BRANCH, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented new and useful Improvements in Apparatus for Distributing Hydrocarbon Under Pressure to Hydrocarbon-Lamps, of which the following is a specification.

This invention relates to an improved apparatus for distributing hydrocarbon under pressure to hydrocarbon street-lamps; and it has for its object to provide novel means whereby the hydrocarbon will be supplied in a constant, continuous, and uniform manner from a single source of supply contained in one of the lamp structures to the burners of a number of street-lamps remote from one another.

To this end my invention consists in the construction, combination, and arrangement of parts hereinafter described, and particularly pointed out in the claim following the description, reference being had to the accompanying drawings, forming a part of this specification, wherein—

Figure 1 is a perspective view illustrating a group of three street-lamps forming a part of a lamp-lighting system constructed and arranged according to my invention. Fig. 2 is an enlarged detail view of the lamp structure forming a part of the system and from which all the other lamps of the system are supplied. Fig. 3 is a view illustrating the pressure and hydrocarbon tanks removed from the lamp structure, but shown connected up in operative position. Fig. 4 is a horizontal sectional view of the three-way plug on the hydrocarbon-tank. Fig. 5 is a vertical sectional view of the three-way-plug casing. Fig. 6 is a similar view taken on the line 6 6 of Fig. 5.

Referring to Figs. 1 and 2 of the drawings, the numerals 1, 2, and 3 respectively indicate street-lamps which are arranged in and form part of a single street-lighting system, the numeral 1 indicating the lamp from which all the other lamps in the system are supplied with hydrocarbon.

Referring to Fig. 1, the numeral 4 indicates a lamp-post provided at its upper end with a laterally-projecting bracket-arm 5. Fixed on the lower part of the post is a casing 6, containing a winding mechanism, drum, or windlass of any preferred construction, about which is wound a wire or cable 7, which also passes about guide-pulleys 8 on the bracket-arm and has suspended from its end a vapor-lamp 9 of any well-known or preferred construction. The lower part of the lamp-post 4 is made in the form of a cupboard or casing 10, which is divided into an upper and lower compartment by a shelf 11, and in said compartments are respectively arranged a gasolene-tank 12 and a pressure-tank 13, constructed and arranged in a manner hereinafter explained. From the gasolene-tank 12 leads a service-pipe 14, which extends from post to post throughout the entire system and connects in series all the lamps included in said system. All the lamps in communication with the service-pipe 14 are supplied with gasolene from the single tank 12, and each lamp may be individually raised and lowered by its cable 7 to receive proper care and attention. In this manner all the lamps are supplied with illuminating fluid from a single or central station, which consists of one of the lamp structures itself, so that but little time and labor, and consequently slight expense, are involved in maintaining all the lamps in operative condition. The gasolene is fed to all the lamps from the gasolene-tank 12 by pressure supplied from the pressure-tank 13, which is in communication with the upper part of the gasolene-tank. The pressure may be generated or stored in the pressure-tank from any preferred source—as, for example, by charging the pressure-tank with carbonic-acid gas or compressed air—and said pressure-tank is made detachable from the gasolene-tank and removable from the cupboard 10, so that an exhausted pressure-tank may be readily removed and a fully-charged one substituted.

For the purpose of this invention the gasolene and pressure tanks are preferably constructed and arranged in the manner and provided with the attachments and connections which will now be explained.

Referring to Figs. 3 to 6 of the drawings, the numeral 12 indicates a cylindrical tank for holding the gasolene which is intended to

supply the lamps, 14 the service-pipe leading from the gasolene-tank to the lamps, and 13 the pressure-cylinder intended to contain carbonic-acid gas, (or compressed air,) which is employed for forcing the gasolene from the tank 12 to the lamps.

Fitted in the top of the tank 12 is a three-way plug, constructed as follows: The numeral 15 indicates the plug-casing, comprising a hollow shell having a vertical cylindrical portion 16, which is threaded externally and screwed into the head of the tank 12. Formed on the opposite sides of the upper end of the cylindrical portion 16 are two nipples or lateral extensions 17 and 18, the former of which communicates by a contracted port 19 with the cylindrical portion 16, while the nipple 18 communicates by a similar port 20 with a vertical duct 21 in the said cylindrical portion. Fitted in said duct is an oil-pipe 22, which extends down into the tank and to within a short distance of the bottom of the latter. Needle-valves 23 and 24 are respectively arranged in the nipples 17 and 18 and control the ports 19 and 20. Each of said valves is provided with a stem 25, that projects out through and beyond the end of the nipple and has fixed on its outer end a hand-wheel 26, as usual. The valve-stem intermediate its ends is threaded, as at 27, and screws into a corresponding female thread formed on the interior of the nipple. The stem 25 passes through a stuffing-box in the nipple, constructed as follows: Arranged in the enlargement formed in the end of the nipple is a packing 28, which is held to its seat by a flange 29, and the latter in turn is held in place by a hollow hexagonal nut 30, screwed over the end of the nipple. A nipple 31 is also formed on one side of the cylindrical portion 16, intermediate the nipples 17 and 18, and communicates with said cylindrical portion by means of a port 32, which latter is controlled by a needle-valve 33, similar in construction to the needle-valves before described. Communicating, respectively, with the nipples 17, 18, and 31 are hollow vertical extensions 34, 35, and 36. To the extension 35 is screwed the service-pipe 14, which leads to the lamps, and to the extension 34 is coupled one end of a flexible hose 37, which leads from the pressure-tank. Interposed between two adjacent sections of the service-pipe is a filter comprising a hollow casing 38, filled with any suitable material for filtering the gas or other fluid employed for communicating pressure to the hydrocarbon to be fed to the lamps. A small relief-valve 39 is fitted in the upper end of the tank 12, and when the tank is being filled, as hereinafter described, said valve is opened to permit the escape of air and hydrocarbon vapor. If preferred, a small pipe 40 may lead from the valve 39 to carry off the escaping vapor to a point of safety as the tank is being filled. The end of the hose 37 is detachably coupled to a pressure-regulating valve 41 of ordinary construction, and said valve is provided with an ordinary pressure indicating gage 42, which operates to give usual indication of the pressure passing through said valve, and hence enables the operator to set or regulate the valve 41, so as to maintain the desired pressure in the gasolene-tank. The valve 41 is coupled by a pipe 42 to a charging and discharge valve 43, fitted in the upper end of the pressure-tank 13.

The operation of the apparatus for feeding hydrocarbon to the lamps, constructed as above described, is as follows, it being proper to first explain that the pressure and hydrocarbon tanks are respectively arranged in the upper and lower compartments of the closet 10, as before described, and not in the manner as shown in Fig. 3, the latter arrangement simply being adopted in the drawings for convenience of illustration: To fill the gasolene-tank, the valves 23 and 24 are closed and the valves 33 and 39 are opened. The gasolene may then be poured into the extension 36 of the nipple 31 and passes through the latter port 32 and cylindrical portion 16 into the tank 12. After the tank has been filled to the desired height the valves 33 and 39 are closed. When it is desired to supply gasolene to the lamps, it is only necessary to open the valves 23, 24, and 43, and by noting the pressure-gage 42 and opening the valve 41 the desired amount of pressure can be admitted from the pressure-tank 13 to the gasolene-tank 12 at a point above the surface of the gasolene contained in the latter. It will be evident that the pressure will now force the gasolene up through the pipe 22, duct 21, and extension 35 into and through the filter 38, and thence by the service-pipe 14 to the lamps, where it may be consumed as is necessary. The pressure maintained in the gasolene-tank may be regulated by means of the pressure-regulating valve 41 in the manner before described, while by means of the valves 23 and 24 the feed of the gasolene to the service-pipe can be regulated and controlled as desired.

By the construction and arrangement of parts heretofore described not only can all the lamps of the system be supplied from one of the lamp structures forming a part thereof, but the supply to all said lamps can be regulated and controlled from such point, it only being necessary for an attendant to visit the individual lamps of the system to ignite or extinguish the same.

Having described my invention, what I claim is—

In an apparatus for distributing hydrocarbon to street-lamps, the combination with a plurality of street-lamps the base of one of which constitutes a closet provided with two compartments arranged one above the other, of a hydrocarbon-tank and a fluid-pressure tank arranged in said compartments, the fluid-pressure tank being detachably connected to

the hydrocarbon-tank and removable from the closet, a service-pipe leading from the hydrocarbon-tank to the several lamps, and means for conveying fluid-pressure from the pressure-tank to the hydrocarbon-tank in regulated quantities to force the hydrocarbon to the several lamps, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JOSEPH G. BRANCH.

Witnesses:
WILLIAM P. SHERIDAN,
M. BALLARD DUNN.