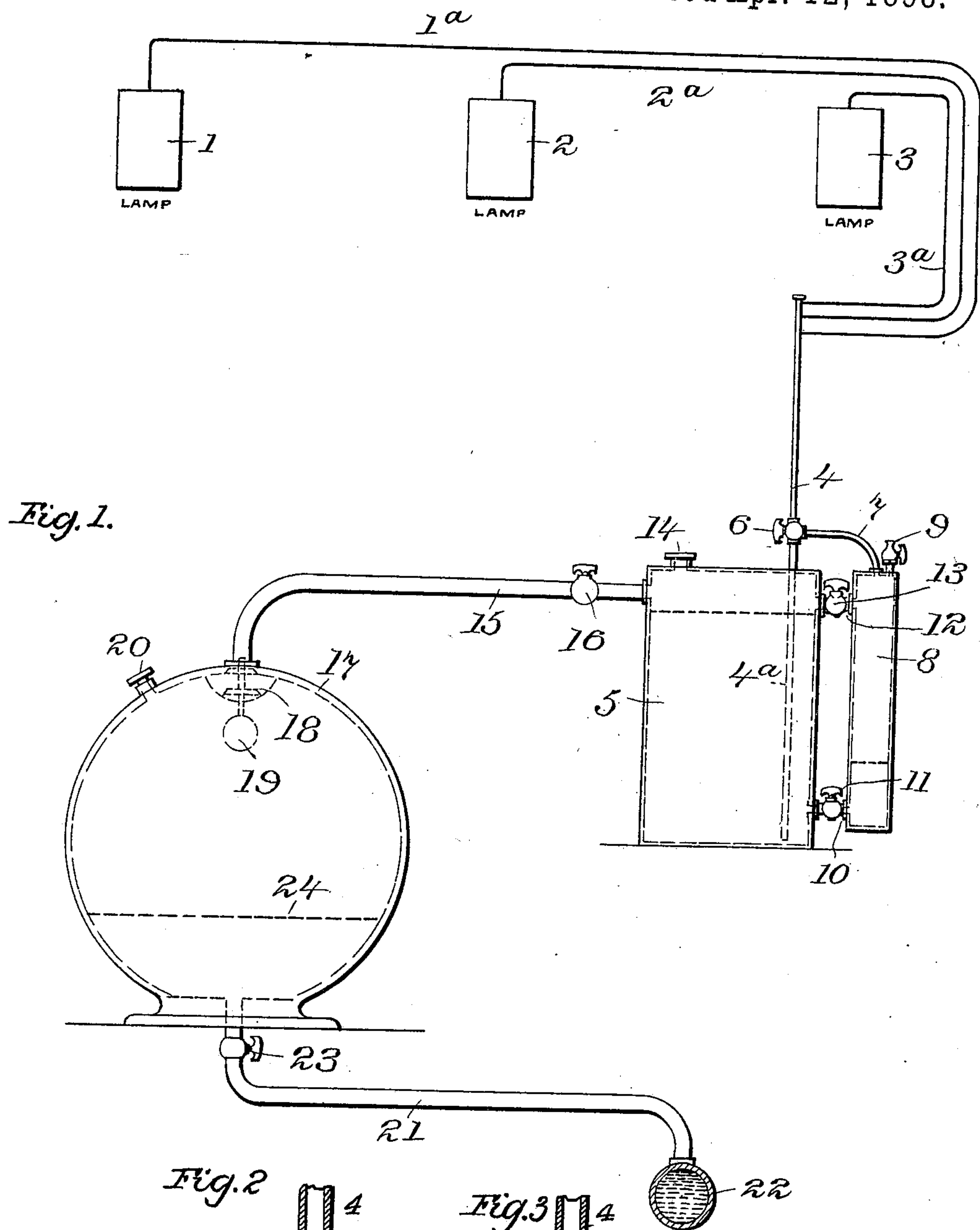
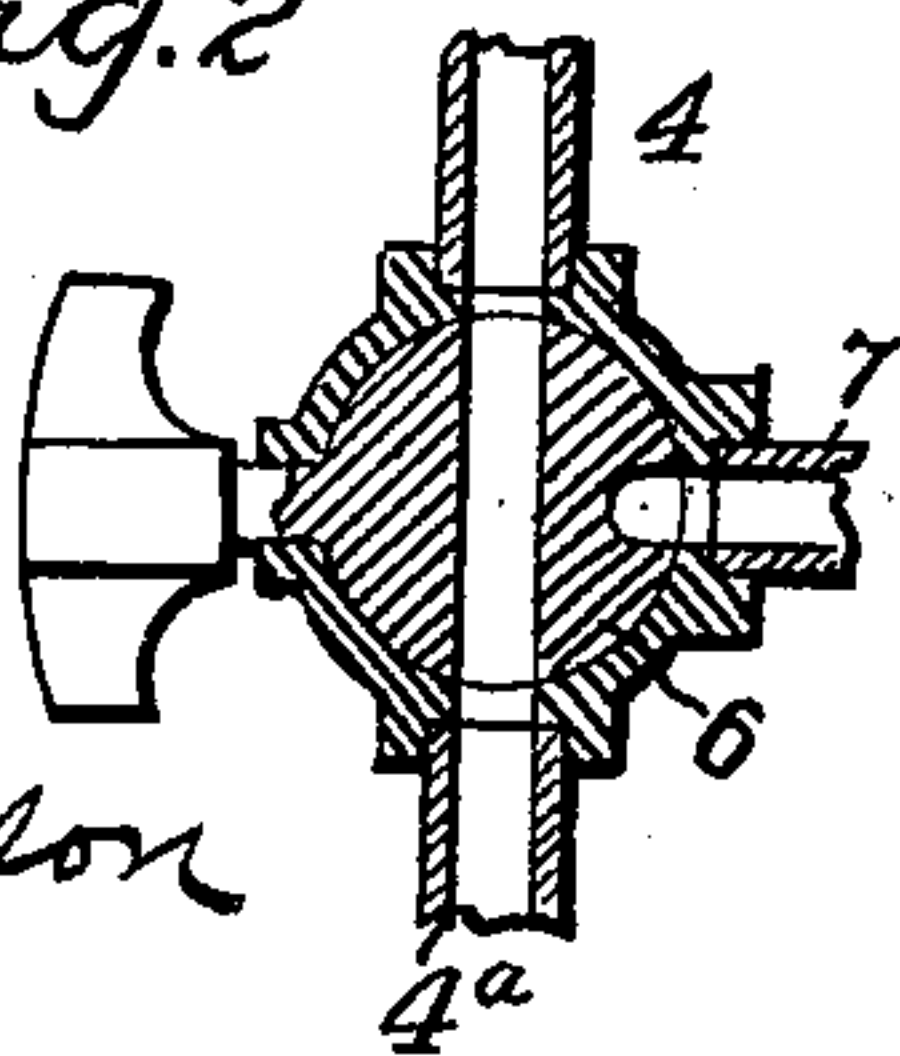


(No Model.)

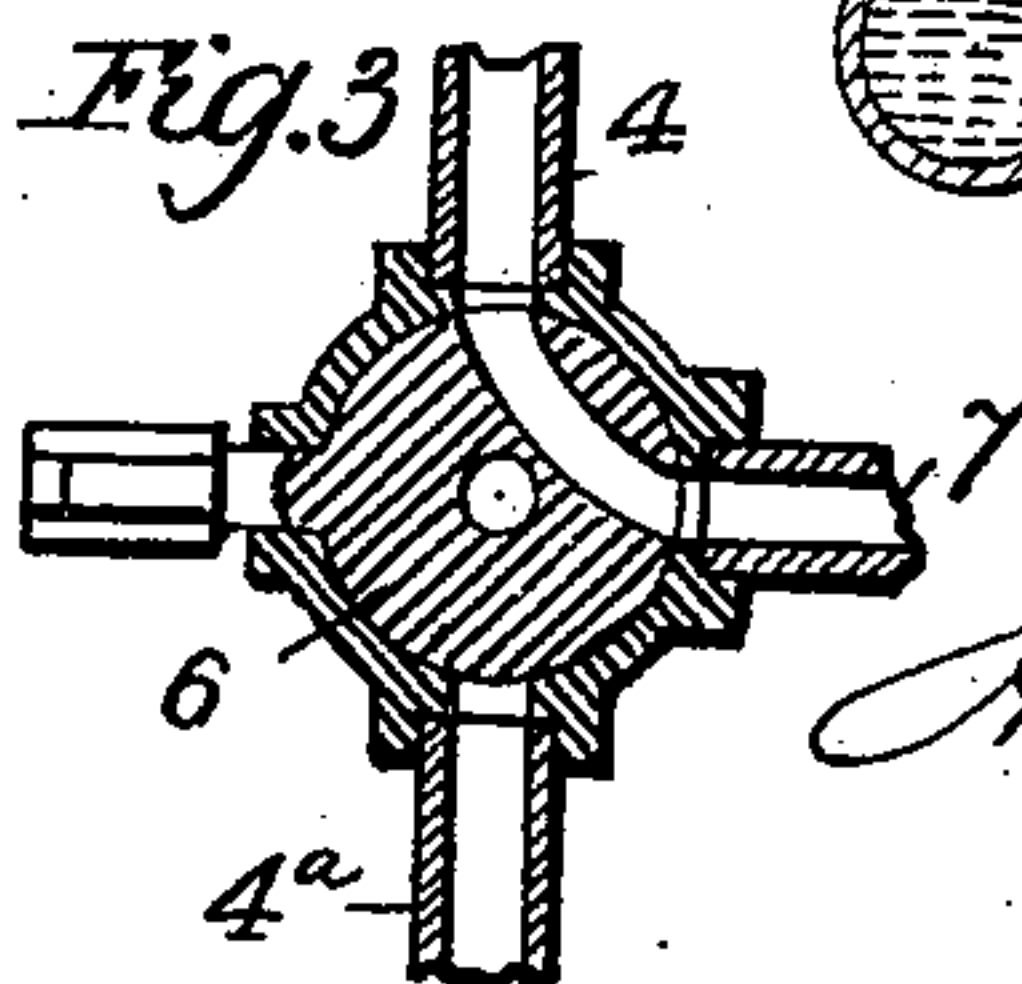
A. KITSON.  
SYSTEM AND APPARATUS FOR DISTRIBUTING FLUID.  
No. 602,223.  
Patented Apr. 12, 1898.



*Fig. 2*



*Fig. 3*



WITNESSES:

*J. E. Pearson*  
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INVENTOR

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BY *A. H. Schmidt*

ATTORNEY

# UNITED STATES PATENT OFFICE.

ARTHUR KITSON, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO THE  
KITSON HYDROCARBON HEATING AND INCANDESCENT LIGHTING COM-  
PANY, OF WEST VIRGINIA.

## SYSTEM AND APPARATUS FOR DISTRIBUTING FLUID.

SPECIFICATION forming part of Letters Patent No. 602,223, dated April 12, 1898.

Application filed November 1, 1897. Serial No. 657,028. (No model.)

*To all whom it may concern:*

Be it known that I, ARTHUR KITSON, a sub-  
ject of the Queen of Great Britain, residing  
at Philadelphia, in the county of Philadel-  
phia and State of Pennsylvania, have in-  
vented a certain new and useful System and  
Apparatus for Distributing Fluid, of which  
the following is a specification.

My invention relates generally to systems  
of fluid distribution, and is more specifically  
designed to provide an improved system for  
distributing oil under pressure to a series of  
vapor-burning lamps.

My improved apparatus consists of means  
for supplying oil to a system of lamps by means  
of constant pressure derived from a head of  
water or otherwise, in combination with means  
for relieving the system of piping connecting  
with said lamps from the contained oil when  
the supply is shut off, and means for return-  
ing said oil to the reservoir at the proper  
time. The reservoir being usually placed at  
a much lower level than the lamps, the oil  
remains standing in the system of service-  
pipes when the supply is shut off and the  
lamps are out, increasing the possibility of  
damage by leakage and interfering with any  
attempts to disconnect or repair any portion  
of the said service system. To overcome  
these disadvantages and produce a system of  
distribution possessing other features of prac-  
tical importance, I have designed the system  
and apparatus herein illustrated in the ac-  
companying sheet of drawings, in which—

Figure 1 is a diagrammatic view of my ap-  
paratus. Fig. 2 is a detail in section of one  
of the two-way cocks 6 and 23, showing the  
same open. Fig. 3 is a similar detail in sec-  
tion, showing the said cock closed and the drip  
connection open.

Throughout the drawings like reference-  
figures refer to like parts.

1 2 3 are representations of a series of va-  
por-burning lamps, which may be preferably  
of the construction illustrated in my pending  
application, Serial No. 648,353, filed August  
16, 1897.

1<sup>a</sup> 2<sup>a</sup> 3<sup>a</sup> are service-pipes supplying oil to  
said lamps, respectively. These service-  
pipes connect to the service-main 4, which

has an extension 4<sup>a</sup>, passing into the oil-res-  
ervoir 5 and reaching nearly to the bottom  
thereof.

6 is a valve controlling said service-main 4,  
which is preferably of the familiar form of  
drip-valve, which when shut off will allow the  
drip to pass out through the drip-pipe 7 into  
the drip-can 8.

10 is a connection from the lower portion of  
the drip-can to the oil-reservoir 5, controlled  
by the valve 11. 12 is a similar connection  
from the upper portion of the drip-can to the  
upper portion of the oil-reservoir and is con-  
trolled by the valve 13.

14 is a screw-capped opening through which  
the reservoir 5 may be charged with oil.

15 is a connection extending from the up-  
per portion of the reservoir 5 to the pressure-  
tank 17 and controlled by the valve 16.

18 is a safety-valve located in the connec-  
tion 15 and preferably at the opening there-  
of, as shown, which, being controlled by the  
float 19 within the pressure-tank, will close  
and prevent the passage of any of the water  
in the pressure-tank over into the oil-reser-  
voir when the water reaches the float.

20 is a connection through which the pres-  
sure-tank may be charged with compressed  
air, if desired.

21 is a connection from the pressure-tank,  
and preferably from the lower portion there-  
of, to any source of constant water-pressure  
22, such as the water-pipes in the building to  
be lighted. This connection is controlled by  
any suitable valve 23.

24 represents the water-level in the pres-  
sure-tank 17.

9 is a valve-controlled blow-off from the up-  
per portion of the drip-can 8.

The operation of my invention is as fol-  
lows: Oil being charged into the reservoir 5  
it is subjected to the necessary pressure by  
charging compressed air into the pressure-  
tank 17 through the connection 20 or, if the  
pressure-tank is large enough in proportion  
to the oil-reservoir, by allowing the water to  
enter the pressure-tank through the connec-  
tion 21 and compress the air contained there-  
in to the number of pounds per square inch  
of the pressure in the water-pipe 22. It is



desirable in either case that the capacity of the oil-reservoir 5 shall be less than the space occupied by compressed air in the pressure-tank 17. In case the water is allowed to rise 5 above the permissible water-line in the pressure-tank the float 19 will close the pressure-valve 18 and any flow of water into the oil-reservoir will be prevented. The pressure on the surface of the oil forces it up through 10 the service system in the well-known manner and supplies the lamps.

When the lamps are all shut off, the pressure should be taken off the service system by turning the valve 6. The valves 11 and 13 15 being closed and the blow-off 9 being open, the oil drip in the service system of pipes will flow by gravity down into the drip-can 8.

Whenever the oil-reservoir is being recharged, the oil collected in the drip-can 8 20 can be fed back into the reservoir by opening the valve 11.

In case any surplus of oil has accumulated in the drip-can before the oil-reservoir is empty a portion of the same can be transferred by closing the blow-off 9 and opening 25 both valves 11 and 13. The oil in the drip-can will then flow into the reservoir until the fluid-level in the two vessels is the same.

Various changes could be made in the details of my invention without departing from the spirit and scope thereof, provided the relative arrangement of parts illustrated in the drawings and the principle of operation described in the specification are preserved. 30

It is evident that the system and apparatus described gives a constant air-pressure to the oil in the reservoir equal to the pressure in the water-pipe 22. Also, if the pressure-tank is made large enough, as explained, all 40 necessity of compressing the air by hand or other external means is removed. The waste of oil from the drip-cock is prevented, and at the same time the system of service-pipes is completely emptied whenever the oil is 45 shut off.

The pressure of the water column might be applied directly to the oil without the intervening air-cushion with a slight evident rearrangement of the apparatus. Means other 50 than those specified might be employed for subjecting the oil accumulated in the drip-can to the necessary pressure for forcing it back into the reservoir.

Having therefore described my invention, 55 what I claim as new, and desire to protect by Letters Patent, is—

1. In a system of fluid distribution, the combination of the service-pipes, a reservoir con-

taining fluid under pressure, a drip-can having a valve-controlled connection to said reservoir, a drip-pipe which leads from the service system to the drip-can, and the valve or valves controlling said service system and drip-pipe, substantially as described. 60

2. In a system of fluid distribution the combination of the service-pipes, a reservoir containing fluid under pressure, a drip-can and connections from the reservoir thereto, means for subjecting the contents of the drip-can to pressure, a drip-pipe which leads from the service system to the drip-can, and the valve or valves controlling said service system and drip-pipe, substantially as described. 65 70

3. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip-can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip-pipe, and the 80 valve-controlled connection between the lower portion of the drip-can and the reservoir, substantially as described. 75

4. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip-can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip-pipe, and the 90 valve-controlled connection between the lower portion of the drip-can and the reservoir, together with a connection by which the drip-can may be charged with compressed air, substantially as described. 85 95

5. In a system of fluid distribution, the combination of the service-pipes, the reservoir containing fluid under pressure, the drip-can on the same level as the reservoir, the drip-pipe which leads from the service system to the drip-can, the valve or valves controlling said service system and drip-pipe, and the 100 valve-controlled connection between the lower portion of the drip-can and the reservoir, together with a valve-controlled connection 105 from the upper portion of the reservoir to the upper portion of the drip-can, substantially as described.

In testimony whereof I have hereunto affixed my signature in the presence of two witnesses. 110

ARTHUR KITSON.

Witnesses:

LILIAN FOSTER,  
A. PARKER SMITH.