

J. W. HEFFERNAN.
 MULTIPLE VALVE.
 APPLICATION FILED JUNE 10, 1919.

1,355,832.

Patented Oct. 19, 1920.

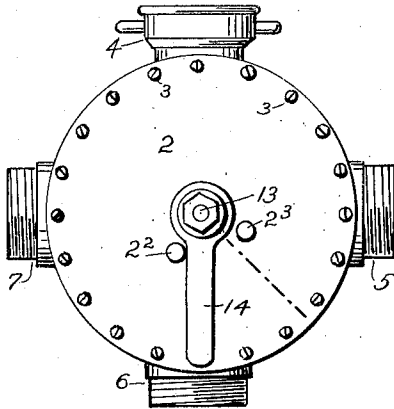


Fig. 1.

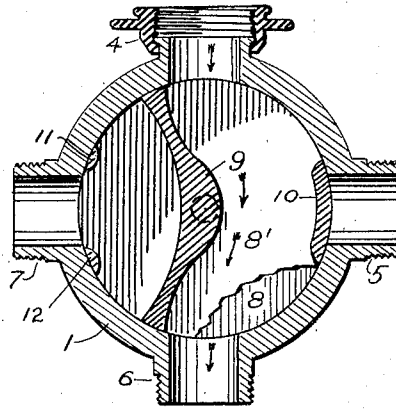


Fig. 2.

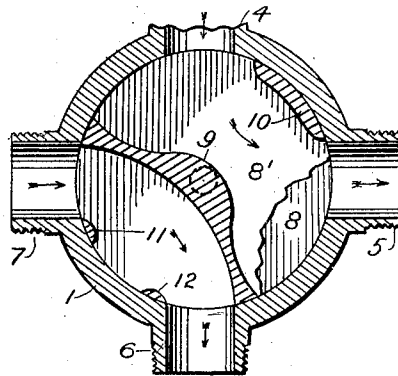


Fig. 4.

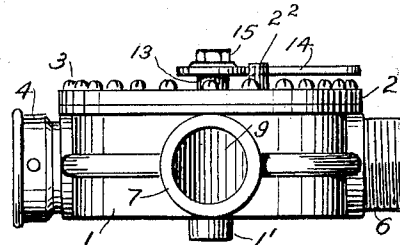


Fig. 3.

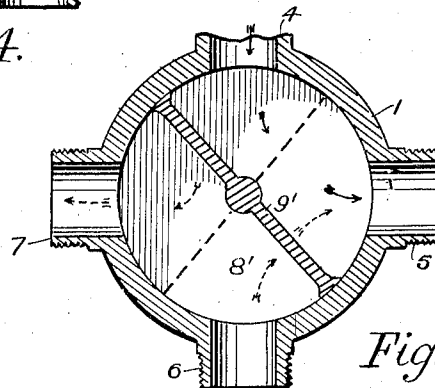


Fig. 5.

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MULTIPLE VALVE.

1,355,832.

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To all whom it may concern:

Be it known that I, JAMES W. HEFFERNAN, a citizen of the United States, and resident of Brooklyn, city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Multiple Valves, of which the following is a specification.

My invention consists of a multiple valve adapted more particularly for fire extinguishing purposes, the objects being to produce such a device which is quickly attached to a fire hydrant and so arranged that when the water is once turned on, it need not be shut off again in order to couple up other lines of hose with it.

It is frequently the case, that a hook and ladder truck or a hose cart reaches a fire before the engine does. A line of hose is quickly connected to the hydrant so as to get water on a fire in its early stages. When the fire engine arrives and couples up to the same hydrant—if it is provided with multiple outlets, the pump draws away the water from the line previously connected; or if the first line is uncoupled and the supply to the engine connected up instead, then valuable time is lost during such changes, which is avoided by this invention.

Figure 1. shows a plan view of the valve case;

Fig. 2. is a central horizontal sectional view of Fig. 1 and Fig. 3.

Fig. 3. is a side elevation of Fig. 1.

Fig. 4. is a horizontal sectional view of Fig. 1 with the valve in a changed position, and Fig. 5 is a modified construction of the valve mechanism.

The device consists of a case 1, a cover 2 fastened to the case in any suitable manner, screws 3 being shown for this purpose. On the periphery of the case is a main inlet coupling 4 adapted for connecting with a fire hydrant, not shown, and three nipples 5, 6, 7, respectively adapted for hose connection and herein termed auxiliary outlet, main outlet and auxiliary inlet. The movable valve proper consists of an upper disk 8 shown partly broken away and a lower disk 8', between which disks there is a partition 9 preferably in the shape shown and forming two chambers. A gate 10, and two stay braces, 11, 12 for the purpose of stability, are cast integral with the two disks. A valve stem 13 extends above the case and

is fitted with a handle 14 which also acts as an indicator to show the position of the valve partition within the case. The valve stem may also extend below the valve and into a hollow stud 1', acting as a journal or bearing for said stem. On the cover are two stops, 2², 2³, to limit the movement of the handle 14, which is held in place on the stem by a nut 15. Arrows show the direction of flow of the water.

The above description applies to the modification shown in Fig. 5 except that the partition, 9' is straight or diametrically across the valve, and no gate is required, the water, when in operation, taking a different direction from that indicated in the several other views. Solid line arrows show the direction of flow of the water when directly connected up, and dotted arrows show the direction of flow of the water when the valve stands in the position shown by dotted line, which is the position of the partition when the handle is turned, and the engine is feeding back through the valve.

Such being the construction, the operation is as follows: We will assume that the device is coupled up to a fire hydrant by the coupling, 4, the handle and movable valve mechanism standing as is shown in Figs. 1, 2 and 3. The service hose is connected to nipple 6, and strung out to the fire. The water from the hydrant is turned on, and passes through the valve chamber in the direction shown by arrows. If necessary to pump water for a higher pressure or greater quantity, the suction hose from the pump on the engine is connected up to nipple, 5, and the pressure hose from the pump is connected up with nipple 7, there being no water in these two lines however and no interruption in the delivery of water passing through the connection 6.

When the engine is ready to pump, at a given signal the handle, 14, is pulled over into the position shown by dotted line in Fig. 1, whereby the valve mechanism is rotated to the position shown in Fig. 4, the water then occupying both chambers and passing through the engine pump, from said pump back to and through the valve, to and through the outlet 6 at the increased pressure without any delay or interruption of water supply at the nozzle end or play end at the fire.

In the modified valve mechanism, the

above description will apply also except that the active fire hose is connected to nipple 5, the water passing through the chamber at right angles. The suction hose to the engine pump is coupled up to nipple 7, and the return hose from pump is coupled up to nipple 6. In serving the fire hose through nipple 5, one chamber is inactive, and when the handle is turned so the partition stands as shown by dotted line, then both chambers are occupied by water passing into and through the several ports.

What I claim is—

1. In a multiple valve, a valve case having a chamber with a main inlet, a main outlet, an auxiliary outlet and an auxiliary inlet opening thereinto, means to couple the main inlet with the outlet of a fire hydrant, means to couple the main outlet with fire service hose, means to couple the auxiliary outlet and the auxiliary inlet respectively to the suction hose and the pressure hose of an engine pump, and a valve member within the case constructed to close the auxiliary outlet and the auxiliary inlet and simultaneously provide communication between the main inlet and the main outlet when in one position whereby uninterrupted use of the fire service hose may be had when the auxiliary inlet and outlet are being coupled to said engine hose, said valve member being movable to another position to establish flow of water from the fire hydrant through the main inlet into the case chamber, through the auxiliary outlet to the engine pump and from the latter through the auxiliary inlet and the case chamber

to and through the main outlet, said valve member comprising a rotatable body including a pair of spaced disks connected by a single transverse partition, and an edge gate adapted to cover and uncover the auxiliary outlet.

2. In a multiple valve, a valve case provided with four equally spaced radial ports, a valve member rotatable in said case and including a pair of spaced disks connected by a single curved transverse partition adapted, when in one position to close only one of said ports and when in another position to provide communication between two adjacent ones of said ports to the exclusion of the other two ports, an edge gate connecting said disks arranged to close that port of the case which is opposite the port closed by the partition when the latter is in its first mentioned position, said edge gate being movable to uncover the port closed thereby when the partition is in its other position for providing communication between the two adjacent ports, means externally of the casing for rotating said valve member, and means to limit the rotation of the valve member for insuring positioning of the partition in the desired one of its above mentioned positions.

Signed at New York in the county and State of New York this 7th day of June A. D. 1919.

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Witnesses:

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