

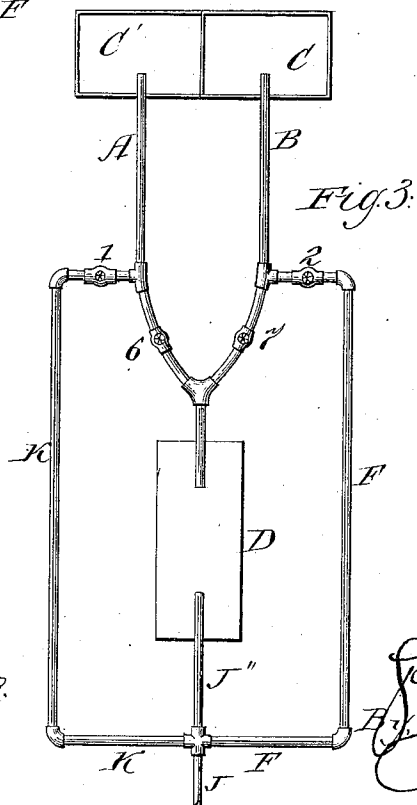
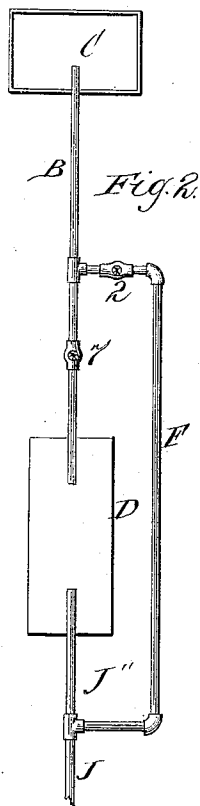
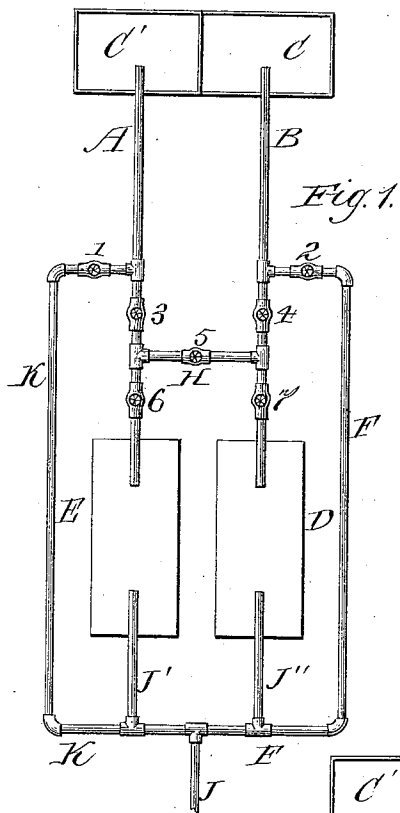
(No Model.)

S. B. PEENEY.

MAIN FOR WATER DISTRIBUTION.

No. 312,158.

Patented Feb. 10, 1885.



Witnesses

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UNITED STATES PATENT OFFICE.

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MAIN FOR WATER-DISTRIBUTION.

SPECIFICATION forming part of Letters Patent No. 312,158, dated February 10, 1885.

Application filed February 28, 1884. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL B. PEENEY, a citizen of the United States, residing at Evanston, in the county of Cook, State of Illinois, have invented a new and useful Improvement in Mains for Water-Distribution, of which the following is a specification.

The invention relates to an improved arrangement of pipes and valves to be used in freeing suction-mains and strainers of obstructions—such as sand, silt, and gravel in the said suction-mains, and leaves, weeds, and other like suspended matter, and ground or anchor ice on the said strainers.

Heretofore there has been no adequate apparatus for flushing the suction-mains and strainers located in the bed of a lake or pond without stopping the pumps, and it therefore often becomes necessary to stop the water-supply of towns and villages which draw their supply from lakes and ponds, when it is pumped directly into the supply-mains, and where occasional high winds in winter cause a stoppage of or greatly diminish the regular supply by reason of a collection of ground or anchor ice upon the strainer, and at other seasons of the year by reason of the collection of leaves, weeds, and other like obstructions upon said strainers. A further annoying interference in the regular supply is the collection of sand, silt, and gravel in the said suction-mains, which obstructions arise by reason of the action of the water from high winds, which stir up the sedimentary matter at the bottom of the lake. These latter obstructions in the suction-mains not only cause temporary stoppage of the machinery for the purpose of clearing them out, but the suspended fine grit will pass through the pumps by reason of the contracted area of the free opening in said suction-mains, caused by the lodgment of said silt, sand, and gravel in them, and the said fine grit will cause permanent injury and early destruction of the pumps, cylinders, pistons, and valves.

The object of my invention is to provide means of reversing the current of water in the suction-mains for the purpose of forcing out the obstructions without stopping the pumping machinery, and without materially interfering

with the distribution of the water in the town or village.

My improvement consists in a new and useful arrangement of by-pass pipes and valves, whereby the water is caused to flow back at a rapid rate for a short time, and thus force out the obstructions.

In the accompanying drawings, Figure 1 is a plan of a duplex system. Fig. 2 is a plan of a single system, and Fig. 3 is a plan of a modified single system having double suction-pipes, each of which embodies my improvements.

In Fig. 1, from the double strainer box or crib C' C, suitably situated and anchored under water in the usual manner, suction-pipes A and B extend to the pumps E and D, respectively, which, together with the delivery-pipes J J' J'' and their necessary appurtenances, constitute the usual duplex pumping system for distributing water to towns and villages.

To apply one of my by-pass systems to the said usual system, as described, I add the pipes F, H, and K and the valves 1, 2, 3, 4, 5, 6, and 7, all preferably of capacity equal to that of the suction-mains A and B. The operation of this system is as follows: The pump E being stopped and the pump D being in motion drawing water from the crib C through pipe B, valves 4 and 7 being opened and valves 2 and 5 closed and forcing water through pipes J'' and J—first, if it is desired to flush pipe A or clear strainer of the crib C' of anchor ice and other obstructions, open valve 1. The course of the water will then be to the pump D through pipe B, and from the pump D in the direction of least resistance through the pipes K and A; second, the conditions being the same as above—viz., pump D running and pump E stopped—if it is desired to flush the pipe B or clear strainer C, first open valves 3 and 5 and close valve 4, valve 1 being closed already, and, lastly, open valve 2. The course of the water will then be to the pump D through pipes A and H, and from the pump D through the pipes F and B. If pump E is in motion and pump D stopped, then the order of operating the valves will be symmetrically changed—that is to say, according to the uses of this system, already indicated, if pump

D is in use, valves 3, 5, 7, and 2 should be open and valves 4, 6, and 1 should be closed; or if pump E is in use valves 4, 5, 6, and 1 should be open and valves 3, 7, and 2 should be closed.

5 In Fig. 2 (representing in plan a single system embodying one form of my improvements) the crib C, pipe B, pump D, delivery-pipes J" and J, with their necessary appurtenances, constitute the usual single system of water-distribution.

10 To apply my invention I add valves 2 and 7 and pipe F.

The operation of this single system is as follows: The pump D being in motion, drawing 15 water from crib C through pipe B—valve 2 being closed—and forcing water through pipe J, if it is desired to flush pipe B or clear the strainer of crib C, open valve 2. The course of the water will then be from pump D in the 20 direction of least resistance, which will be through pipes F and B. In this instance the water used in said flushing and clearing, after the first supply through valve 2, may be either the backflow from the supply-mains of the 25 village or city, or it may come through the pump D from a well, which is frequently in such water-works located between the crib and the pump on either side of valve 7.

In Fig. 3 (representing in plan a single 30 pump with double suction-pipe) the double crib C' C, suction-pipes A and B, pump D, delivery-pipes J" and J, with their necessary appurtenances, constitute an improved single system, having facilities which allow of one 35 suction-pipe and strainer being used while the other is disabled or undergoing repairs.

To apply my invention to this system I add the pipes F and K, Fig. 3, and the valves 1, 2, 6, and 7.

The operation of my invention in this system, referring to Fig. 3, is as follows: The 40 pump D being in motion, all valves closed except 7—first, if it is desired to flush pipe A and to clear the crib and strainer C', open valve 1. The course of the water will then be 45 in the direction of least resistance through pipes K and A.

If it is desired to flush pipe B, the conditions being as above—viz., all the valves closed except valve 7—first open valve 6. Then close 50 valve 7 and open valve 2. The course of the water will then be to the pump through pipes A, and from the pump in the direction of least resistance through pipes F and B.

It is evident that this invention is applica- 55 ble to any hydraulic system.

What I claim, and desire to secure by Letters Patent, is—

In a system of water-distribution, the crib, pump, and suction and delivery pipes, combined, substantially as set forth, with an independent flushing-pipe connecting the suction 60 and delivery pipes, and valves located in said independent flushing and suction pipes, whereby the current normally drawn through the 65 crib may be reversed and the crib and suction-pipes cleared of obstructions, as specified.

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Witnesses:

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