

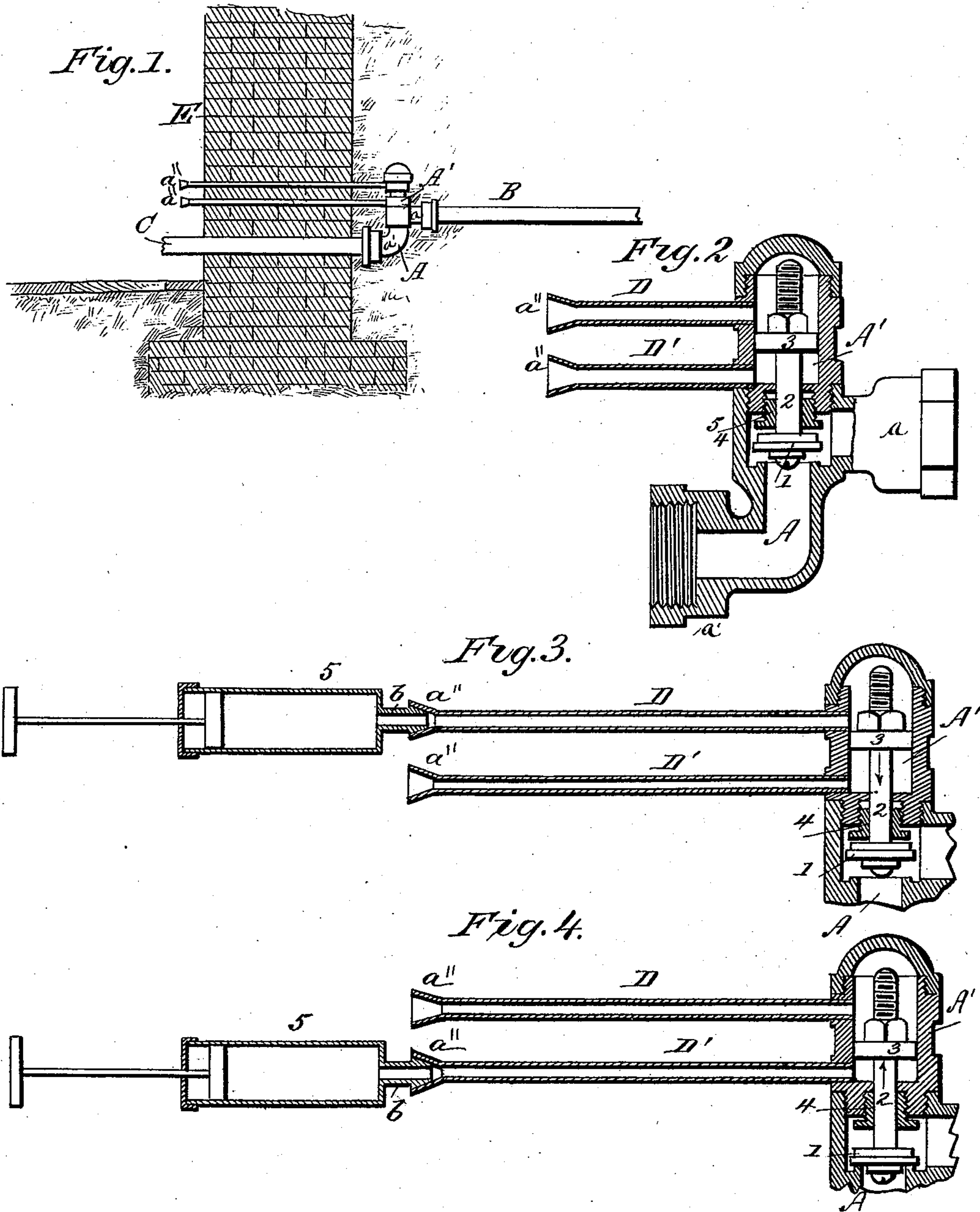
(No Model.)

D. KEARNEY.

STOP VALVE FOR WATER SERVICE PIPES.

No. 364,018.

Patented May 31, 1887.



WITNESSES:

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Amos Hart

INVENTOR:

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ATTORNEYS.



# UNITED STATES PATENT OFFICE.

DANIEL KEARNEY, OF MONTREAL, QUÉBEC, CANADA, ASSIGNOR OF ONE-HALF TO LOUIS LESAGE, OF SAME PLACE.

## STOP-VALVE FOR WATER-SERVICE PIPES.

SPECIFICATION forming part of Letters Patent No. 364,018, dated May 31, 1887.

Application filed December 13, 1886. Serial No. 221,390. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL KEARNEY, of Montreal, District of Montreal, Province of Quebec, Dominion of Canada, have invented  
5 a new and useful Improvement in Stop-Valves for Water-Service Pipes, of which the following is a specification.

The stop-valves or stop-cocks of service-pipes have heretofore usually been operated  
10 by means of a rod passed down to the valves through a tube or casing. The stop-valves are in such cases buried several feet deep in the ground, and the said tubes or casings extend therefrom to the surface of the sidewalk  
15 or pavement, above which they frequently project sufficiently to form an annoying obstruction to travel. Owing to oxidation or displacement of the iron casing, repair is often necessary, and this necessitates digging up a  
20 portion of the sidewalk or pavement. In replacing the earth and surface-covering—such as stone, brick, or cement, &c.—removed in this operation, an unequal settling occurs and the surface never again assumes its former  
25 evenness or regularity of appearance.

The above defects have led me to my present invention, by which such stop-valves may be operated from within the basement or cellar of the building which the service-pipe enters.  
30 In practice I attach a piston to the stop-valve and move the latter up or down (to let on or shut off water from the building) by forcing air or other gas or fluid into the piston-chamber. The piston-cylinder is provided with  
35 two pipes, which extend into the basement or cellar or beyond, so that their free ends are always easily accessible, and through these pipes the fluid is forced and conveyed to the piston-cylinder. The free ends of the pipes  
40 are open and so constructed as to adapt them for detachable connection with a portable forcing apparatus.

The invention will first be described generally, and the particular construction and combination of parts constituting the novel features of my invention specifically indicated  
45 in the claim.

In the accompanying drawings, Figure 1 is a sectional view showing the arrangement of  
50 parts as I propose in connection with the basement of a building. Fig. 2 is a vertical sec-

tion of the stationary apparatus I employ. Figs. 3 and 4 are sectional views illustrating the operation of the forcing device in shifting the stop-valve.

The stop-valve 1 works in a cylinder, A, having lateral branches *a a'*, one, *a*, of which is adapted for connection with the supply-pipe B, leading to the main, (not shown,) and the other, *a'*, for attachment of the service-pipe C,  
55 leading into the building to which water is to be admitted. The passage of water into the service-pipe C will obviously be admitted or cut off, according as the valve 1 is raised from or closed on its seat, as respectively represented in Figs. 3 and 4. The valve is provided with a stem, 2, to whose upper portion is affixed a piston, 3, that works in a chamber, A', forming the detachable upper portion or extension of the cylinder A. The piston 3  
60 fits snugly in said chamber A', and its stem 2 works through a stuffing-box, 4. It will be readily seen that by forcing any fluid—say air—into the chamber A' above or below the piston 3, the valve 1 may be shifted down or up, and thus closed or opened at will. To  
75 provide for this operation, two pipes, D D', extend horizontally from the piston-chamber A' through the basement-wall E of the building. One, D, of these pipes connects with  
80 the chamber A' above the piston 3, and the other, D', below it. Their free ends *a''* terminate within the basement or cellar of the building, where they are always readily accessible. Such ends are left open and made  
85 flaring or funnel-shaped, as shown, to adapt them for detachable coupling or connection with a portable forcing apparatus, 5. The latter is in the form of a force-pump or large syringe having a sliding piston, and its nozzle *b* is tapered, corresponding to the flare of  
90 the ends *a* of pipes D D', so that when said nozzle is inserted therein it will fit tightly and prevent escape of the air or other fluid employed.

It will be apparent from inspection of Fig. 3 that when the forcing device or apparatus 5 is applied to the pipe D, and the piston of the same forced in, the fluid contained in it will be forced into the chamber A' above the piston 3, and the latter forced down, thus closing  
100 the valve 1 on its seat, as shown in Fig. 4,



thereby cutting off supply of water to the service-pipe C. On the other hand, when the forcing device 5 is applied to the other pipe, D', the fluid will enter chamber A' below the piston 3 and the valve 1 be raised from its seat, as in Fig. 3, thereby allowing the passage of water to the service-pipe C. When the valve 1 is open or shut, the pressure of water in the cylinder A holds it in that position until again moved by superior pressure of fluid on the piston 3, as before described.

By my invention, the stop-valve being placed under control from within the building, the use of the aforementioned objectionable rod, casing, or tube in the sidewalk or street is avoided.

The forcing device 5 is kept in possession of the municipal authorities having charge of the water-works, so that the admission of water to the building is always under their control.

To further define the novelty of my invention, I will state that the valves of flushing-pipes for water-closets have been operated by pressure of water acting on pistons connected with them; but the admission of water to the piston-chamber was controlled by a two-way cock, located above or contiguous to the closet-seat and accessible to any one using the closet. The available pressure of water was also dependent on the "head" in the supply or service pipe connected with the pipes leading to the piston-chamber; and in case the piston or valve should "stick" the pressure of water on the former could not, therefore, be increased, and hence a failure to operate would

be the result. My invention is distinguished from that, first, by a difference of purpose or object; second, a difference of location of parts; third, a difference of construction and combination of parts; fourth, by the fact that the pressure on the piston may be varied as required to overcome the stick or resistance of the valve or piston, or both; and sixth, by the detachable connection of the forcing device with the pipes leading to the piston-chamber, so that the water-supply is kept within the control of the proper authorities.

I wish it to be understood that I am well aware that operating a water-valve through the medium of a fluid forced through pipes by means of a piston working in a fixed chamber placed in an accessible location more or less remote from said valve is not new, and I do not broadly claim the combination of such parts; but,

Having thus described my invention, what I claim as new is—

The combination of the portable forcing device 5, having a tapered nozzle, *b*, with a valve and piston and chambers therefor, the supply and service pipes, and two pipes, D D', leading from the piston-chamber and having their free open ends *a* constructed flaring or funnel-shaped to adapt them for detachable connection with the said forcing device, as shown and described.

DANIEL KEARNEY.

Witnesses:

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