

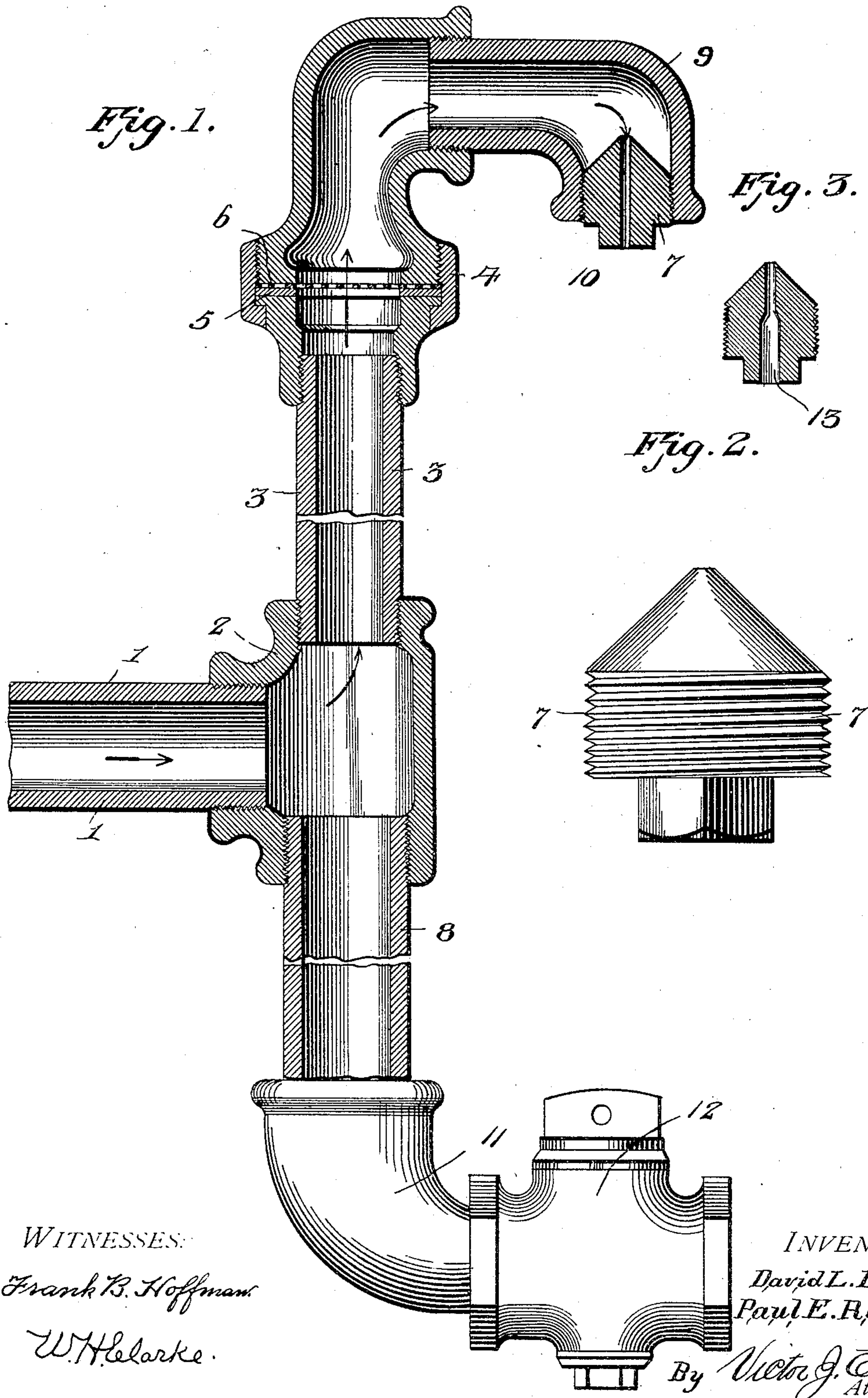
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D. L. ELLIS & P. E. ROHNE.

DISCHARGE DEVICE.

APPLICATION FILED AUG. 5, 1904.



WITNESSES:

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DISCHARGE DEVICE.

SPECIFICATION forming part of Letters Patent No. 791,889, dated June 6, 1905.

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To all whom it may concern:

Be it known that we, DAVID L. ELLIS and PAUL E. ROHNE, citizens of the United States, residing at Greatfalls, in the county of Cascade and State of Montana, have invented new and useful Improvements in Discharge De-

5 vices, of which the following is a specification. This invention relates to discharge devices or apparatus for filling automatic sewer-flush tanks or other intermittent tanks used for flushing sewers, closets, or for other purposes where a small continuous stream of water is required.

10 The invention will be described fully hereinafter with reference to the accompanying drawings, forming part of this specification, and the novel features thereof will be specifically defined in the appended claims.

15 In said drawings, Figure 1 is a sectional view of the invention on a line through the supply-pipe and the discharge-nozzle. Fig. 2 is a view in elevation of the discharge-nozzle. Fig. 3 is a cross-section of the discharge-nozzle in modified form.

20 The appliances heretofore used for purposes similar to the purpose of the present invention have caused great waste of water—in many cases ten to twenty times as much as was necessary or as was intended to be used for this purpose. The ordinary cocks and valves commonly used for such places when set to give a stream small enough to avoid unnecessary waste soon clog up with sediment and stop entirely, making frequent inspections and adjustments necessary, and if left open sufficiently to prevent this clogging the seats will be rapidly cut out by the action of the water and the cocks will soon deliver many times as much water as necessary or required.

30 40 The object of the present invention is to avoid unnecessary waste of water and to provide a discharge device which will regulate the flow without clogging up with sediment or other foreign matter in the water, which will operate continuously under all conditions of the water-supply, and which will continue to discharge the same amount of water after a long period of service as when first installed.

45 50 The main points to the invention, briefly described, are: A coned discharge-nozzle hav-

ing a hole of a proper size to discharge the required amount of water in a given time under a known pressure, a perforated screen with perforations or small slotted holes each smaller than the hole in the discharge nozzle 55 or plug, and the combined area of all the holes in the screen many times as great as the area of the hole in the plug, the screen being so placed that the water must rise vertically through it, so that any foreign matter in the 60 water will be stopped by the screen and must fall back by gravitation into a sediment-chamber below the supply-pipe, and a blow-off cock suitably connected to the bottom of the sediment-chamber for the purpose of blowing off 65 sediment from time to time without in any way shutting off the water-supply or taking off or disconnecting any portion of the device.

Referring more particularly to the drawings, 1 represents the supply-pipe from the 70 water-main; 2, an ordinary reducing-T, the top opening being smaller than the side opening or bottom; 3, a short nipple screwed into the top of 2; 4, what is known as a "union-elbow," made up of three separate pieces; 5, 75 the gasket which makes this union water-tight, and 6 a slotted brass screen inserted between the two parts of the union-elbow before screwing on the connecting-nut. Each opening in the screen is smaller than the opening in the 80 nozzle-plug 7. The screen is so located that all water passing through it must rise vertically, and the sediment, sand, and other foreign matter which would clog up the opening in the plug 7 is stopped and falls by gravity 85 into the sediment-chamber 8.

9 is an ordinary street-elbow used to make a quarter-turn, into the lower end of which is screwed the nozzle-plug 7.

Attention is here directed to the fact that 90 the plug 7 is to be made of the hardest metal obtainable to resist the cutting action of the water as it flows through the small discharge-outlet 10 therein and can be renewed at a very slight cost if after several years' use the out- 95 let becomes so worn as to discharge too much water. The plug 7 is coned on the inside end. Through the apex of this cone the small discharge-outlet 10 opens. The object of making the outlet 10 larger than the holes in the 100

screen 6 is to permit anything passing the screen to pass down the outlet 10 and not lodge over it. This design of the plug with a coned point at the point of entry of the water and the long outlet-hole 10 of small diameter through the plug will cause more friction to the stream of water, and for this reason the size of the hole can be increased more than would be the case if the hole were depressed into the plug the other way and the hole made shorter. The idea is to get the least amount of water through the largest hole.

A modified form of the plug 10 is illustrated by Fig. 3, and as there shown the lower portion of the outlet 10 is enlarged, as at 13. Under certain conditions and with a very high water-pressure it will be necessary to use a plug of this form.

The sediment-chamber 8, which is disposed below the supply-pipe 1 for the purpose of collecting the sediment and foreign matter in the water, can be of any size, depending upon the amount of foreign matter in the water in different localities.

11 is a reducing street-elbow for connecting the blow-off cock 12 to the bottom of the sediment-chamber 8 in such position that the head of the cock can be reached from the surface of the street with an ordinary shut-off rod without descending into the tank in which the device is generally located. Under certain conditions and for other uses this blow-off cock 12 may be connected direct to the bottom of the sediment-chamber 8 without the street-elbow.

Brass or galvanized iron may be used for the construction of the device, although galvanized iron will answer for all purposes except the brass blow-off cock 12, the hard-metal

plug 7, and the screen 6, the latter being of perforated brass or brass gauze, the size of mesh varying according to the conditions under which it is used.

Instead of making the parts 2, 3, 8, and 11 of individual pieces screwed together they may be cast in one piece, which will simplify and greatly reduce their cost, as less machine-work will be required, there being no screw-threads to cut nor time taken to connect the several parts.

Having thus described the invention, what is claimed as new is—

1. A discharge device having a discharging-nozzle, made from specially-hardened metal which will resist the cutting action of the water, a screen so located that the water must rise vertically through it, and a sediment-chamber provided with a blow-off cock with which to blow off sediment and other foreign matter without shutting off the water or disconnecting any portion of the device.

2. A discharge device having an upwardly-extending passage, a screen therein, a sediment-chamber at the lower end of the passage, a transversely-disposed supply-pipe for the passage, a blow-off cock for the sediment-chamber, and a discharge-nozzle coned on the end opposite to its point of discharge, the passage through the nozzle terminating at the apex of the cone and having a greater diameter than the holes in the screens.

In testimony whereof we affix our signatures in presence of two witnesses.

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Witnesses:

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