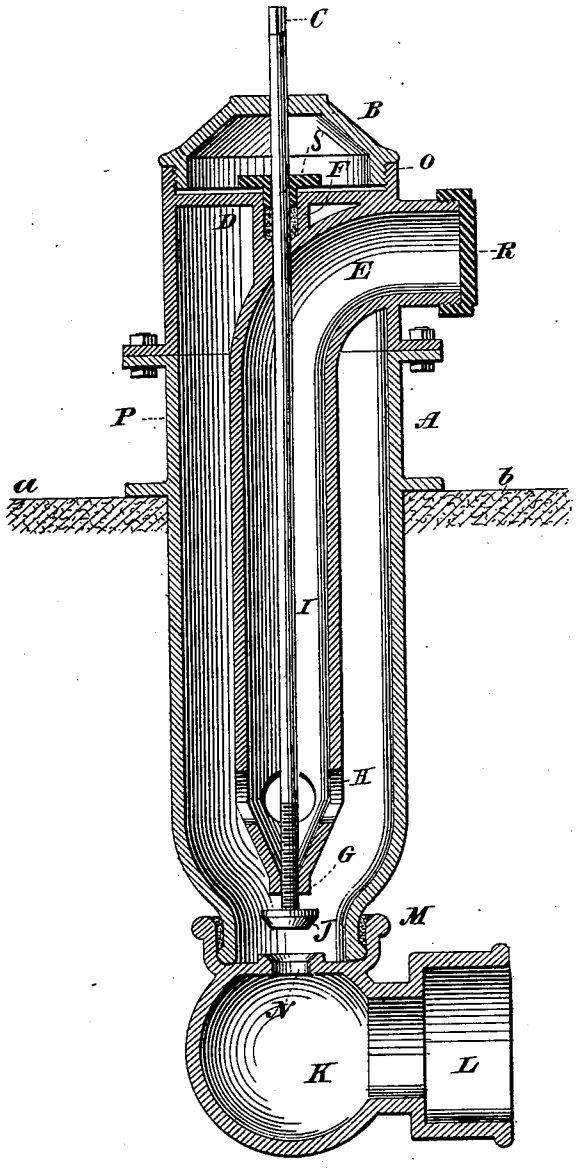
No. 674,477. Patented May 21, 1901.

H. SEE.

HYDRANT.

(Application filed Dec. 5, 1900.)

(No Model.)



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HYDRANT.

SPECIFICATION forming part of Letters Patent No. 674,477, dated May 21, 1901.

Application filed December 5, 1900. Serial No. 38,723. (No model.)

To all whom it may concern:

Be it known that I, HORACE SEE, of the city, county, and State of New York, have invented a new and useful Improvement in Hydrants, of which the following is a specification.

My invention relates to a hydrant such as is commonly used in water-supply systems and elsewhere.

My invention consists in a hydrant having a liquid inlet and outlet and an air-chamber wherein air is compressed directly by the momentum of the fluid-current. The object of thus compressing the air in such a hydrant is to furnish a means of receiving the shock due to violent fluctuations or stoppages of the current in the pipes communicating with the hydrant, to cause a substantially uniform pressure to be maintained upon the liquid escaping from the hydrant, and also to enable the hydrant automatically to free itself of the greater part of the liquid which may remain in it after the inlet-valve has been closed.

The accompanying drawing is a vertical section of my improved hydrant.

A is the outer shell or casing, which for convenience may be cast in two pieces O P, flanged and bolted together, as shown. The upper section O is internally threaded to receive the flanged and threaded cover B, through which passes the valve-rod I. In said section is a partition D, provided with a stuffing-box S, through which rod I passes. The pipe E is cast integrally with the section O and partition D. It is centrally disposed within the casing A and extends nearly to the bottom thereof and at its lower portion is tapered, as shown at G. It is also provided with apertures H near its lower end. The valve-rod I passes through the contracted lower portion of the pipe E and is there threaded.

K is a globular chamber having at one side a socket L for the reception of the liquid-conduit, which is connected with the hydrant, and on its upper side a socket M, in which is seated the contracted flanged lower end of the shell A. The joint between the shell A and the socket M is made tight by lead or any suitable packing. In the bottom of socket M is an opening N, forming a seat for the valve J, which is carried by the rod I. The upper end C of the valve-rod I is squared for the reception of a wrench for turning said rod, and thus by the operation of its threaded portion opening and closing valve J. The upper extremity of pipe E, which extends outside the shell, is the delivery-outlet of the hydrant and may be provided with a suitable screw-cap R.

The action of the device is as follows: When the valve-rod I is rotated, the valve J is lifted from its seat and liquid from the conduit passes into the chamber K and so through the opening N into the annular space between the pipe E and the shell A. By reason of the momentum of the liquid-current the air contained within the shell A above the openings H is strongly compressed into the annular hermetically-sealed chamber formed between said shell and the pipe E. The shock of impact of the suddenly-arrested current is therefore taken by the elastic body of compressed air. This body of compressed air immediately reacting presses upon the liquid and tends to drive it through the apertures H into pipe E, and afterward and so long as the liquid-current is maintained to the hydrant this body of compressed air will be acting on the liquid column and operating to compensate for fluctuations in pressure thereof and so maintaining substantially uniform pressure at the discharge-orifice of pipe E.

The special advantage of this form of hydrant is that it is self-clearing—that is to say, after the valve J is closed in order to cut off further liquid-supply the compressed air within the shell A expanding will force the liquid therein out of the shell and through the orifices H into the pipe E and so out at the discharge-opening.

It is of course desirable that the dimensions of the hydrant shall be such that the apertures H are below the frost-line in the ground, so that any water which may accumulate below them will not be frozen. This hydrant is especially advantageous for use on water-supply mains in cities wherein there are dead ends or abrupt turns liable to be broken out or ruptured by sudden increase in water-pressure; so, also, it is well adapted to employment in those systems of water-supply wherein water is pumped directly into mains with-

out the use of any intermediate stand-pipe or reservoir. By means of this invention every hydrant belonging to such a system becomes a cushioning or air chamber for the water-pressure, and thus an efficient means of protection of the subterranean pipes is provided. I have shown the hydrant as buried in the ground to a certain depth, indicated by the ground-level, (represented at *a b*;) but of course it may be adjusted at any desired depth.

The object of making the chamber K globular is so as to turn the moving water column directly into the hydrant with less possible friction and retardation, and the object of making the pipe E contracted at its lower portion to correspond, as it will be seen, to the contraction of the shell A surrounding it is to secure a prompt diversion of the entering water into the annular space between the pipe E and the shell.

I claim—

1. In a hydrant, an air-chamber wherein air is compressed by the momentum of the fluid-current delivered thereto, and a delivery-pipe communicating with said chamber inclosed within the same and discharging through the wall thereof, substantially as described.

2. In a hydrant, a shell or casing having a discharge-opening, an inlet-valve, and means within said shell for ejecting through said discharge-opening liquid remaining in said shell after said inlet-valve is closed, substantially as described.

3. In a hydrant, a shell or casing having a discharge-opening, an inlet-valve and means within said shell automatically operating to eject through said discharge-opening liquid remaining in said shell after said inlet-valve is closed, substantially as described.

4. The combination in a hydrant of an exterior shell, means for hermetically closing said shell at its upper end, an inlet-valve at its lower end, and a pipe of less diameter than said shell, disposed within the same; the said pipe being closed at its lower extremity and having an aperture in its wall near said extremity and at its upper end extending through the periphery of said shell, substantially as described.

5. The combination in a hydrant of an exterior shell contracted at its lower end, means for hermetically closing said shell at its upper end, an inlet-valve disposed in said lower contracted portion of said shell and a pipe of less diameter than said shell disposed within the same; the said pipe having its lower extremity closed contracted and located within the contracted portion of said shell, and having an aperture in its wall at or near said contracted portion, and at its upper end extending through the periphery of said shell, substantially as described.

6. In a hydrant the combination of the shell A, valve J and seat N in the lower portion of said shell, pipe E having its discharge end extending through the periphery of said shell and provided with an aperture H, and valve-rod I extending through said pipe E and to the exterior of said shell, substantially as described.

HORACE SEE.

Witnesses:
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