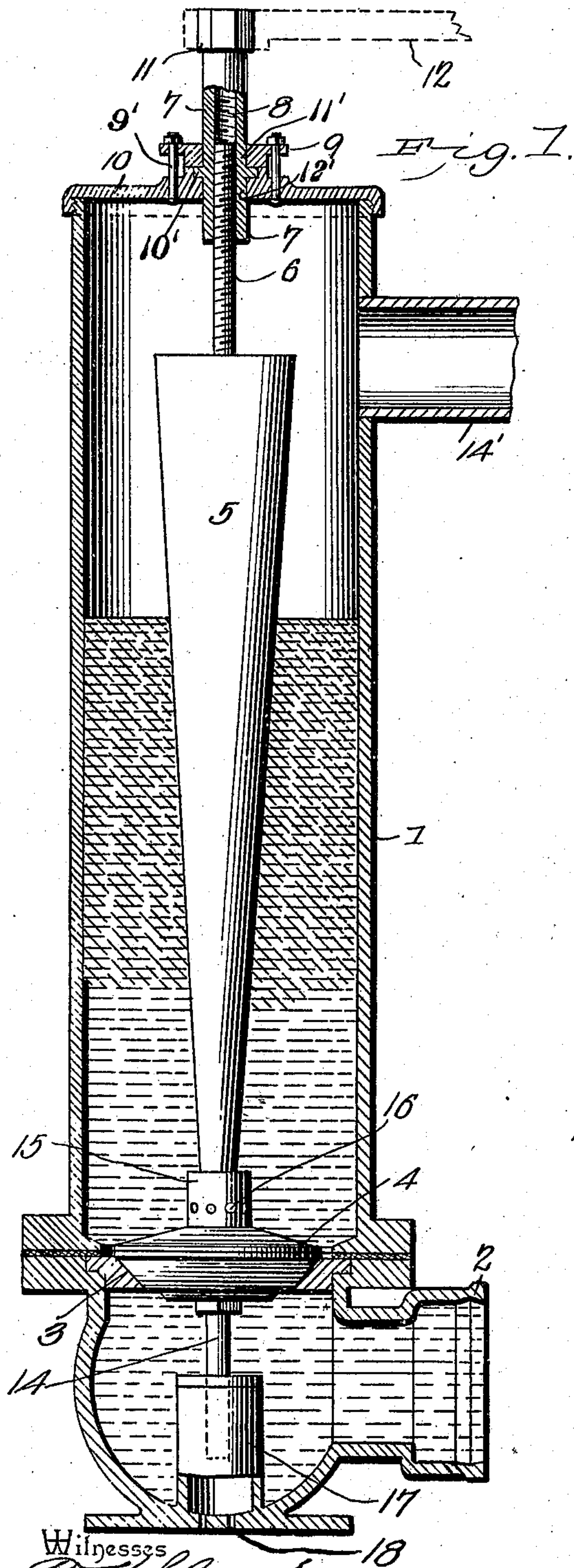


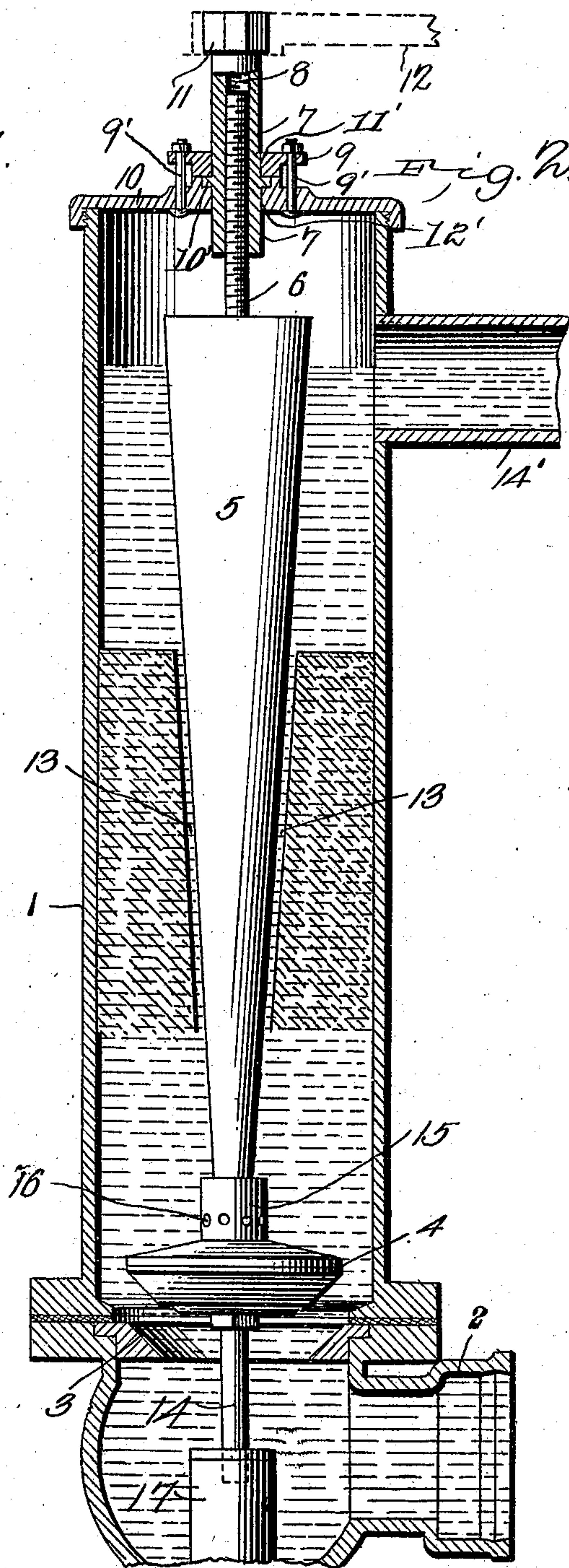
No. 848,014.

PATENTED MAR. 26, 1907.

C. E. COTTON.
HYDRANT OR FIRE PLUG.
APPLICATION FILED MAY 16, 1903.



Witnesses
E. J. Stewart
J. J. Moore



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UNITED STATES PATENT OFFICE.

CHARLES E. COTTON, OF BELLAIRE, MICHIGAN, ASSIGNOR OF ONE-HALF
TO LEON G. VAN LIEW, OF BELLAIRE, MICHIGAN.

HYDRANT OR FIRE-PLUG.

No. 848,014.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed May 16, 1903. Serial No. 157,458.

To all whom it may concern:

Be it known that I, CHARLES E. COTTON, a citizen of the United States, residing at Bellaire, in the county of Antrim and State of Michigan, have invented a new and useful Hydrant or Fire-Plug, of which the following is a specification.

My invention relates to fire-hydrants, and has for its objects to produce a comparatively simple inexpensive device of this character in which should water enter and become frozen in the barrel or casing the valve-stem will in moving the valve to open position produce through the ice a passage for the incoming water and one in which the latter parts may, together with the block of ice, be readily removed from the casing should the ice adhere so firmly to the stem as to prevent its separation therefrom.

In the accompanying drawing, Figure 1 is a vertical sectional view of the hydrant, showing the valve in closed position, and Fig. 2 is a similar view showing the valve open.

Referring to the drawing, 1 designates the barrel or casing of the hydrant, which is so shaped as to present an unobstructed passage for the removal of frozen material; 2, a water-main leading to and communicating with the lower end of the casing; 3, a valve-seat provided in the latter immediately above the main; 4, a valve adapted to normally close downward upon the seat 3. The valve-stem is connected at its lower end with and is designed to operate the valve. These parts, except as hereinafter explained, may all be of the usual construction and material, inasmuch as then constitute no part of my invention.

The valve-stem 5, which in accordance with my invention is of conical or tapered form throughout its entire length and arranged with its smaller end downward for connection with the valve, is provided at its upper end with a central upwardly-projecting reduced threaded portion or screw 6 in telescopic threaded engagement with an operating member or sleeve 7, provided with internal threads 8 and journaled for rotation in a bearing 9, which is attached securely and non-rotatably by means of bolts 9' to the cap or cover 10 of the casing, said sleeve being provided at its outer end with a non-circular head 11, adapted in practice for engagement by a suitable tool or handle 12, whereby the

sleeve may be rotated for raising or lowering the stem to open or close the valve. The sleeve is provided with a flange 10', extending between the bearing 9 and the cap 10, and said sleeve extends through registering apertures 11' and 12' in the bearing 9 and the cap 10, respectively. Attention is at this point directed to the fact that the cover 10 is freely removable from the upper end of the casing, with which it is in threaded engagement, and that the valve 4 is disposed above and closes downward upon the seat 3, whereby the cover may be removed and the valve and its stem readily and freely lifted out of the casing 1, the internal diameter of which latter is as great at its upper as at its lower end for a purpose which will presently appear.

In order to permit any water which may remain in the stand-pipe after the valve is closed to escape, I provide the valve 4 with a central vertical escape-opening, from the lower end of which a pipe 14 depends, said opening being surrounded at its upper end by an upstanding flange 15, rising vertically from the upper face of the valve and having a plurality of openings 16, through which water may pass from the barrel 1 into the discharge-opening. The pipe 14 has its lower end extended into and in slidable connection with a cylindrical casing 17, disposed within the lower end of the barrel beneath the valve. Frictional contact between the pipe 14 and the top of the casing 17 retains the said pipe 14 and the stem 5 against rotation, as the opening in the top of the casing 17 receives the pipe 14 with a tight fit. The casing 17 constitutes a drainage-chamber and is provided at its lower end with discharge-openings 18, extending through the bottom wall of the barrel or stand-pipe, whereby the water which flows from the stand-pipe through the openings 16 and pipe 14 into the chamber 17 will escape from the latter into the ground. Thus it will be seen that under ordinary conditions backwater remaining in the stand-pipe will escape therefrom, but that if the valve should become loose upon its seat and permit water to leak into the stand-pipe and freeze, then the valve-stem in moving to open the valve will form a passage through the ice, as will now be described.

In practice should water, owing to a worn or defective valve or from other causes, enter

and become frozen within the casing 1 the valve-stem 5 will when drawn upward by means of the sleeve 7 and screw 6 for opening the valve, owing to its conical or downwardly-tapered form, open through the ice a passage 13, as shown in Fig. 2, through which the incoming water may pass for discharge outward through the hose-nipple 14' adjacent to the upper end of the casing, it being obvious that the water in flowing through the ice will quickly melt the latter. If, however, the ice adheres so firmly to the stem as to prevent its upward movement by means of the operating member 7, the cover 15 may be removed to permit of access being had to the ice, which may be then loosened from the sides of the casing and removed therefrom, together with the valve and stem, which latter parts may of course be again returned after being freed from the ice, the removal of which latter is rendered feasible, owing to the valve being arranged to close downward on its seat and the casing being throughout its length of an internal diameter as great as that of its lower end. As the upper end of the conical valve-stem 5 is always above the lower surface of the hose-nipple 14', no ice can form over the top of the said valve-stem 5, for as soon as the water arrives at the level of the hose-nipple 14' it will pass through the same out of the hydrant. Thus it is impossible for ice to accumulate in the top of the hydrant to interfere with the movement of the valve-stem 5.

35 Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A fire-hydrant so constructed that it may be readily opened when its contained

liquid is frozen, consisting of a cylindrical 40 barrel so shaped as to present an unobstructed passage for the removal of frozen material and having a liquid-inlet and a liquid-outlet, a valve seated at the inlet end of said barrel, a tapered stem fixed at its 45 smaller end to the valve and extending longitudinally within the barrel, its larger end being located above the level of the lower surface of the liquid-outlet and means for removing the stem in the direction of the 50 flow of water through the barrel.

2. A fire-hydrant so constructed that it may be readily opened when its contained liquid is frozen, consisting of a cylindrical 55 barrel so shaped as to present an unobstructed passage for the removal of frozen material and having a liquid-inlet and liquid-outlet, a valve seated at the inlet end of the barrel, a tapered stem fixed at its smaller end 60 to the valve and extending longitudinally within the barrel, its larger end being located above the level of the lowest surface of the liquid-outlet, a threaded pin concentrically located at the large upper end of the stem, a sleeve passing through the top of the barrel 65 and having an intermediate annular flange which is confined at the top of the barrel and retains the sleeve against longitudinal movement but permits rotation thereof, said sleeve receiving said pin and means for rotating the said sleeve. 70

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

CHARLES E. COTTON.

Witnesses:

I. E. DICKINSON,
F. H. STONE.