No. 822,920. PATENTED JUNE 12, 1906.

J. W. CALLAGHAN.

HYDRANT.

APPLICATION FILED JUNE 7, 1905.

3 SHEETS—SHEET 1.

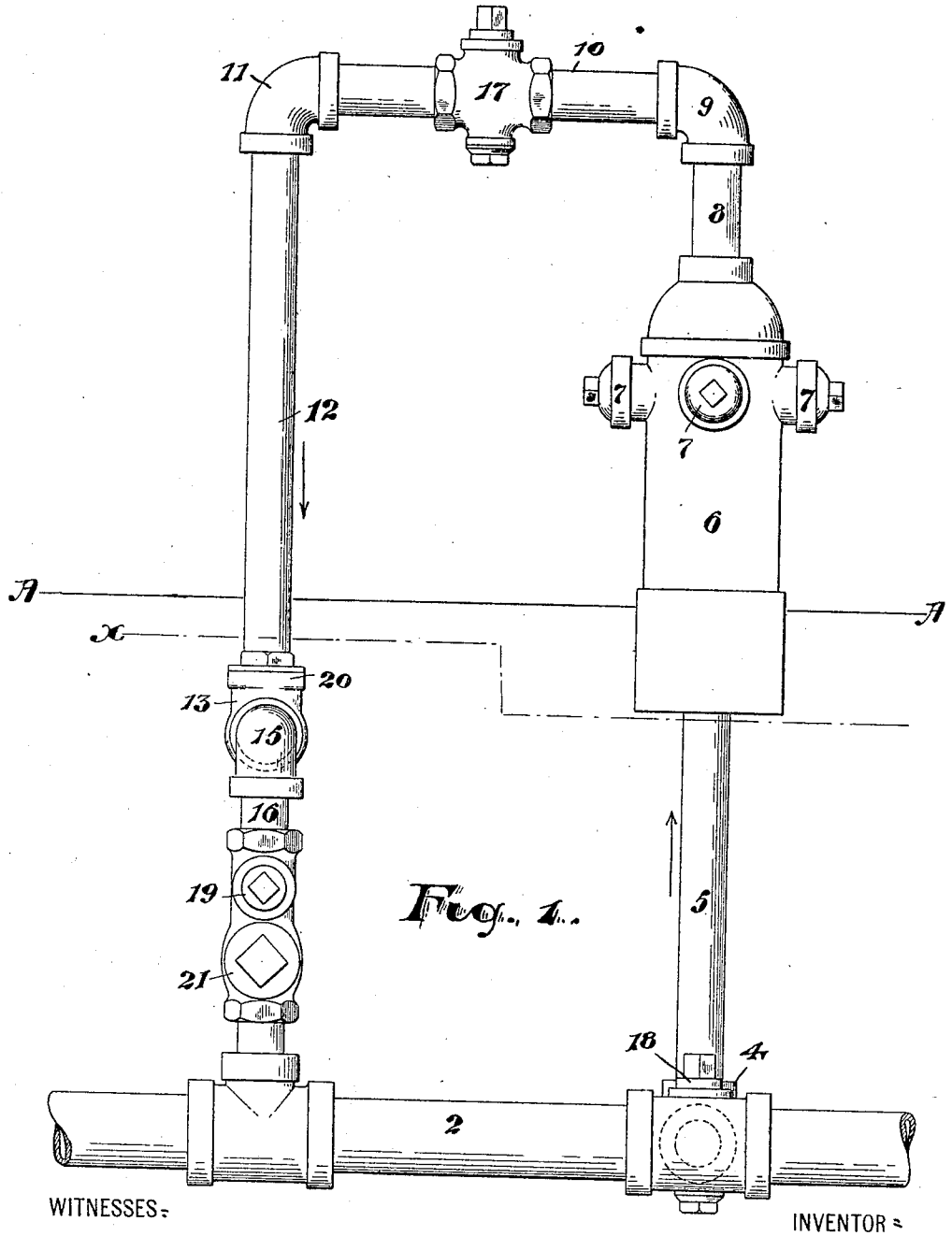

Fig. 1.

WITNESSES:

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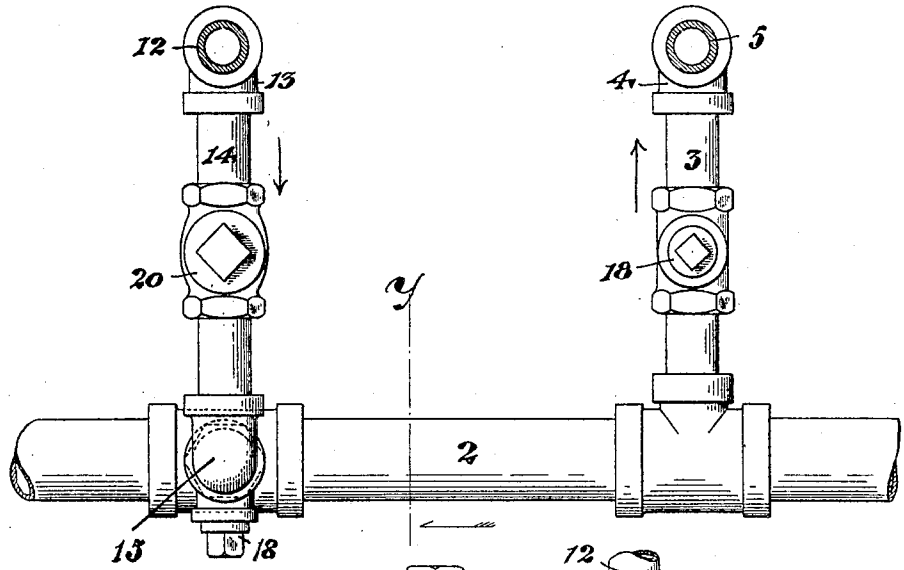
3 SHEETS—SHEET 2.

Fig. 2.



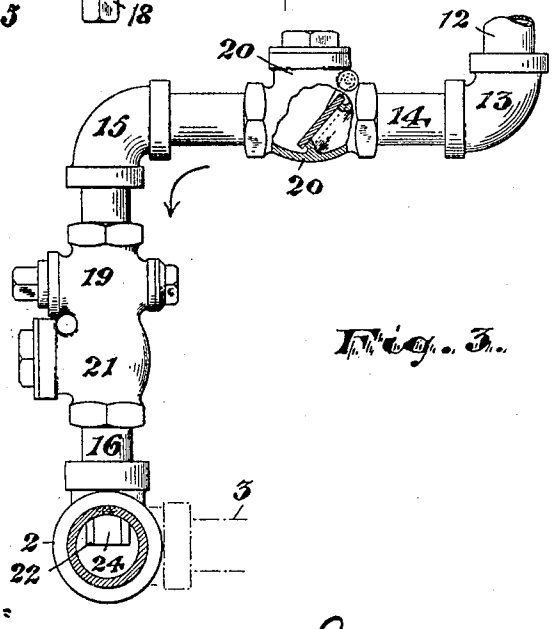


Fig. 3.

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3 SHEETS—SHEET 3.

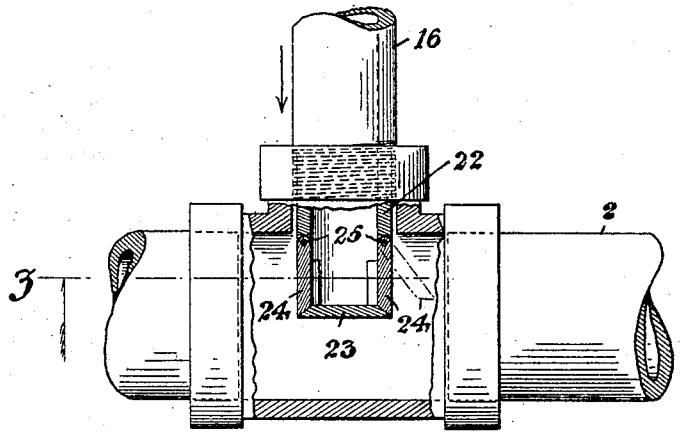

Fig. 4.

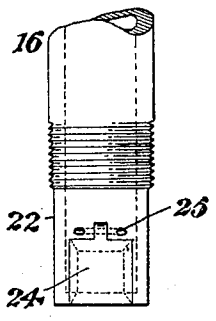

Fig. 5.

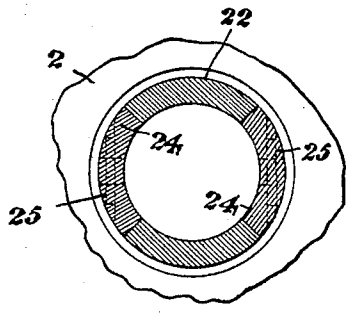

Fig. 6.

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UNITED STATES PATENT OFFICE.

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No. 822,920. Specification of Letters Patent. Patented June 12, 1906.

Application filed June 7, 1905. Serial No. 264,065.

To all whom it may concern:

Be it known that I, JAMES W. CALLAGHAN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Hydrants; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to numerals of reference marked thereon, which form a part of this specification.

The objects of this invention are to provide a hydrant for street use in connection with the water system of a city in which the water in the hydrant shall not be liable to freeze in cold weather, to this end to secure a construction which shall insure circulation throughout the hydrant at all times that such circulation is desired, to secure a simple and cheap construction, and to obtain other advantages and results, some of which may be hereinafter referred to in connection with the description of the working parts.

The invention consists in the improved hydrant and in the arrangements and combinations of parts of the same, all substantially as will be hereinafter set forth and finally embraced in the clauses of the claim.

Referring to the accompanying drawings, in which like numerals of reference indicate corresponding parts in each of the several figures, Figure 1 is a side elevation of a hydrant of my improved construction connected to a water-main. Fig. 2 is a plan view of the same with the hydrant in section upon line *x*, Fig. 1. Fig. 3 is a cross-sectional view taken upon line *y* of Fig. 2, showing a portion of the hydrant with the wall of a certain check-valve broken away to disclose its interior construction. Fig. 4 is a detail elevation, partly in central vertical section, of the discharge end of the hydrant and its connection to the main. Fig. 5 is an outside view of said discharge end of the hydrant, looking at one of the valves; and Fig. 6 is a cross-section upon line *z*, Fig. 4.

In said drawings, 2 indicates a water-main adapted to be buried, as usual, below the level of the ground and which ground-level is indicated by the line A A in Fig. 1. From the side of said main 2 at any suitable point extends a horizontal branch pipe 3, which at a little distance from the main is connected, as by an elbow 4, with an upright pipe 5, leading to the bottom of the hydrant proper, 6. Said hydrant proper projects above the ground and is provided at its upper end with the usual plugs 7 for attaching hose or otherwise drawing water. From the top of said hydrant proper, 6, extends vertically a pipe 8, which connects, as by elbows 9 11, and an intermediate horizontal pipe 10, with a vertical pipe 12, which is at the convenient distance from the hydrant proper, 6, and which passes downward below the surface of the ground. This pipe 12, before it reaches the level of the main 2, is connected, as by an elbow 13, to a horizontal pipe 14, extending perpendicular to the plane of the hydrant proper and pipe 12 and at its extremity, which lies directly over the main 2, having an elbow 15, which is connected by a pipe 16, opening directly into the top of the main 2.

The flow through a main, except at dead ends, being constant on account of the use of water for household and factory purposes it will serve to draw open one of the valves 24, (see Fig. 4,) and thus a circulation is induced through the hydrant and the branch pipe that is sufficient to prevent freezing.

An ordinary stop cock or valve 17 is supplied in the pipe 10 at the top of my improved hydrant, so as to cut off circulation of the water when the hydrant is in use. Similar valves 18 19 are located in the horizontal pipe 3 and vertical pipe 16, respectively, for convenience in installing or otherwise working with the hydrant. In the horizontal pipe 14 is stationed a check-valve 20, which is adapted to permit normal flow through the hydrant, but prevent back flow, and to further insure safety in this respect another check-valve 21 is stationed in the vertical pipe 16 adjacent to the stop-valve 19.

The extremity 22 of the pipe 16 of the hydrant projects into the passage-way of the main 2, as shown in Figs. 3 and 4, more particularly, and is closed at its end, as at 23, swing valves or gates 24 24 being arranged at opposite sides of said extremity 22 in the line of the main 2. Each of these valves 24 is hinged at its top, as at 25, and opens outward, being normally held closed by gravity. Because of these valves 24 and the check-valves in the hydrant it makes no difference in which direction the water flows in the main 2, since it can pass through the hydrant

in only one direction and is sure of escape through a swing-valve 24, which does not have to open against the flow-pressure.

Obviously various changes in the detail arrangement or position of the different valves described may be made to suit varying conditions, and other changes may be had without departing from the spirit and scope of the invention. I do not, therefore, wish to be restricted by what I have for purposes of illustration positively shown and described except as the state of the art may require.

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

1. In a hydrant, the combination with a main, of a pipe branching from the side of said main, a hydrant proper connected to said pipe, a second pipe leading from the top of said hydrant proper to the top of the main and having its end at said main closed, and swing-valves in opposite sides of said second pipe which open into said main and are disposed in the line of the main.

2. In a hydrant, the combination with a main, of a pipe branching from the side of said main, a hydrant proper connected to said pipe, a second pipe leading from the top of said hydrant proper to the top of the main and having its end at said main closed, swing-valves in opposite sides of said second pipe which open into said main and are disposed in the line of the main, and a check-valve in said second pipe adapted to prevent flow toward the hydrant proper.

3. An improved hydrant connection comprising a main, a hydrant, a pipe connecting the main and the hydrant, a second pipe connecting the hydrant and the main, and a valve in the juncture of the second pipe and the main, arranged to be opened by the current in the main.

In testimony that I claim the foregoing I have hereunto set my hand this 19th day of May, 1905.

JAMES W. CALLAGHAN.

Witnesses:

CHARLES H. PELL,

RUSSELL M. EVERETT.