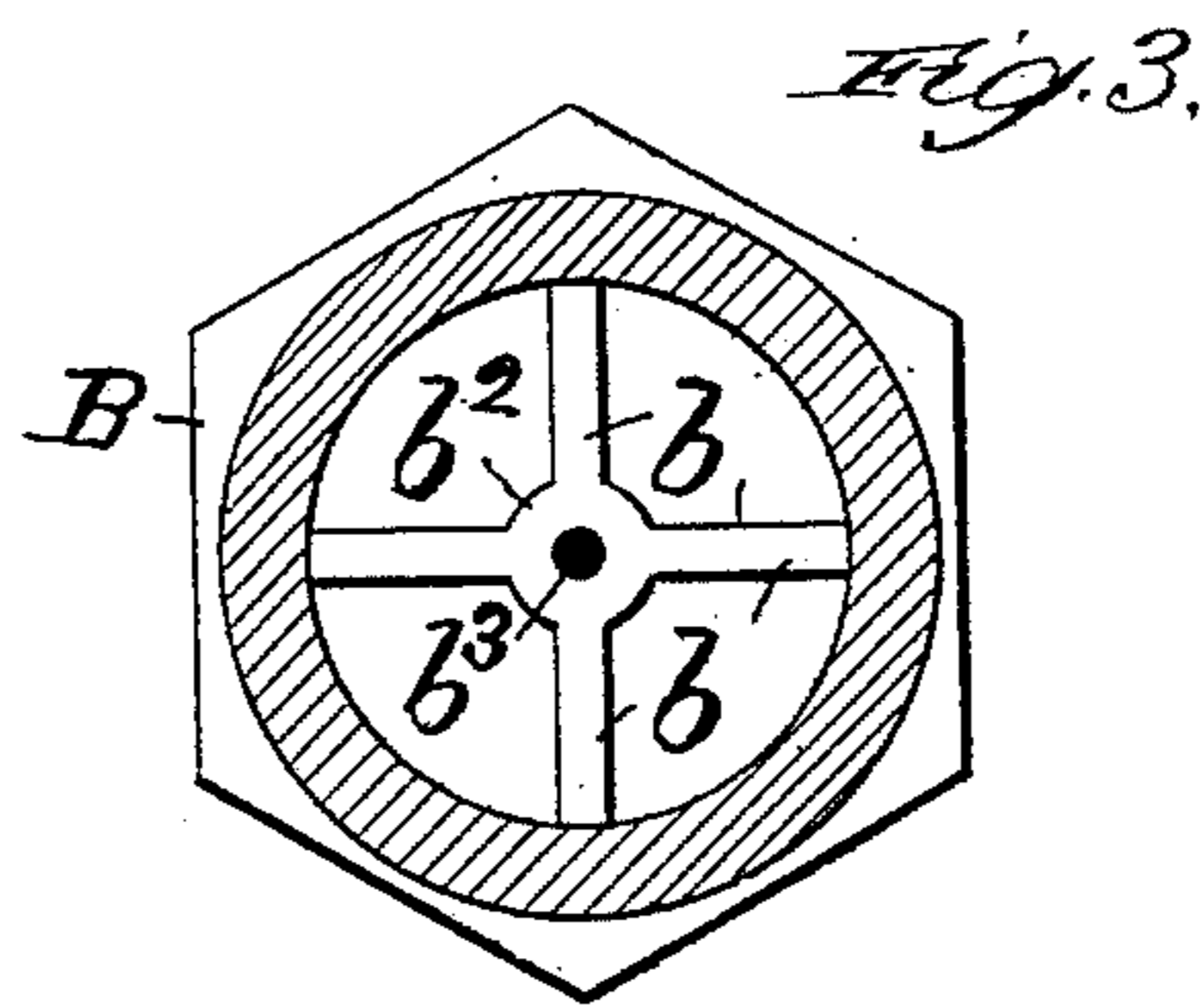
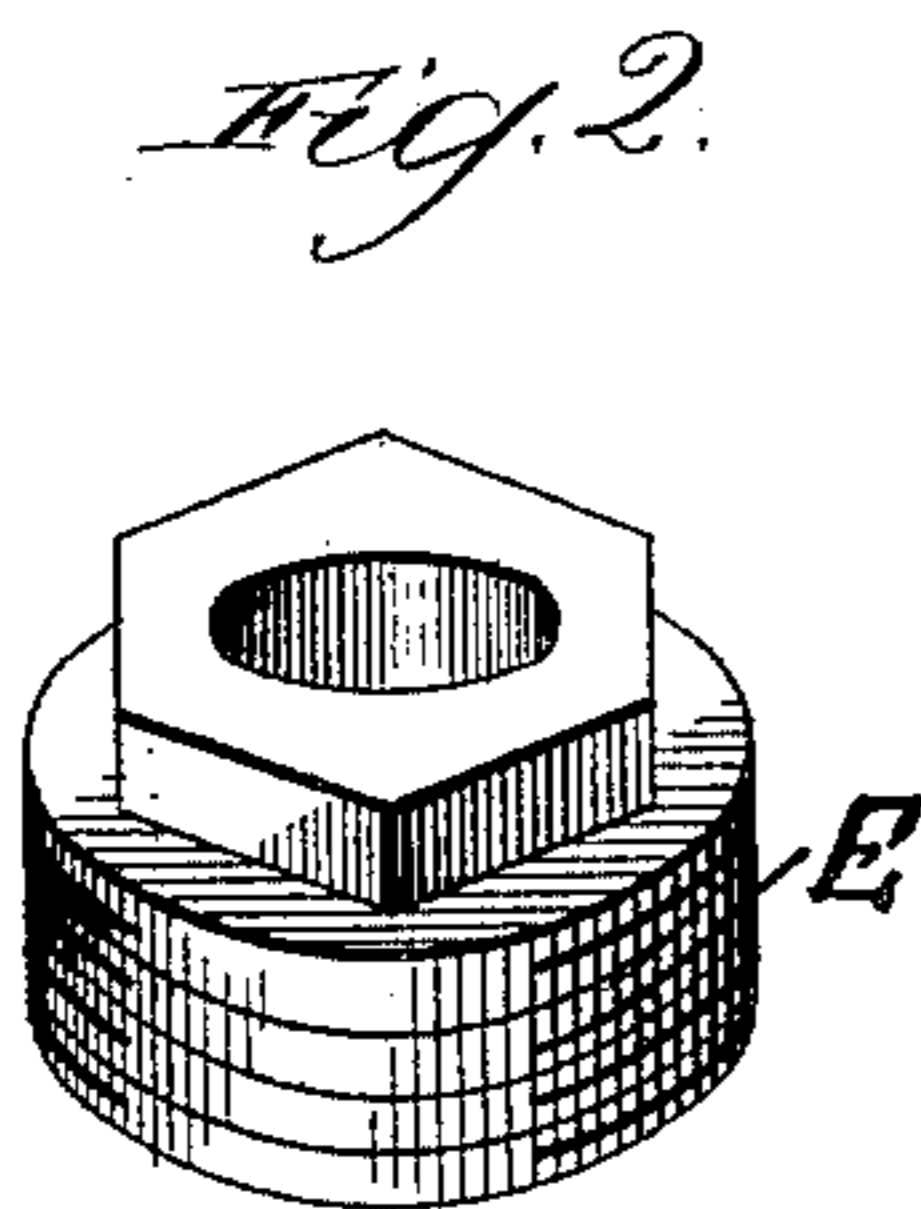
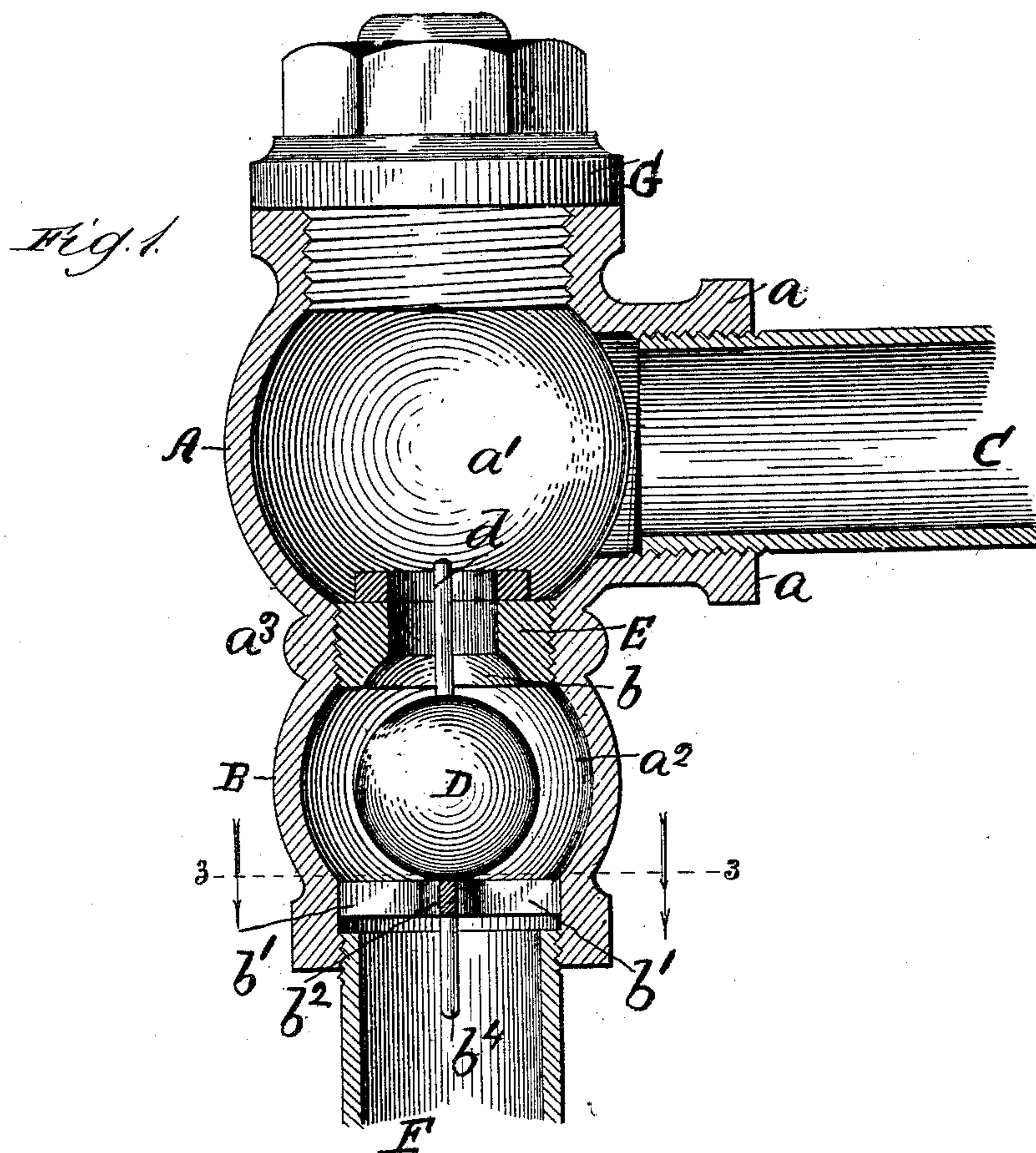


(No Model.)

W. HAYTHORN.
AUTOMATIC VALVE FOR STEAM RADIATORS.

No. 467,883.

Patented Jan. 26, 1892.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM HAYTHORN, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM SOVY HAYTHORN, OF SAME PLACE.

AUTOMATIC VALVE FOR STEAM-RADIATORS.

SPECIFICATION forming part of Letters Patent No. 467,883, dated January 26, 1892.

Application filed February 13, 1890. Serial No. 340,247. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HAYTHORN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in an Automatic Valve for Steam-Radiators, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a valve for the discharge or return end of steam-radiators, whereby the return-passage is automatically closed by the back-pressure when the supply in the radiator is shut off and opened in the same manner when the live steam is again let into the radiator. This valve is intended to take the place of the ordinary globe-valve commonly used in the discharge-passage of radiators, and obviates all the objectionable features attending the use of such valves.

As a general thing in operating radiators the steam-supply valve is shut off when sufficient heat has been radiated; but the valve on the discharge end is left open and the result is that the back-pressure through the return fills the radiator with the water of condensation, the greater part of which is liable to remain in the radiator when the same becomes cold and the pipes frozen and bursted.

Figure 1 is a vertical section of a valve embodying my improved features; Fig. 2, a detached detail; and Fig. 3, a horizontal section in plane 3, Fig. 1, looking in the direction indicated by the arrows.

Referring to the drawings, A represents the upper part of the valve-casing, and B the lower part, which is formed integral therewith. The upper part of the casing is provided with the horizontal threaded extension a , in which is inserted the correspondingly screw-threaded end of the discharge-pipe C from the radiator, and which discharges into the chamber a' . The chamber a^2 in the lower part of the globular casing contains the ball-valve D, which is of a less diameter than the inclosing wall, so as to leave a space all around, as shown in Fig. 1. The passage be-

tween the upper and lower chamber is contracted, as at a^3 , and screw-threaded on the interior surface for the reception of the correspondingly screw-threaded tubular plug E. This plug is provided in the under side with a spherical seat b . The lower part of the chamber a^2 below the ball-valve is provided with the arms b' , which extend from the interior surface to the center hub b^2 , (see Fig. 3,) leaving the passage open, said hub being provided with the aperture b^3 for the reception of the guide-pin b^4 , attached to and projecting downward from the ball-valve. A similar guide-pin d is attached to the upper side of the ball-valve and extends up into the screw-plug E. By this arrangement the ball-valve is kept in position to be properly seated. The ball-valve is shown in its lowest or normal position, the discharge-passage being now open through the valve-casing into the pipe F.

When the supply-valve on the radiator is closed and the pressure in the radiator diminished so that the back-pressure will enter through the pipe F, the ball-valve is automatically forced up into its spherical seat in the screw-plug E and the return-passage closed. When the steam is entirely shut off from the system of radiators and connecting-pipes, the ball-valve will gravitate to its lowest seat and allow all the water of condensation to escape, and thus obviate all danger of freezing.

The removable screw-cap G, inserted in the top of the valve-casing, provides for convenient access for the insertion and removal of the tubular plug E and the ball-valve.

The ball-valve will ordinarily be composed of vulcanized rubber; but any other material suitable for the purpose may be used.

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

1. The combination of a valve-casing having two chambers, the passage between said chambers being contracted, a tubular screw-plug provided with a spherical seat in the under side and inserted in said contracted part, a valve located in the chamber below the plug, a number of arms extending from the sides of the casing to a central hub below

the valve, a guide-pin attached to the valve and extending through the hub, an inlet-opening, and an aperture in the valve-casing having a removable cover at the rear of the valve-
5 seat, substantially as described.

2. The combination of a valve-casing having two chambers, a removable screw-plug in the contracted passage-way between the chambers, said plug having a valve-seat on its under side, a valve located in the chamber be-
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low the plug, an inlet-opening above the plug, an outlet below the valve, and an opening in the valve-casing above or at the rear of the plug, said opening having a removable cover, substantially as described.

WILLIAM HAYTHORN.

Witnesses:

L. M. FREEMAN,
J. P. DONALSON.