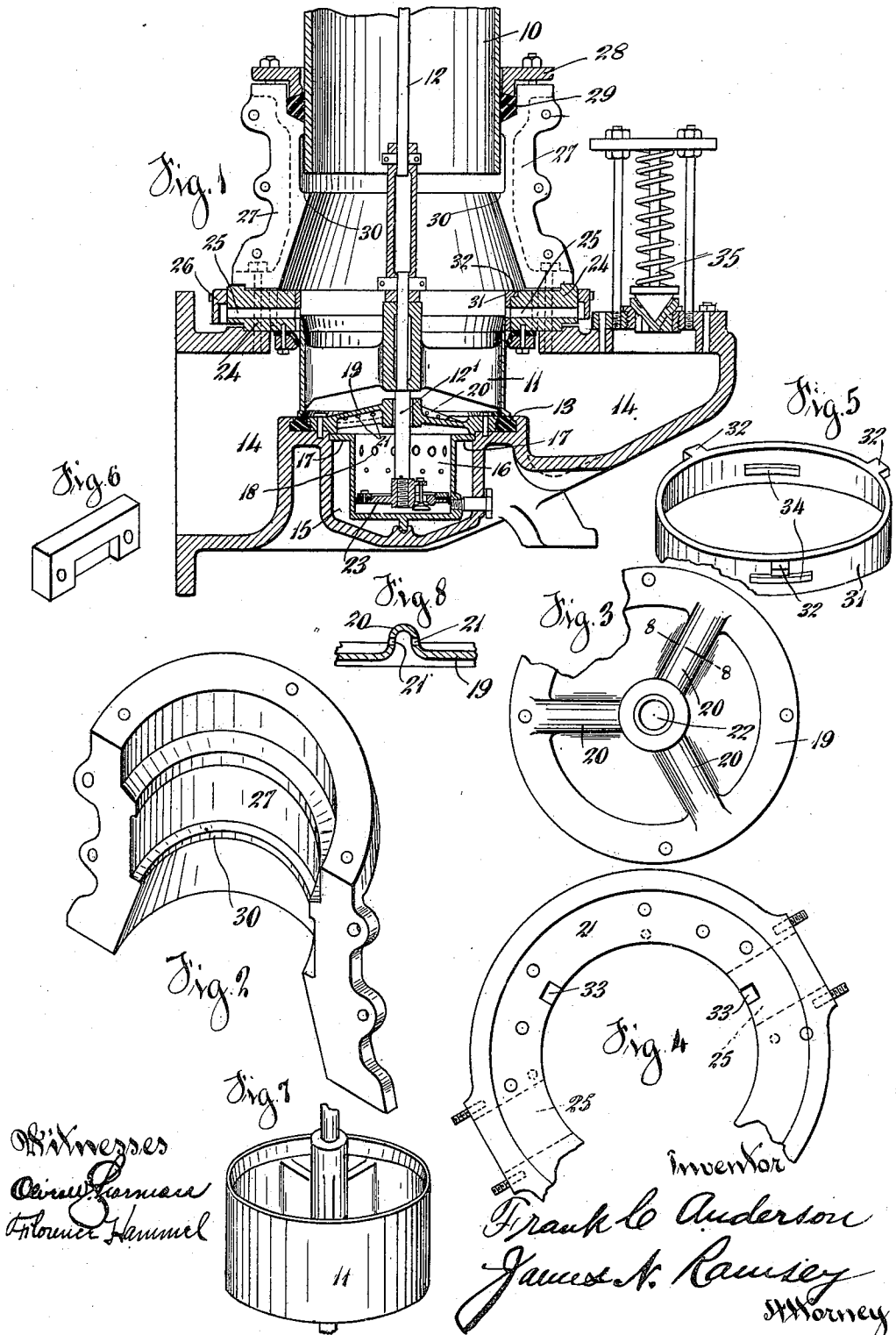


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VALVE MECHANISM FOR WATER COLUMNS
APPLICATION FILED APR. 29, 1910.

981,352.

Patented Jan. 10, 1911.



UNITED STATES PATENT OFFICE.

FRANK C. ANDERSON, OF CINCINNATI, OHIO, ASSIGNOR TO THE AMERICAN VALVE & METER COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

VALVE MECHANISM FOR WATER-COLUMNS.

981,352.

Specification of Letters Patent.

Patented Jan. 10, 1911.

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To all whom it may concern:

Be it known that I, FRANK C. ANDERSON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Valve Mechanism for Water-Columns, of which the following is a specification.

My invention relates to improvements in pipe valves and valve chambers, and more particularly to that form of pipe valve used by various railroads in regulating the flow of water through water columns when supplying the tenders of locomotives with water. The object of my invention is to simplify and cheapen the construction of the valve chamber, and to render the mechanism more compact and convenient for installing, removal and repair, and at the same time produce a more efficient construction.

Another object of my invention is to construct the valve chamber in such a manner as to allow the dash pot for retarding the closing of the main valve to be placed in the bottom of the valve chamber out of the line of passage of the water instead of above the main valve, thus permitting the free and uninterrupted passage of the water from the valve chamber through the water column. Heretofore the dash pot has been placed above the main valve in the line of the path of the water which passes upwardly through the water column, thus preventing free passage of the water through the column. Such dash pot is constructed integral with a housing member placed between the waste ring on the main valve chamber and the split housing or connecting members. With my present invention I am enabled to dispense with said dash pot housing entirely, and to thereby greatly decrease the expense and simplify the construction, and this also allows easy access to said valve chamber by simply removing one or both of the separable members without the necessity of removing the heavy dash pot housing heretofore employed.

My invention consists in a valve chamber having a pocket disposed centrally in its lower part, a valve seat, a main valve, and a retarding closing device for said main valve, placed in said pocket directly beneath the main valve and connected to and operated by the main valve.

My invention further consists in a cap

plate for said retarding device or dash pot having hollow ribs disposed radially upon said cap and provided with perforations to allow the free passage of water therethrough for said dash pot.

My invention also consists in the details of construction and in the several parts and combination and arrangement of parts as herein set forth.

In the drawing: Figure 1 represents a vertical section through a valve and valve chamber equipped with my invention. Fig. 2 is a perspective view of one-half of the split housing or connecting member used in connection with my invention. Fig. 3 is a plan view of the cap plate which covers the dash pot in the lower part of the valve chamber proper, part being broken away for the sake of clearness. Fig. 4 shows a fragmentary plan view of the waste flange or ring placed between the connecting members and the valve chamber proper. Fig. 5 is a perspective view of the ring which fits on the inside of the waste ring or flange shown in Fig. 4. Fig. 6 is a perspective view of the reversible plate adapted to be mounted upon the waste ring or flange shown in Fig. 4. Fig. 7 is a perspective view of the main valve employed in my invention. Fig. 8 is a fragmentary cross sectional view taken on the line 8—8 of Fig. 3.

Referring more particularly to the drawing, 10 illustrates the common ordinary water column or stand pipe broken away.

11 shows the main valve which is operated by the customary operating rod or stem 12. The main valve seat 13 is formed in the main valve chamber 14, the main valve chamber being raised on its lower side to form said valve seat and having a pocket 15 directly beneath the main valve stem to receive the dash pot 16. The dash pot 16 is formed as shown with a flange 17 at the top which rests upon a shoulder formed in the pocket 15 of the valve chamber 14. Holes 18 are provided in the walls of said dash pot to allow the water to pass therethrough. A cap plate 19 is provided and is bolted to the top of the pocket 15 of the main valve chamber and is provided with hollow ribs 20 having perforations 21 in the sides thereof. I provide these rib portions in order that I may place perforations in the sides thereof and prevent any sediment from the water from getting into the dash

pot and retarding its operation. These holes are best shown in Fig. 8, where it is seen that the plate or cap 19 is practically solid with the exception of the perforations, and I break a portion of the plate 19 away in Fig. 3 to show that the space between the ribs 20 is solid or closed. The plate or cap 19 is provided with a suitable hole 22 in its hub portion to allow the piston stem 12' to operate therethrough when it is connected to the piston 23 inside the dash pot 16. The piston is formed in the customary manner.

Mounted upon the main valve chamber 14 is a waste ring or flange 24 having a port 25 therein, and being provided with plates 26 to either stop the flow of water through the ports 25 or allow the passage of water through said ports, whichever may be desired. I also provide the usual brass rings 31 on the inner surface of the flange or waste ring 24 to form a bearing for the main valve 11. This ring 31 is provided with lugs 32 which rest in corresponding depressions 33 in the waste ring or flange 24. The brass ring 31 is also provided with ports 34 which register with the ports 25 in the waste flange or ring 24. This draining arrangement, however, has been included in one of my previous patents and forms no particular part of this invention.

By placing the dash pot beneath the main valve, I am enabled to dispense with the housing or casing in which the dash pot has heretofore been placed and to mount the separable connecting members directly upon the waste ring or flange 24. Thus, it is seen that I obtain a great saving in space, cost of manufacture, and provide for easy access to the valve mechanism. Placed upon the top of said separable connecting members 27 is the customary packing flange 28 and packing 29 on the interior of said separable connecting members. Said members are provided with a shoulder 30 which extends entirely around its inner surface and constitutes a rest for the main water column when it is being assembled.

The main valve chamber is provided with the usual relief valve 35.

It is evident from the construction shown that as soon as the main valve is opened that the water has a clear path up through the water column 10 without having to pass an obstruction as large as the dash pot which heretofore has been placed directly above the main valve. It is also noted that the main valve has a straight upper edge and seats low enough to allow the ports 25 to be opened when said main valve is seated, thus allowing the column to drain through the ports 25 when the plates 26 are adjusted properly. One of the separable connecting members 27 may be removed if it is desired to repair, adjust or examine the mechanism in the valve chamber, and it is readily seen

that it is far easier to accomplish this due to the fact that the separable connecting members are directly above the valve mechanism, there being no dash pot casing between it and the main valve chamber.

The operation of the device is as follows: When the main valve is opened or unseated the water passes up through the water column and also fills up the dash pot chamber by means of the perforations 21 in the cap of the said dash pot chamber. The piston at the same time rises with the piston stem 12' and is at the top of the dash pot chamber when the valve is opened. As soon as the operator allows the valve stem 12 to drop the piston in the dash pot immediately begins to lower and by means of the holes 18 in the sides of the dash pot forces the water therethrough into the chamber formed by the walls of the pocket 15 of the main valve chamber, thus making a cushion and retarding the device in the closing of the main valve 11 and in this manner preventing what is commonly called a water hammer.

It will be seen that by providing a socket in the pocket to receive a stem on the dash pot I am enabled to accurately, easily and quickly center and firmly support the dash pot in proper position with relation to the main valve, and by means of the flanges engaging the shoulders at the upper part of the pocket I securely hold the top part of the dash pot in proper position, while by means of the flanged cap plate which rests upon said flanges, I am enabled to firmly hold the dash pot in fixed position, and by means of the projecting flanges of the cap plate to engage and hold the valve seat in proper position.

It will thus be seen that by this peculiar combination and arrangement, I am enabled to provide a very compact, efficient and simple construction having the various advantages heretofore noted.

Modifications of my invention may be made without departing from its spirit or scope.

What I claim as new and desire to secure by Letters Patent is:

1. In a device of the character described, a valve chamber having a pocket disposed centrally in its lower part and formed integral therewith, a valve seat surrounding said pocket at its top, a valve adapted to engage said valve seat, means to operate said valve, a dash pot in said pocket below said valve, provided with a cover having a central hub portion to form a guide and provided with a flange to engage and hold said valve seat and with perforations to admit water into said dash pot, a piston in said dash pot provided with a flexible ring secured thereto and adapted to engage the walls thereof, and a piston stem in said guide connected to said valve, whereby said

valve and piston are operated simultaneously, substantially as set forth and for the purposes specified.

2. In a device of the character described,
5 a valve chamber having a pocket disposed centrally in its lower part, a valve seat surrounding said pocket at its top, and a flanged cap having a raised portion provided with horizontal perforations in the sides thereof,
10 for the purpose specified.

3. In a device of the character described, a valve chamber having a pocket disposed centrally in its lower part, a valve seat surrounding said pocket at its top, and a flanged cap having radial ribs provided with horizontal perforations in the sides thereof. 15

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Witnesses:

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FLORENCE HAMMEL.