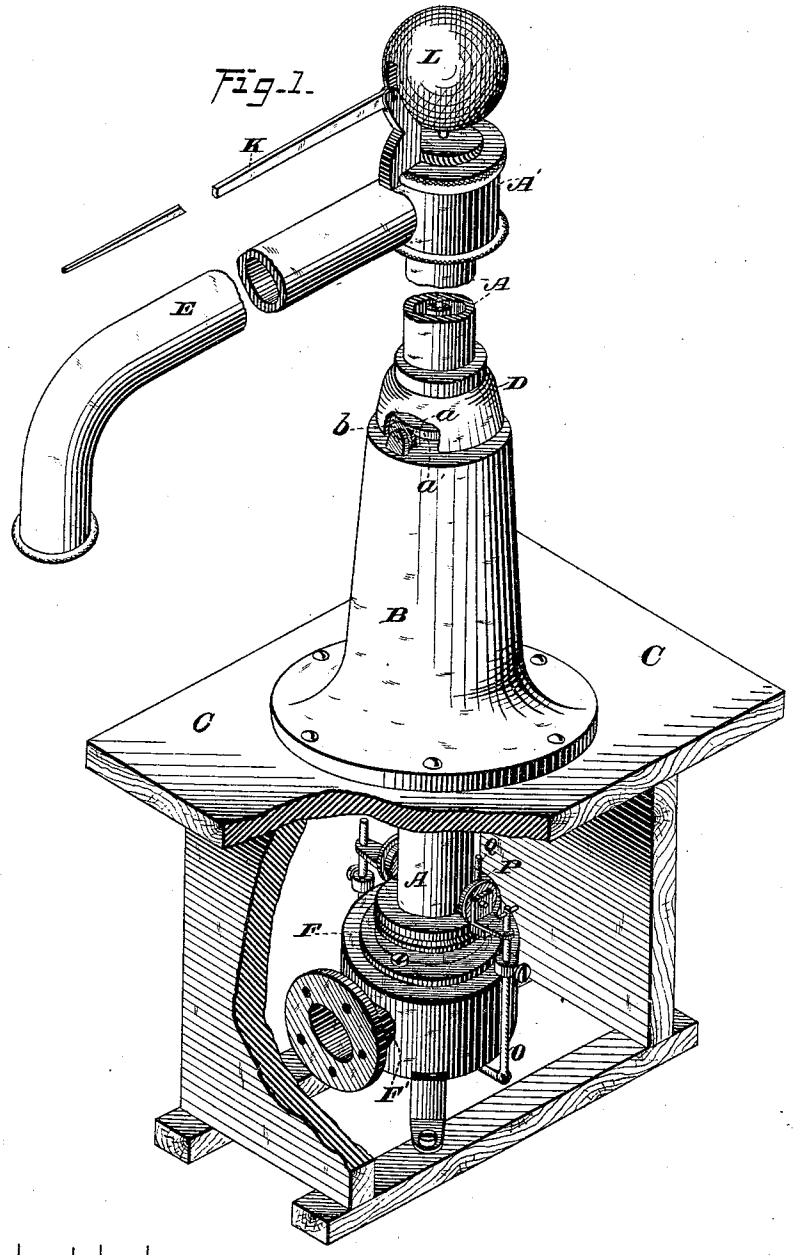
3 Sheets—Sheet 1.

J. N. POAGE.

Watering-Column for Railroad Water-Tank.

No. 217,817. Patented July 22, 1879.

Fig. 1.



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3 Sheets—Sheet 2.

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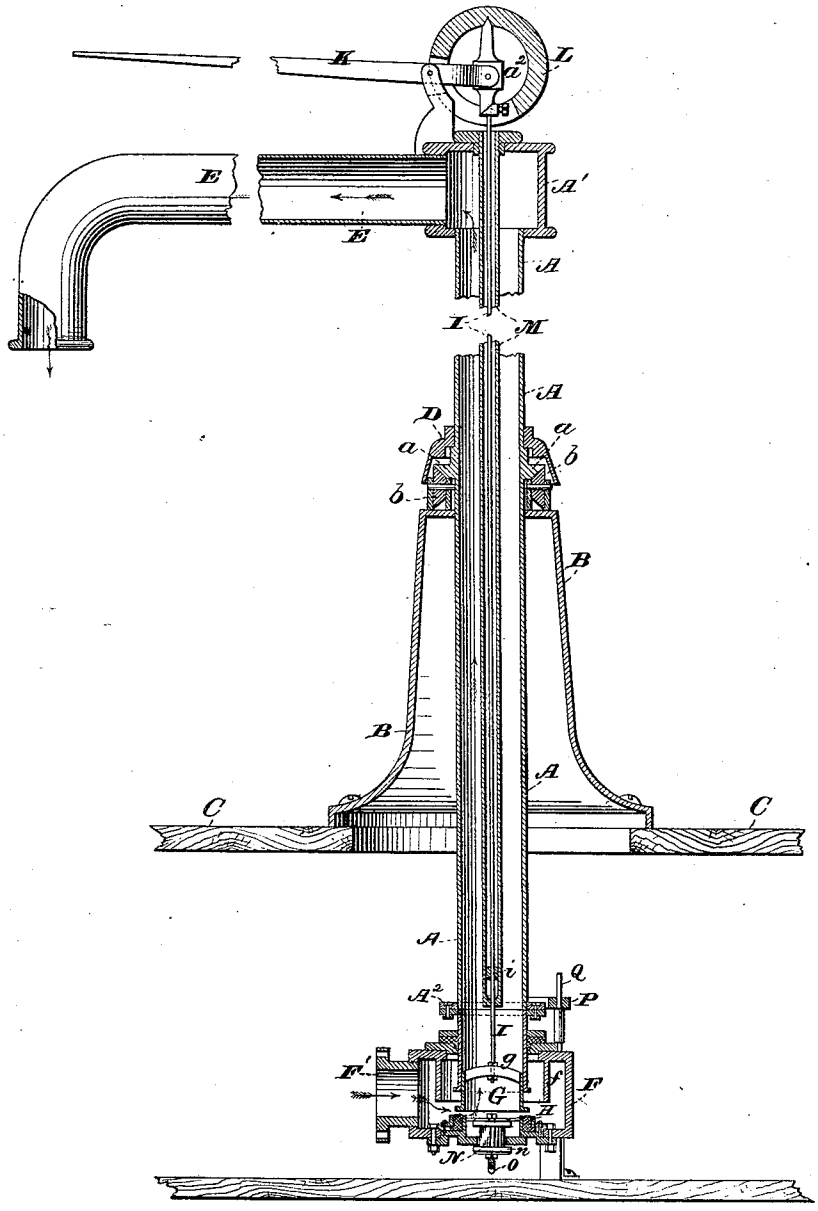
Fig. 2.



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3 Sheets—Sheet 3

J. N. POAGE.

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Fig. 3.

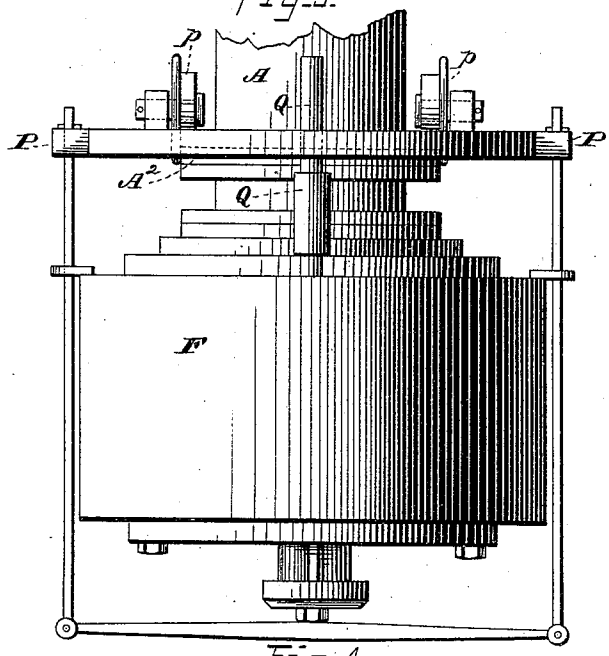
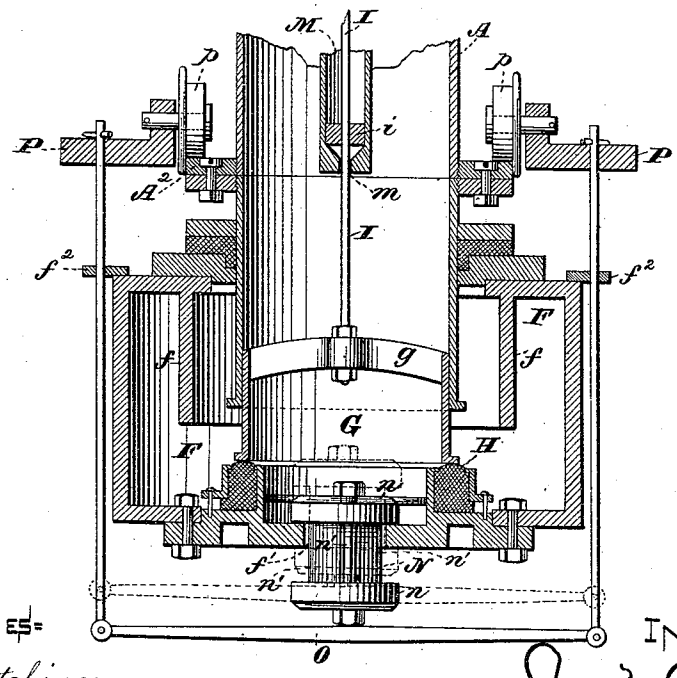


Fig. 4.



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UNITED STATES PATENT OFFICE.

JOHN N. POAGE, OF CINCINNATI, OHIO.

IMPROVEMENT IN WATERING-COLUMNS FOR RAILROAD WATER-TANKS.

Specification forming part of Letters Patent No. **217,817**, dated July 22, 1879; application filed April 7, 1879.

To all whom it may concern:

Be it known that I, JOHN N. POAGE, of Cincinnati, in the county of Hamilton, and in the State of Ohio, have invented certain new and useful Improvements in Watering-Columns for Railroad Water-Tanks; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is a perspective view of my improved device as arranged for use. Fig. 2 is a vertical central section of the same. Fig. 3 is an enlarged side elevation of the valve-chamber, and Fig. 4 is a vertical central section of the same.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to increase the efficiency, durability, and ease of operation of watering-columns and enable them to be protected from injury caused by frost, to which end it consists, principally, in a watering-column provided with a relief-valve for freeing the column from water, which valve is arranged to be connected with or disconnected from operating mechanism, substantially as and for the purpose hereinafter specified.

It consists, further, in a watering-column provided with a double-faced relief-valve, combined with mechanism, substantially as described, whereby said valve is adapted to permanently close or to automatically open and close the waste-water passage, substantially as and for the purpose hereinafter shown.

It consists, further, in the means employed for freeing the column from water when the discharge-pipe is turned to its normal position, substantially as hereinafter set forth.

It consists, further, in the means employed for cushioning the main valve and for preventing the same from being seated too rapidly, substantially as hereinafter shown and described.

It consists, further, in the means employed for preventing the inflowing current of water from impinging directly upon and interfering with the free movement of the main valve, substantially as is hereinafter specified.

It consists, further, in the means employed for closing the main valve and for counterbalancing the weight of the operating-lever, substantially as is hereinafter shown.

It consists, finally, in the means employed for inclosing the supports of the watering-column, substantially as and for the purpose hereinafter set forth.

In the annexed drawings, A represents a metal pipe, which is arranged vertically within a housing, B, that is secured upon and extends upward from a platform, C, and at its upper end is provided with radially-journaled friction-rollers *b*, that receive a flange, *a*, which projects outward from said pipe and furnishes a support for and upon which said pipe is sustained. The rollers *b* are beveled inward, and the lower bearing-face of the flange *a* is correspondingly inclined, and within said flange-face, at opposite sides, are provided inclined notches a^1, (shown in Fig. 1,) which enable the pipe or column A to drop slightly downward wherever they coincide with said rollers, the arrangement being such as to cause said column to automatically turn to and remain in such position whenever moved, so as to bring said notches and rollers near each other.

A cap, D, fitted loosely around the column A and extending downward and outward over the flange *a* and rollers *b*, acts as a shield and protects said parts from ice and snow.

At its upper end the column A is provided with a cylindrical enlargement, A^1, that is inclosed at its upper side, and from one side of such enlargement, in a line with the notches a^1, a pipe, E, extends horizontally outward, and has its end curved downward, as shown.

The lower end of the column A passes into and is contained within a cylindrical box or chamber, F, which is provided at one side with a pipe, F′, that is connected with a water-supply.

The joint between said column A and said chamber is suitably packed, so as to render the same water-tight, and at the same time permit said column to rotate freely and to rise and fall as required by its notched bearing-flange *a*.

Within the lower end of the column A is placed a valve, G, which, as seen in Fig. 4, has the form of a cylinder with open ends, and is fitted so closely as to prevent water from passing between its exterior and the interior of said column, while at the same time capable

of being moved vertically within the latter. The lower end of said valve rests upon an annular seat, H, which is preferably constructed of or from elastic material.

It will be seen that when the valve G is seated no water can pass from the chamber F into the column A, while by raising said valve from its seat H free communication is afforded between said chamber and column.

In consequence of the cylindrical form of the valve and the equal pressure of water upon each side of the same said valve is balanced, and may be raised or lowered with such power only as is necessary to overcome friction.

The valve G is raised, when desired, by means of a rod, I, which has its lower end secured within a bridge, *g*, that spans the upper end of said valve, and from thence passes upward through the column A, and at its upper end is connected to the short end of a horizontal lever, K, which is pivoted within a lug, a^2, that projects upward from the enlargement A^1, the arrangement being such as to enable said valve to be raised by depressing the outer end of said lever.

A spherical weight, L, resting upon the upper end of the rod I, returns the valve G to its normal position when the lever K is released.

Extending from the upper end of the column A downward around the valve-rod I nearly to the valve G is a tube, M, which has an internal diameter of about three times the diameter of said rod, and at its lower end is inclosed, except where an opening, *m*, is left for the passage of the latter, said opening being slightly larger than is necessary to permit said rod to move freely therein.

Secured upon the rod I, at a point above the lower end of the tube M, is a block, *i*, which fills said tube as closely as is consistent with freedom of motion therein, and operates as a piston to prevent the too rapid downward movement of said rod.

When now the valve G is raised, water from the column A passes into the tube M below the piston *i* and fills the space between the same and the lower end of said tube, where, when the lever K is released, said water operates as a check to the downward movement of said piston, and the said valve G can only be seated when a sufficient quantity of said water has been expelled through the opening by which it was admitted to render the resisting pressure less in effect than the weight of said valve, its rod, and the weight L.

In order that the inflowing current of water may not impinge directly upon the valve G and cause an undue pressure upon the same in such direction, an annular flange, *f*, extends from the upper side of the valve-box F downward around the column nearly to the level of the seat H, by which arrangement the current of water is divided and compelled to pass to all sides of said box or chamber before impinging upon said valve.

In winter it is often necessary to empty the column A in order to prevent freezing. This result is automatically accomplished by means of the following-described mechanism:

Within the bottom of the valve-box F is provided an opening, f^1, within which is placed a wing-valve, N, that has a head, *n*, and face at each end, so that when moved downward to its lower limit the upper of said faces will bear upon the contiguous portion of the upper side of said box-bottom and close said opening from within, while if said valve is moved to the upper limit of its motion its lower face will bear against the lower side of the bottom of said valve-box and close said opening from without; and if said valve is placed at any point between such extremes water from within will pass downward through said opening around the wings *n'*. The normal position of the valve N is at the lower limit of its motion, as shown by full lines of Fig. 4, in which position it operates to close the valve-box F and prevent all downward passage of water, the arrangement being such as is required for use at seasons when no liability to freezing exists.

For winter use the valve N is raised to the upper limit of its motion by the following-described mechanism, when the watering-column A is turned outward to position for discharging water. A stirrup, O, passes beneath the valve N, and has its vertical arms contained within suitable guides f^2, which are secured to or upon the sides of the valve-box F, while its upper ends pass through the ends of a semicircular yoke, P, which is placed concentric to the column A a short distance above said valve-box, and is capable of vertical motion upon or over a guide-rod, Q, that extends from the latter upward through said yoke at or near its longitudinal center. The ends of the yoke P are each provided with a roller, *p*, which is journaled upon a radially-arranged bearing and bears upon a flange, A^2, that projects horizontally outward from the column A, the arrangement being such as to cause said yoke and the stirrup O to be moved vertically with said column without offering the slightest obstacle to the free rotation of the latter.

The stirrup O is adjusted vertically upon or within the yoke P when the latter is at its normal position until the valve N is raised from its seat, and free escape is afforded for water within the valve-box F, after which, upon turning the column A to position for discharging water, said valve, through the mechanism before described, will be carried upward by the vertical motion of said column, and its lower face caused to close from below the relief-opening, said opening remaining closed until said column is returned to its normal position, where free escape is afforded for water contained in the latter and in said valve-box.

In summer, when it is not necessary to free the column from water after use, the stirrup O is disconnected from the yoke P, so as to permit the valve N to drop to and remain in

its normal position, and at the return of cold weather said parts are again connected and said valve operates as before.

The watering-column described remedies many of the defects heretofore existing in mechanism of this class, and is free from all liability to injury from frost.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. In a watering-column, a relief-valve for freeing the column from water when desired, which valve is arranged to be connected with or disconnected from its operating mechanism, substantially as and for the purpose specified.

2. A watering-column provided with a double-faced relief-valve, combined with mechanism, substantially as described, whereby said valve is adapted to permanently close, or to automatically open and close, the waste-water passage, substantially as and for the purpose shown.

3. As a means for freeing the column from water when the discharge-pipe is turned to its normal position, the relief-valve N, placed within the lower side of the valve-box F, the stirrup O, yoke P, rollers *p*, and flange A^2, said parts being combined in the manner and for the purpose substantially as set forth.

4. In a watering-column, as a means for cushioning the main valve, a cylinder surrounding the valve-stem, and at its lower end loosely embracing the same, and a piston secured upon said valve-stem within said cylinder, and substantially filling, radially, the interior of the latter, substantially as shown and described.

5. The cylindrical valve G, in combination with the chamber F, provided with the depending flange *f*, whereby the inflowing current of water is prevented from impinging directly upon said valve, substantially as and for the purpose specified.

6. In a watering-column, as a means for closing the main valve and for counterbalancing the operating-lever, a weight secured to and pressing directly downward upon the upper end of the valve-rod, substantially as shown.

7. In combination with the rollers *b*, the cam or notched bearing-flange *a* and the housing B, the cap D, fitted upon the column A, and inclosing said parts from above, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 3d day of April, 1879.

JOHN N. POAGE.

Witnesses:
JOHN W. CALDWELL,
STANLEY HATCH.