

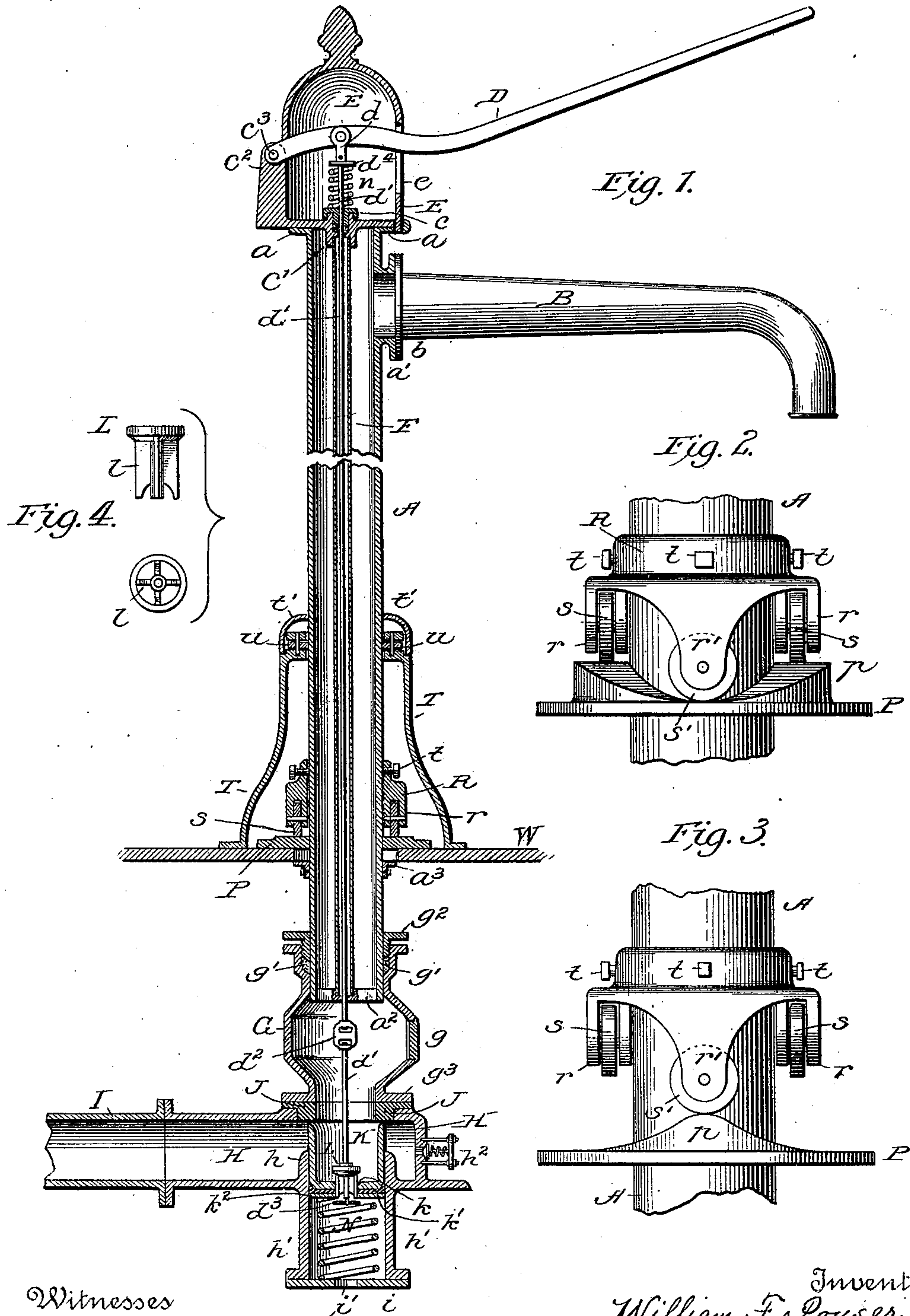
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W. F. POYSER & J. BROWN.
WATER COLUMN FOR RAILROAD WATER TANKS.

(Application filed June 10, 1898.)

(No Model.)



Witnesses

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WILLIAM F. POYSER AND JOHN BROWN, OF FORT WAYNE, INDIANA.

WATER-COLUMN FOR RAILROAD WATER-TANKS.

SPECIFICATION forming part of Letters Patent No. 631,439, dated August 22, 1899.

Application filed June 10, 1898. Serial No. 683,111. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM F. POYSER and JOHN BROWN, citizens of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Water-Columns for Railroad Water-Tanks; and we 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.

This invention relates to water-columns for delivering water to the tanks of locomotive-tenders along railroad lines, and more particularly to certain improvements in construction for making them more convenient and effective in operation than those heretofore in use.

The object of our invention is to provide a water-column which shall be simple in construction and which can be easily and quickly operated to supply water to the tank of a locomotive-tender and then turned out of the way, so that the delivery-spout shall stand parallel with the track.

Another object of our invention is to provide for freely raising and lowering the column and turning it to the right or left, so that its delivery-spout shall extend transversely over the track or be turned automatically either to the right or left, with the delivery-spout parallel with the track.

Another object is to provide for automatically closing the inlet-valve of the column and also automatically opening a drain-valve for the column immediately after the main inlet-valve has been closed, so that surplus water in the column may be drained therefrom to prevent freezing.

Another object is to provide certain details of construction for making the column more certain and effective in its operation and less liable to get out of order than columns heretofore in use for supplying water to locomotive-tenders.

The improvements constituting our invention will be set forth in the claims.

We will now describe the details of construction of our improved column by reference to the accompanying drawings, in which—

Figure 1 represents a vertical section with

parts in elevation. Fig. 2 represents an elevation, on enlarged scale, of a portion of the column and its supporting-platform, showing the position of the wheels with relation to the inclines when the column is out of use. Fig. 3 represents a similar elevation of the same parts when the column is turned one-fourth around into the position it occupies when in use. Fig. 4 represents an elevation and under side plan view of the drain-valve.

The water-column A, made of a suitable diameter and any desirable height, is supported by means of rollers or wheels upon a base or platform and is held in a vertical position by a surrounding supporting-base, having at its upper end suitable guide-rollers, and the lower end of the column proper projects down into an enlarged water-chamber having a gland and packing, so as to permit the column to be freely turned or raised and lowered therein. The upper end of the column is provided with the usual horizontal delivery-spout B, which is bolted by its flange *b* to a flange *a'* on the column. The top of the column is made with a flange *a*, to which is bolted the top plate C, having at one side the fulcrum-post *c'*, to the upper end of which is pivotally connected the lever-handle D.

The top plate C has a central hub or stud *c'*, projecting both downward and upward, and the upper part is provided with a stuffing-box *c* for the valve-rod *d'*. To the lever-handle D is pivotally connected the link *d*, which in turn is connected to the valve-rod *d'*, which latter passes through the stuffing-box *c* down into the valve-chamber below. To the under side of the hub *c'* is secured the pipe F, inclosing the valve-rod, and such pipe is secured at its lower end to the cross-bar *a''* at the lower end of column A. In the valve-rod *d'* is connected a suitable swivel-coupling *d''* to permit the column to turn without turning the valves which are thereon, and near the lower end is secured the relief-valve L, which is adapted to open or close a drain-opening in the bottom of the main valve.

A cap or hood E, having at one side a vertical slot *e* for the lever-handle, is mounted upon the top plate C for giving a suitable finish to the column and protecting the mechanism below.

The lower end of column A projects down

into the enlarged water-chamber G, so as to freely turn and be raised and lowered therein, as required. The upper portion of the wall of the chamber G above its contact with the water-column A is provided with a groove containing a suitable packing g' and a gland g^2 for making a tight joint, but permitting motion of the column. Chamber G is provided at one side with a hand-hole and a plate g and has at its lower end the wide flange g^3 , by means of which it is bolted to the water-inlet and valve chamber H. Between the flange g^3 and its seat is secured the valve-seat ring J, which is preferably made of rubber in the form shown to make a good seat and tight joint when the upper edge of the cup-valve K is seated upon it. The cup-valve K is the main water-inlet valve for the column and is supported and guided in a cylinder or casing composed of the upwardly-projecting annular guideway h and the downwardly-projecting annular portion h' . The water-inlet and valve chamber H, with its parts h and h' , may be composed of a single casting or may be built of detached parts, as desired. The water-main I is in practice bolted to the chamber H. In one side of chamber H is set the spring relief-valve h^2 for relieving the excessive pressure of water when the main valve K is closed.

The main inlet-valve K is preferably made cup shape, with its bearing edge at the top and with a central opening and valve-seat k in its bottom plate. To the under side of valve K is secured a packing-ring k' , of leather or other suitable material, by means of a metal plate k^2 and suitable screw-studs. The packing-ring k' makes a sufficiently tight joint, like a piston-packing, with the walls of the cylinder or casing h h' .

By placing the rubber valve-seat ring J at the top of chamber H and using the cup-valve K with its upper edges bearing upward against said seat we prevent the deposit of sticks, stones, or other foreign substances upon the valve-seat (which would cause a leak) and are thus enabled to maintain a tight joint, which is a very important feature in a water-column.

The drain-valve L (shown detached in Fig. 4) is made with a central opening and four downwardly-extending guide-wings and is slipped over the lower end of the rod d' , to which it is secured by a pin. (Not here shown.) The guide-wings l are fitted in the opening in the bottom of valve K, so that the valve L will be readily forced to its seat k when the rod d' is pushed downward. A transverse pin d^3 is secured in the lower end of rod d' , so as to bear upon the bottom of valve K on both sides of its opening to serve as a stop when the lever-handle D is raised and prevent the guide-wings l from being drawn out of the opening.

The lower end of the cylindrical extension h' is closed by a plate i , having an opening i' for escape of water. Within the cylinder h'

is placed the spiral spring N, bearing upon its bottom plate and also up against the bottom of the cup-valve K and acting to automatically close said valve when the downward pressure on the lever-handle D is released. A second spring n is placed at the top of the column around the valve-rod d' and bears at its lower end upon the top of stuffing-box c and at its upper end upon the plate d^4 , secured to the rod or to the link d . This spring serves to automatically raise the handle D, the rod d' , and drain-valve L after the cup-valve K has been closed, so that surplus water in the column may drain out through the opening k and pass off to the sewer or other convenient place.

The weight of the column is mainly supported by the plate P, resting upon the platform W. At a suitable height above plate P there is secured to column A the collar or sleeve R by means of the screw-studs or bolts t . The collar R is provided with four hangers, two of which, r r , are comparatively short and two of which, r' r' , are long and at opposite sides of the column, as indicated in Figs. 2 and 3. The hangers are suitably slotted for receiving the wheels or rollers s s' , which are journaled therein, as shown. The supporting-plate P is provided upon opposite sides with two double inclines p p for suitably raising the column when it is turned into the operative position across the track. When the column is at rest and out of use with the delivery-spout B parallel with the track, the wheels s' s' on the long hangers r' rest in the depressions between the inclines, while the other set of wheels on the short hangers r rest upon the tops of the inclines, as shown in Fig. 2. By means of this construction and arrangement the column is evenly supported on four sides, so that it will not be liable to be tilted out of place by the wind or other means when not in use. When the column is turned into position with the spout B across the track ready to deliver water to the tender, the pair of wheels s' on the long hangers r rest upon the tops of the inclines p , while the other set of wheels s are elevated, as shown in Fig. 3. A ring or flange a^3 is secured to the column below the base-plate P to act as a stop for preventing the column from being raised too high out of the water-chamber G.

Around the plate P and collar R is secured the supporting-base T, which may be bolted to the platform W, and it is provided at the upper end with a suitable number of horizontal rollers u , bearing all around upon the column A. A cap or hood t' covers these rollers and forms a suitable finish to the base T. The base T forms a suitable support to prevent lateral displacement of the column A, and the rollers u permit the column to readily turn as the spout is swung around into different positions. The rollers s s' may be termed the "supporting-rollers" and the rollers u the "guide-rollers."

By means of the supporting-plate P, with its double inclines secured to the platform W, and the collar R, with its hangers and wheels, and the supporting-base T, all constructed as above described, we do away with the tall hollow standard surrounding the water-column, as heretofore proposed, and at the same time effectively support the column and permit slight flexibility of the parts for securing the most satisfactory results.

The operation of our water-column is very simple and may be as follows: After the tender has been brought to position on the track the delivery-spout B may be grasped by the attendant and the column turned either to the right or left, as most convenient, until the spout is in proper position over the supply-opening of the tank on the tender. As the column is turned one-quarter revolution the wheels *s'* on the long hanger *r'* rise upon the inclines *p*, and thus raise the end of the delivery-spout sufficiently to clear the tender. The spout being in the proper position, the lever-handle D is now pulled downward, operating first to close the drain-valve L upon its seat and then to push downward the main valve K until it is sufficiently wide open to permit water to flow from main I and chamber H up through the column and be discharged through the spout into the tank of the tender. After the tank has been filled the lever-handle D is released, when the spring N will act automatically to close valve K, and the spring *n* will act to raise valve-rod *d'* and the drain-valve L, thus opening the passage *k* in the bottom of valve K, and permit the excess of water in the column to drain off. After the lever-handle D is released the spout B is also released, and if slightly turned the wheels *s'* will then automatically roll down the incline *p*, so as to turn the column with the spout B parallel with the track. It will be noted that the spout B may be turned either to the right or to the left, and in either case the wheels *s'* will roll down the double inclines *p* to bring the spout parallel with the track. This is quite a convenience in practice and much facilitates the quick operation of the column. Since the main valve is closed automatically and the drain-valve opened automatically and the delivery-spout, with the column, is automatically turned into the normal position parallel with the track, the operation of supplying water to the tank of the tender can be quickly and conveniently performed.

By reason of the small number of parts and the simplicity of construction of our column it is not liable to get out of order and will be quite effective in operation.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In a water-column, the combination with the valve-chamber and the main valve therein, of a relief or drain valve, means connect-

ing with said valve to positively close the drain-valve and then open the main water-supply valve, and a spring, operating automatically, to open the drain-valve after the main valve has been closed, substantially as described.

2. In a water-column, the combination with the valve-chamber having the seat-ring at the top, of the cylindrical main valve, bearing at its upper edge on said seat, a drain-valve, means for closing said drain-valve and successively opening the main valve, independent, automatic means for closing the main valve and independent automatic means for opening the drain-valve, substantially as described.

3. In a water-column, the combination with the valve-chamber, of a cup-shaped main valve having an opening and seat in its bottom, a drain-valve for said opening, means acting to close said drain-valve on its seat, and then open the main valve, means for closing said main valve and independent, automatic means for opening said drain-valve, substantially as described.

4. In a water-column, the combination with the valve-chamber, of a cup-shaped main valve having an opening and seat in its bottom, a drain-valve for said opening, means acting to close said drain-valve and open the main valve, a spring for closing said main valve and a separate spring acting independently to open said drain-valve, substantially as described.

5. The combination with the valve-chamber having the seat-ring at the top, of a cylindrical valve having its bearing edge at the top, a casing or cylinder for said valve below its seat, and means for raising and lowering the valve, substantially as described.

6. The combination with the valve-chamber, having a seat-ring at the top, of a cylindrical cup-shaped valve, having its bearing edge at the top and an opening at its bottom, a casing or cylinder for said valve below its seat, a drain-valve for the opening in said cup-shaped valve and means for operating both valves, substantially as described.

7. The combination with the valve-chamber, having a seat-ring at the top and a cylindrical valve-casing, *h, h'*, below said seat-ring, of a cylindrical cup-shaped valve having its bearing edge at the top and provided with a valve-opening in its bottom, a drain-valve for said opening, a spring bearing on the bottom of said cup-shaped valve for closing it and other suitable means for operating both valves, substantially as described.

8. The combination with the water-column A, of the supporting-plate P, having double inclines *p*, upon its opposite sides and resting on platform W, and a collar, as R, secured to the column and having two opposite short hangers and wheels and two opposite long hangers and wheels, the said long hangers and wheels being placed intermediately between the short hangers, whereby the column

will be evenly supported when it rests with the spout parallel to the track, substantially as described.

9. The combination with the water-column
5 A, of the supporting-plate P, having double inclines upon its opposite sides and resting on platform W, a collar, having hangers and supporting-wheels, secured to the column and a supporting-base, as T, surrounding said
10 supporting-plate and collar, and provided at

its upper end with horizontal guide-rollers *u*, bearing on the column, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM F. POYSER.
JOHN BROWN.

Witnesses:

JOHN C. ABEL,
MICHAEL TANCEY.