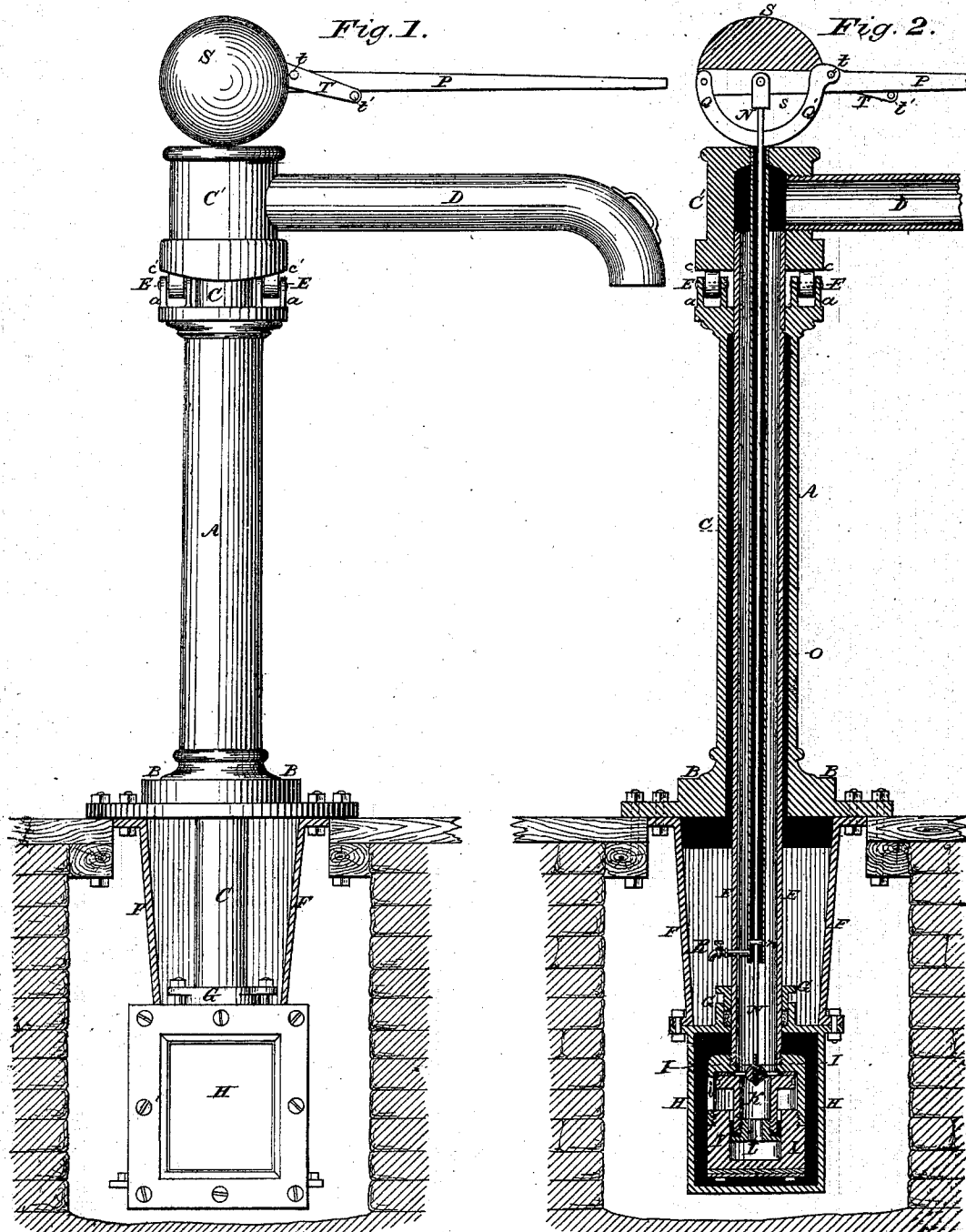


J. N. POAGE.

Watering Columns for Railroad Water-Tanks.

No. 139,188.

Patented May 20, 1873.



Witnesses:

T. C. Drecht.
John R. Young

Inventor:

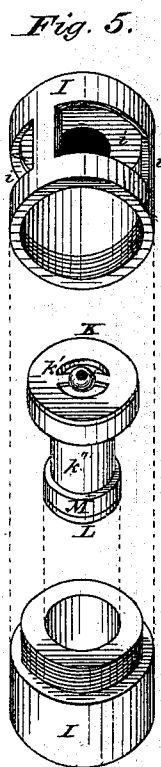
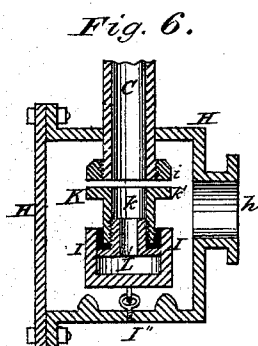
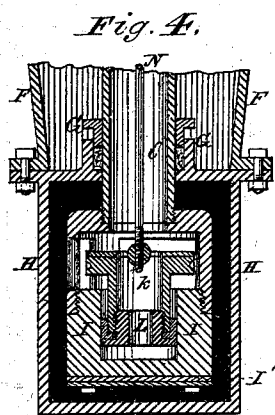
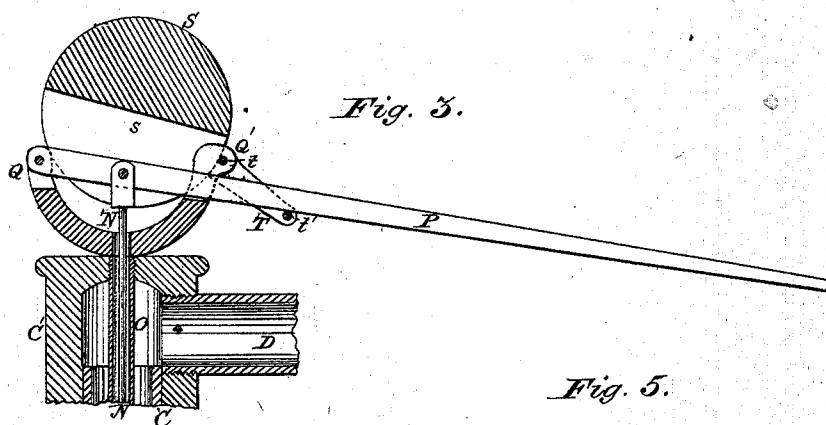
John N. Poage, by
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UNITED STATES PATENT OFFICE.

JOHN N. POAGE, OF CINCINNATI, OHIO.

IMPROVEMENT IN WATERING-COLUMNS FOR RAILROAD WATER-TANKS.

Specification forming part of Letters Patent No. 139,188, dated May 20, 1873; application filed February 10, 1873.

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-Column 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 drawing making a part of this specification, in which—

Figure 1 is a side elevation of my improved device as arranged for use. Fig. 2 is a vertical central section of the same. Fig. 3 is an enlarged central section of the upper end of the device, showing the arrangement of the operating-lever and counter-balance when the valve is opened. Fig. 4 is a like view of the lower end of said device, showing the arrangement of parts when said valve is opened. Fig. 5 is a perspective view of the sectional valve and valve separate from each other; and Fig. 6 is a vertical central section of the valve, valve-box, and the casing for the same, showing a modification in the construction of the valve-box, and a means for attaching the same to or upon its casing.

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

The object of my invention is to increase the efficiency, durability, and ease of operation of a watering-column, and to lessen its liability to become injured or obstructed from or by reason of the action of the frost; to which end, it consists, principally, in the means employed for causing the horizontal or discharge pipe, after use, to automatically return to and remain in position in a line parallel with the track, substantially as and for the purpose hereinafter shown. It consists, further, in combining with the vertical portion of the watering-column a smaller inner pipe for the passage of the valve-rod, substantially as hereinafter specified. It consists, further, in the means employed for connecting the valve-rod pipe to or with the drain-pipe, substantially as and for the purpose hereinafter shown. It consists, further, in the means employed for automatically opening and closing the waste-water discharge, substantially as and for the purpose hereinafter set forth. It consists, further, in the means employed for automatically closing

the valve when the operating lever is relieved from downward pressure, substantially as and for the purpose hereinafter shown and described. It consists, finally, in the device as a whole, when its several parts are constructed and combined to operate substantially as and for the purpose hereinafter specified.

In the annexed drawing, A represents a hollow metal cylinder, made open at its ends and provided with a suitable base, B, by means of which it is secured in an upright position upon a platform or other support. Within the cylinder A is placed a pipe, C, that has a somewhat less diameter than the same, except at its upper end, which, above said cylinder, has substantially the same exterior diameter, and, at the lower end of such enlargement C', has a right-angled shoulder, c, that rests upon the upper end of said cylinder and furnishes a support for said pipe. From the vertical pipe C a discharge-pipe, D, extends horizontally outward to a sufficient distance, and has its end curved downward in the usual manner, so as to direct the stream of water into the supply-opening of the tender. In order that, when not in use, the pipes C and D may be caused to automatically revolve within or upon the column A, so as to bring said pipe D in a line parallel with the railroad-track, a double incline, c', is formed within the shoulder c, upon opposite sides of the enlargement C', and in a line with said pipe D, which inclines extend upward and together, as seen in Fig. 1. Within and upon suitable lugs a, attached to and projecting upward from the upper end of the cylinder A, are journaled two rollers, E, which rollers are arranged upon opposite sides of said cylinder in a line parallel to the track, and with their axes placed upon horizontal and radial lines, and furnish a rolling bearing for and upon which the shoulder c' rests.

As thus arranged, it will be seen that when the discharge-pipe D is swung outward at a right angle to the track, the horizontal or plane portions of the shoulder between each set of inclines will rest upon the rollers E and cause the parts to remain in a state of rest; but when said pipe D is turned in either direction until one of the inclines bears upon each roller, the weight of the parts pressing down-

ward will cause said pipes to revolve until they reach their normal position, with said discharge-pipe in a line parallel to the track, and the notches formed at the intersection of said inclines resting upon said rollers.

It will be seen that by this construction of parts it is impracticable for the discharge-pipe to remain at an angle to the track, except when purposely placed in such position and detained, and that when released a slight movement in either direction will cause said pipe to return to place, when its weight will be sufficient to prevent displacement by the wind.

Although the arrangement shown is preferably employed, a like result would be obtained if the positions of the rollers and inclines were reversed, the former being attached to the pipe C, and the latter constructed upon the pipe A.

To the lower end of the column A is secured a waste-water casing, F, which has, preferably, the shape shown, and is provided within its lower and otherwise close end with a stuffing-box, G, of usual construction, through which the lower end of the pipe C passes. Attached to the lower end of the casing F is a second casing, H, which contains the valve-box I, and by means of an opening, *h*, that is provided in and through one side, receives the supply of water that is to be passed upward through the pipes C and D. The valve-box I is cylindrical in form, and at its upper end is provided with an opening which receives and contains the lower end of the pipe C. From a point immediately below the end of the pipe C to or near its vertical center, the interior of the valve-box has about twice the diameter of said pipe, while from its center downward to near its closed end the diameter of its interior is substantially the same as that of said pipe. A number of lateral openings, *i*, provided in and through the wall of the valve-box I, opposite to the largest portion of its interior, completes the said part. The valve K is cylindrical, is provided with a central opening, *k*, and exteriorly corresponds in horizontal dimensions at its upper end to the largest portion of the interior of the valve-box, and from thence downward to its lower end has substantially the dimensions of the smaller portion of the interior of said box. Within the lower end of the valve is fitted a nut, L, which is provided with a flange or head, *l*, that extends outward beneath said end and confines between itself and the same a disk, M, of leather, rubber, or other elastic material, which disk, projecting outward against the wall of the valve-box, forms a packing between the same and said valve. Vertically, the relative dimensions of the valve and valve-box are such that when the former is moved downward to its lowest point, the space between its upper end or face *h'* and the corresponding end *h'* of the interior of said valve-box shall be sufficient to permit the desired quantity of water to enter the pipe C. The valve K is op-

erated by means of a rod, N, that is attached to its upper end, and from thence extends upward through a pipe, O, which is placed within the center of the pipe C, and has its upper open end secured to and within the corresponding end of the same. The upper end of said rod is pivoted to or upon a lever, P, which is, in turn, pivoted at one end to or upon a suitable lug, Q, that extends upward from the pipe C, and from thence extends forward in a line with and above the discharge pipe D. By depressing the free end of said lever, said valve will be moved downward so as to permit water to pass inward and upward between its face and the valve-seat.

From the peculiar construction of the valve and its combination with its box, it will be seen that but a small proportion of the upward pressure of the water is exerted upon it when seated, while when opened or removed from its seat, the pressure is completely neutralized and said valve rendered entirely free in its movements. By increasing or diminishing the relative size of the lower portion *h''* of the valve in accordance with the pressure of the water supply, the upward pressure upon said valve may be so adjusted as to cause the same to seat well without requiring unnecessary force to remove it therefrom.

As the valve box I is attached to and moves freely with the column C, the relative positions of the operating-lever P and valve K, are at all times preserved. Should the water-pressure be excessive, its effect may be to overcome the weight of the column C and its attachments, and raise the same so as to remove the inclines from contact with their bearing-rollers. In such an event, metal plates, I', may be attached to the bottom of the valve-box, or to some other portion of the device; or, as seen in Fig. 6, said box may be constructed separate from the valve-seat and from the pipe C, and attached to the lower side of the casing by means of a swivel-rod, I''. This latter mode, however, will only be necessary in places where the water-pressure is so great as to render inoperative the employment of the weight I'. In order that water may not pass upward through the tube O, when the valve is opened, a piston, *n*, is secured upon the rod N and, closely filling said tube, moves upward or downward with said rod. The apparatus is set so as to bring the lower end of the tube O below the freezing-point, and, after each use of said apparatus, the water is discharged from the pipe C by means of a drain-pipe, R, which passes horizontally inward from the casing F, through said pipe C, and into said tube O, just below the piston *n* when the latter is at its highest point. When the valve K is opened, the piston *n*, passing below the open end of the drain-pipe cuts off communication between the same and the interior of the pipe C, but upon closing said valve, said piston passes above and uncovers said drain-pipe and permits the water to flow freely into the same through the lower

end of the tube O until all above said drain-pipe has escaped, when all liability to obstruction from freezing will cease. The piston *n* not only regulates the escape of the water from the pipe C, but also prevents the passage of water upward through the tube O, and thus obviates the necessity which would otherwise exist for the employment of a stuffing-box where the valve-rod passes into the open air, which stuffing-box would be liable to become obstructed by the action of the frost. The operating-lever, valve-rod, and valve have a considerable weight in a full-sized machine; and in order that their normal positions may be insured independent of the action of the water upon said valve, it is found necessary to counterbalance the weight of said parts. The result named is accomplished by means of a weight, S, which has, preferably, a spherical shape, and is provided upon its lower side with a slot, *s*, that corresponds in size and shape to the like features of the rear end of the operating-lever P, and its pivotal bearing, Q, and enables said weight to be placed over said parts so as to rest upon the upper end of the column C, as seen in Fig. 1. From the front side and vertical center of the weight S two arms, T, project forward and downward upon opposite sides of the lever P, and of a second bearing-lug, Q', which latter passes upward from the column C and incloses said lever within a suitable vertical slot provided for the purpose. A stud or pin, *t*, passing horizontally inward through each arm T, immediately in front of the weight S, has its inner end contained within a corresponding opening formed within the contiguous portion of the lug Q', and, in connection with the opposite stud, furnishes a pivotal bearing for, and upon which, said, weight oscillates. A pin, *t'*, passing through the ends of the arms T immediately below the lever P, completes the apparatus, the operation of which is as follows:

Upon depressing the outer end of the lever P the corresponding ends of the arms T will be carried downward by and with said lever, and the weight S raised to the position shown in Fig. 3. Upon releasing the lever the weight, operating through its arms, will raise the same to its normal position, and, dropping downward, will rest, as before, upon the upper end of the column C.

As arranged, the weight occupies no space which could be made available for other purposes, and is entirely removed from contact

with passing trains upon either track, whether the watering-column is in use or at rest; in addition to which advantages the symmetry of the apparatus is preserved, and its general appearance improved by the application of said weight.

The entire apparatus, as constructed, is simple, compact, and efficient; not liable to injury from frost; is easily operated by the fireman without leaving the tender of his engine; and by automatically returning to position, with the discharge-pipe in a line parallel to the track, all danger of injury to or from passing trains is avoided.

The valve shown will be made the subject of a separate patent, and, therefore, is not claimed herein.

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

1. In combination with the casing A, and with the watering-column C and C', provided with the projecting shoulder *c*, the double inclines *c'* and journaled rollers E, substantially as and for the purpose shown.

2. In combination with the column C and valve-rod N, the pipe or tube O secured within the upper end of said column, and extending downward within the same to a point near the valve-box, substantially as and for the purpose shown.

3. In combination with the pipe O and column C, the waste-water pipe R, substantially as and for the purpose set forth.

4. In combination with the valve-rod N, tube O, and waste-water pipe R, the piston *n* secured upon and moving with said rod, substantially as and for the purpose shown, and described.

5. In combination with the pivoted operating-lever P, the slotted weight S provided with the arms T pivoted to or upon the lugs Q', inclosing said lug and lever, and caused to engage with the latter by means of the pin *t'* passing through the ends of said arms, substantially as and for the purpose specified.

6. The hereinbefore-described device, as a whole, when its several parts are constructed and combined to operate substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 7th day of February, 1873.

Witnesses: JOHN N. POAGE.
ROBT. SIMPSON,
J. W. BREWSTER.