A. R. ROBERTS.

WATER COLUMNS.

No. 183,072. Patented Oct. 10, 1876.

Fig. 1.

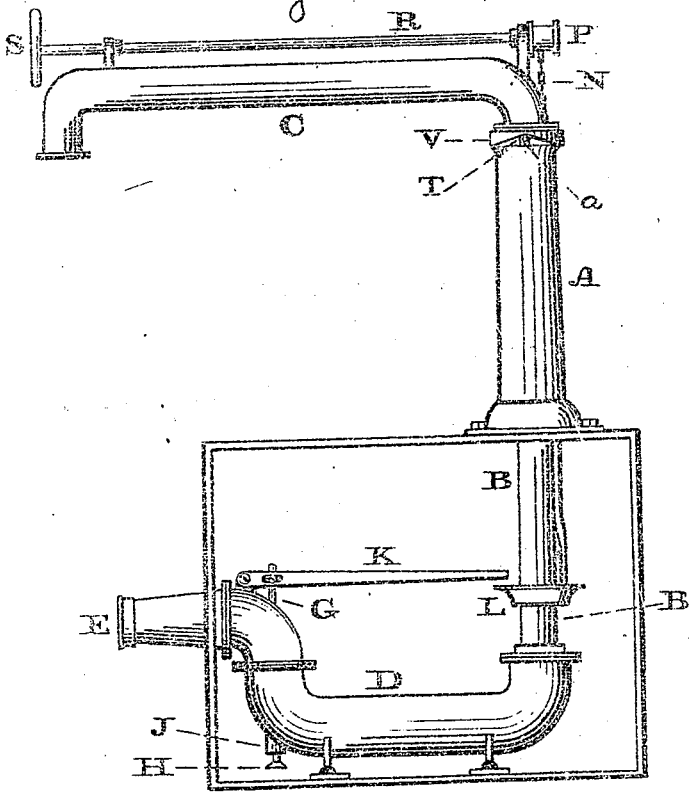


Fig. 2.

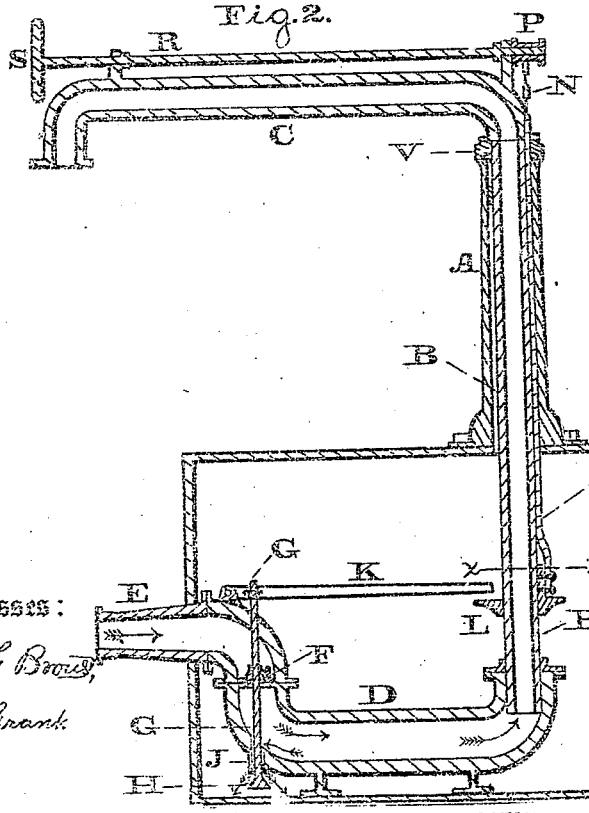
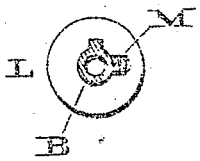


Fig. 3.



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UNITED STATES PATENT OFFICE.

ALFRED R. ROBERTS, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WATER-COLUMNS.

Specification forming part of Letters Patent No. **183,072**, dated October 10, 1876; application filed July 1, 1876.

To all whom it may concern:

Be it known that I, ALFRED R. ROBERTS, of the city and county of Philadelphia, and State of Pennsylvania, have invented a new and useful Improvement in Water-Columns; and I do hereby declare the following to be a clear and exact description of the nature thereof, sufficient to enable others skilled in the art to which my invention appertains to fully understand, make, and use the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a side view of the water-column embodying my invention. Fig. 2 is a central vertical longitudinal section thereof. Fig. 3 is a horizontal section in line *x x*.

Similar letters of reference indicate corresponding parts in the several figures.

My invention relates to an apparatus for supplying locomotive-engines with water; and it consists in operating the valve by mechanism outside of the pipe through which the water passes, whereby there will be no freezing in of said mechanism, and stuffing-boxes are avoided. It also consists of the combination of certain parts to form an improvement in water-columns.

Referring to the drawings, A represents a hollow column, which is secured in an upright position to a platform frame-work, bed-plate, or casing in proximity to railway-tracks. Within the column is placed a rotating pipe, B, to whose upper end is connected the horizontal branch pipe C, communicating therewith, and its lower end is fitted in the upright portion of a base-pipe D, so as to be permitted to rotate and rise and fall therein. To the end of the base-pipe opposite to that to which the pipe B is attached there is connected the inlet-pipe E, and between the pipes D E there is located a valve, F, which is adapted to open and close communication between the two pipes D E. G represents a rod or stem, which is connected to the valve F, and also at its lower end to a valve, H, whose seat J is on the lower side of the pipe D, below the seat of the valve F, which latter seat is intermediate of the pipes D E, so that the stem G is common to the two valves. The upper end of the valve-stem projects through the pipe E, and is attached to a lever, K, which extends outside of the pipe toward the upright pipe B, and is adapted to have its free or outer end raised by a sleeve, L, which is fitted loosely on the pipe B. To the sleeve L is attached a rod, M, which passes between the pipe B and the column A, and to its upper end is connected a chain or cord, N, which is secured to a pulley, P, around which the chain or cord will be wound by the action of a rod, R, which, mounted on the branch C, is connected at one end to said pulley P, and at the other end to an operating hand wheel or lever, S. It will be seen that the branch C, rod R, pulley P, chain N, rod M, and sleeve L rotate with the wheel B. In lieu of the pulley P and chain N, the connection between the rod R and rod M may be by a rack and pinion, crank, cam, or other suitable mechanism, whereby a rising motion may be imparted to the sleeve L. On the face of the upper end of the column A there are secured ears *a*, to which are journaled rollers T, and to the pipe B, above said rollers, there is secured a collar, V, whose under face is a cam, which rides on the roller T, the cam consisting of alternate ascending and descending portions, as more clearly shown in Fig. 1.

The operation is as follows: When the engine requires water, the fireman or other proper person swings the branch C toward the water-tank, in which operation the descending portions of the cam are brought on the rollers T, thus raising the branch and the pipe B. The wheel S is now turned so as to elevate the sleeve L, whereby the lever K will be elevated. This operation opens the valve F and closes the valve H. Water from the inlet E then enters the pipe D, passes through the pipe B, and is discharged from the branch C into the tank of the engine. The wheel S is then let go or reversed, whereby the sleeve L returns to its first position, and as the lever K is no longer controlled, the pressure of water entering the inlet E closes the valve, thus shutting off the supply, and owing to the connection of the stem G with the valve H, the latter is opened, thus permitting the escape of the waste-water remaining in the pipes D B and branch C. The branch having been started back to its normal position, the weight of the

rotating parts on the rollers T causes automatically the rapid return or completion of motion of the branch, the ascending portions of the cam riding over the rollers, and the pipe B with the branch descending. It will be seen that the connection of the rods M and R does not pass through the water in any pipe, and it is consequently free of freezing in. By this construction, also, stuffing-boxes for said connection are avoided, and as the inlet E and pipe D, with the two valves, as stated, will be located below the frost-line, it is evident that the apparatus will be found reliable at all seasons.

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

1. The rising and falling rotary pipe B, with surrounding sliding sleeve L, and the branch C, with rotary-rod R, in combination with the valve-connection M outside of said rotary pipe B, substantially as and for the purpose set forth.

2. The inlet-pipe E and base-pipe D, in combination with the supply-valve F intermediate of said pipes, and the water-valve H at the lower side of the base-pipe, said valves being fitted to the stem G, which is common to both valves, and projects outside of the pipe E, and with the lever K, connected to said projecting stem G, substantially as and for the purpose set forth.

3. The rising and falling rotary pipe B, with surrounding sliding sleeve L, the branch C, with rod R, and the supply-valve F and waste-water valve H, fitted to a common stem, G, in combination with the outside connection M, intermediate of the sleeve L and rod R, and with the outside lever K, intermediate of the sleeve L and stem G, substantially as and for the purpose set forth.

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