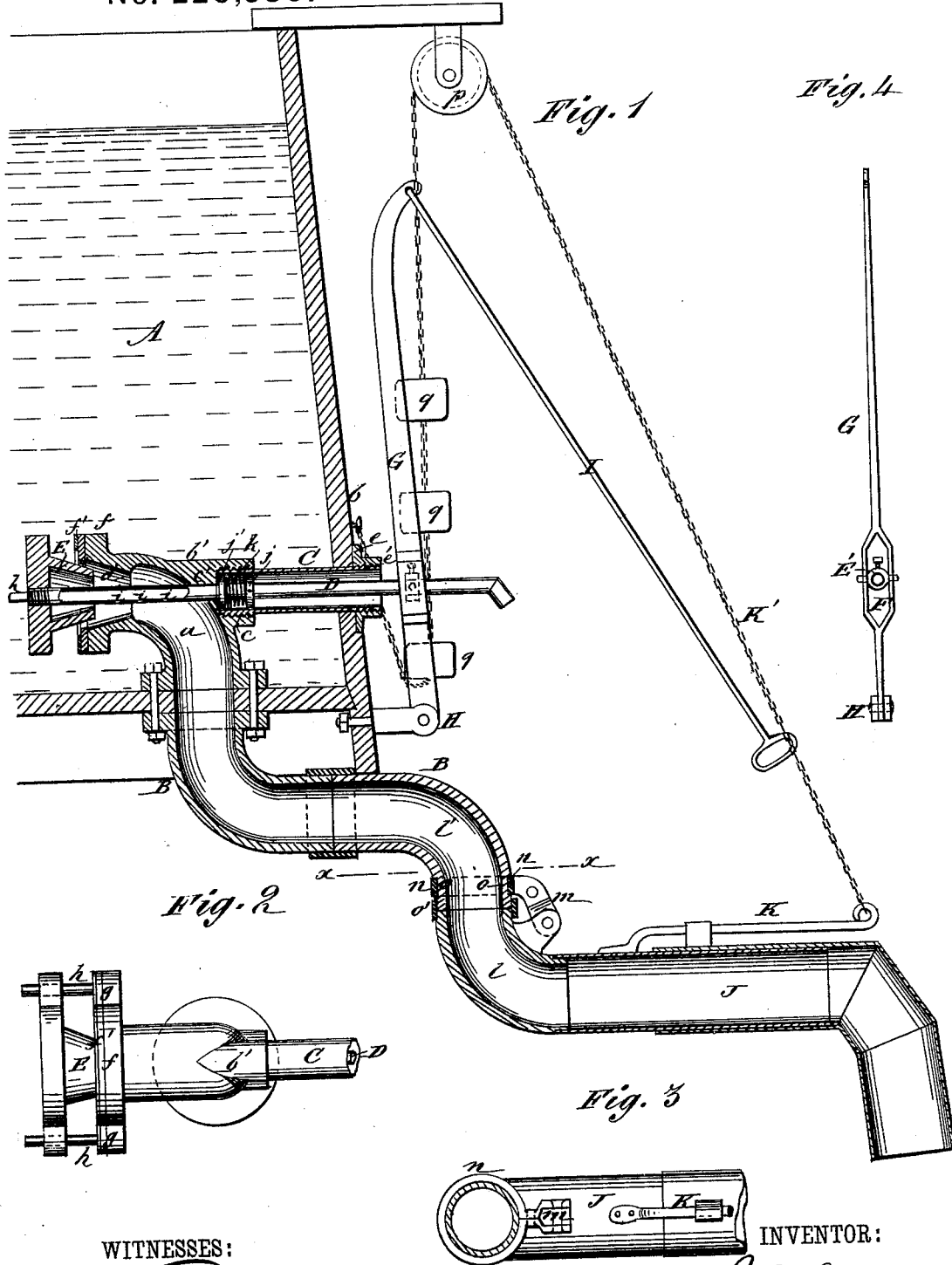


J. D. CRAIG.
Railway Water-Tank.

No. 220,580.

Patented Oct. 14, 1879.



WITNESSES:

C. Neveu
C. Sedgwick

INVENTOR:

BY *J. D. Craig*
Munn & Co
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN D. CRAIG, OF VIENNA, ILLINOIS.

IMPROVEMENT IN RAILWAY WATER-TANKS.

Specification forming part of Letters Patent No. **220,580**, dated October 14, 1879; application filed March 5, 1879.

To all whom it may concern:

Be it known that I, JOHN D. CRAIG, of Vienna, in the county of Johnson and State of Illinois, have invented a new and Improved Railway Water-Tank, of which the following is a specification.

This invention relates particularly to the arrangement of the valve-seat and valve-stem within the feed or outlet pipe, to the manner of operating the same, and to the construction of the feed or outlet pipe.

The objects of the improvements are to prevent the freezing of the water in the tank from affecting the valve-stem and valve, and causing leakage and the consequent freezing and choking of the outlet-pipe; to prevent the bouncing and dancing of the valve when closed by the formation of a vacuum when the water is shut off; to adapt the outlet-pipe to the admission of the valve-stem, and to provide a hinged coupling for the extension of the outlet-pipe.

The invention will be first described in connection with the drawings forming part thereof, and then specifically pointed out in the claims.

In the accompanying drawings, Figure 1 is a vertical section of a railway water-tank, outlet-pipe, valve and valve-seat, and tube incasing the valve-stem. Fig. 2 is a top view or plan of the valve, the upper end of outlet-pipe containing the valve-seat, stem, and the valve-stem casing. Fig. 3 is a section of the outlet-pipe on line *xx*, showing the hinged coupling; and Fig. 4 is a detail of the lever for operating the valve.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents a railway water-tank. B is a goose-neck outlet or feed pipe, passed up through the bottom of the tank and opening toward the center in a horizontal line, while the lower end is extended outward in several bends toward the railway-tracks, but terminates short thereof, so as to avoid passing trains. The elbowed portion *a* of the pipe B, within the tank, has on the outside of the bend, next the side *b*, a projection, *b'*, in which is a threaded socket, *c*, from the bottom whereof a hole, *c'*, extends into the

pipe, said socket and hole being concentric to the conical valve-seat *d*.

C represents a tube, which is passed through the side *b* of the tank, and screwed into the socket *c*, while over its end, projecting through side *b*, is passed a gasket, *e*, to make a water-tight joint between the tube and tank, and a nut, *e'*, to secure the gasket in place.

Through tube C is passed the hollow valve-stem D, thence through hole *c'* and the upper part of the elbow *a*, projecting through the open end of the pipe and attached to the center of the conical flanged valve E. The tube C protects the valve-stem from the effects of the freezing of the water in the tank.

Valve E fits closely in the valve-seat *d*, and on the face of the flange *f*, surrounding this seat, is a metal plate, *f'*. From lugs *g g*, on opposite edges of this flange, rods *h h* project and pass through corresponding portions on the flanged head of valve E. These rods, together with the valve-stem, guide the valve in closing and opening, so that it will seat itself perfectly.

The valve-stem is hollow, closed at the valve end, and open at the end projecting outside the tank. Inside the elbow *a* the valve-stem is provided with perforations *i*. The purpose of the hollow valve-stem and the perforations is to admit air to the elbow *a* after the valve is closed, and thus enable the water to run out easily, to avoid the formation of a vacuum at the upper end of the pipe, the consequent violent agitation at this point, and the dancing and bouncing of the valve, which tends to loosen it in its seat and cause leakage.

At the inner end of tube C the valve-stem is provided with two collars, *j j'*, with rubber gaskets around them to pack the joints. The former is fixed to valve-stem, while the latter is movable, and a spiral spring, *k*, wrapped around the stem between the collars, bears against collar *j'*, and keeps it pressed against the bottom of the socket, and thus prevents leakage.

The valve-stem is confined in the collar E', pivoted in the yoke F of lever G, which is fulcrumed at H, and to its upper end is attached one end of a rod, I, which hangs down, and by means of which the lever is operated, and,

moving the valve-stem, the valve is opened and closed at will.

J is the extension-pipe, that hangs over the tender when the tank therein is being supplied. It is attached to the end of elbow *l*, which in turn is connected with elbow *l'* by a hinge, *m*, the upper part whereof is attached to a collar, *n*, set into a rabbet, *o*, on the end of elbow *l'*, so as to turn freely, while the joint between the ends of the two elbows is closed by a socket ring or sleeve, *o'*, fixed to the end of elbow *l'*, so that the end of elbow *l* can be attached and detached at pleasure.

On the top of the straight part of section J is a rod, K, at the end whereof is attached one end of a chain, K', which is passed up and over a pulley, *p*, and to the pendent end are attached weights *q*. The purpose of this is to balance the extension, and thus enable it to be swung around easily. The hinge *m* permits the end of elbow *l* to be lowered, to disconnect from the end of elbow *l'*, while the ring or collar *n*, to which the hinge is connected, permits the extension to be swung around after the tender-tank is filled and the water stopped.

From the above description it will readily be seen that the freezing cannot affect the valve or valve-stem; hence the valve will retain its close connection with its seat, and leakage is entirely prevented.

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

1. The goose-neck pipe B, passed up through

the bottom of the tank A, and provided with the projection *b'* on the elbow *a*, having a socket, *c'*, in combination with the tube C, the valve-stem D, and the tank A, substantially as and for the purpose described.

2. The hollow valve-stem D, provided with perforations *i*, and passed through the side of the tank and through the upper part of the elbow *a*, in combination with conical valve E and elbow *a* of the goose-neck pipe B, whereby air is admitted to the upper part of the elbow *a*, when the valve is closed, a vacuum prevented, and the water allowed to run out easily without disturbing the valve E, substantially as described.

3. In combination with the valve-stem D, the tube C, extending through the side *b* to the socket *c*, and inclosing the valve-stem to protect it against the effects of the freezing of the water in the tank, substantially as described.

4. The fixed collar *j* and loose collar *j'*, with intervening spring *k*, in combination with tube C and stem D, to pack the valve-stem and prevent leakage, substantially as described.

5. The elbows *l l'*, connected together by a hinge, *m*, the upper part whereof is attached to collar or ring *n* in rabbet *o* of elbow *l'*, in combination with extension J, whereby the elbow *l* and extension can be moved at will, substantially as described.

JOHN D. CRAIG.

Witnesses:

F. M. SIMPSON,

N. J. BENSON.