D. HALLADAY.

Outlet-Pipe for Railroad-Tanks.

No. 220,372. Patented Oct. 7, 1879.

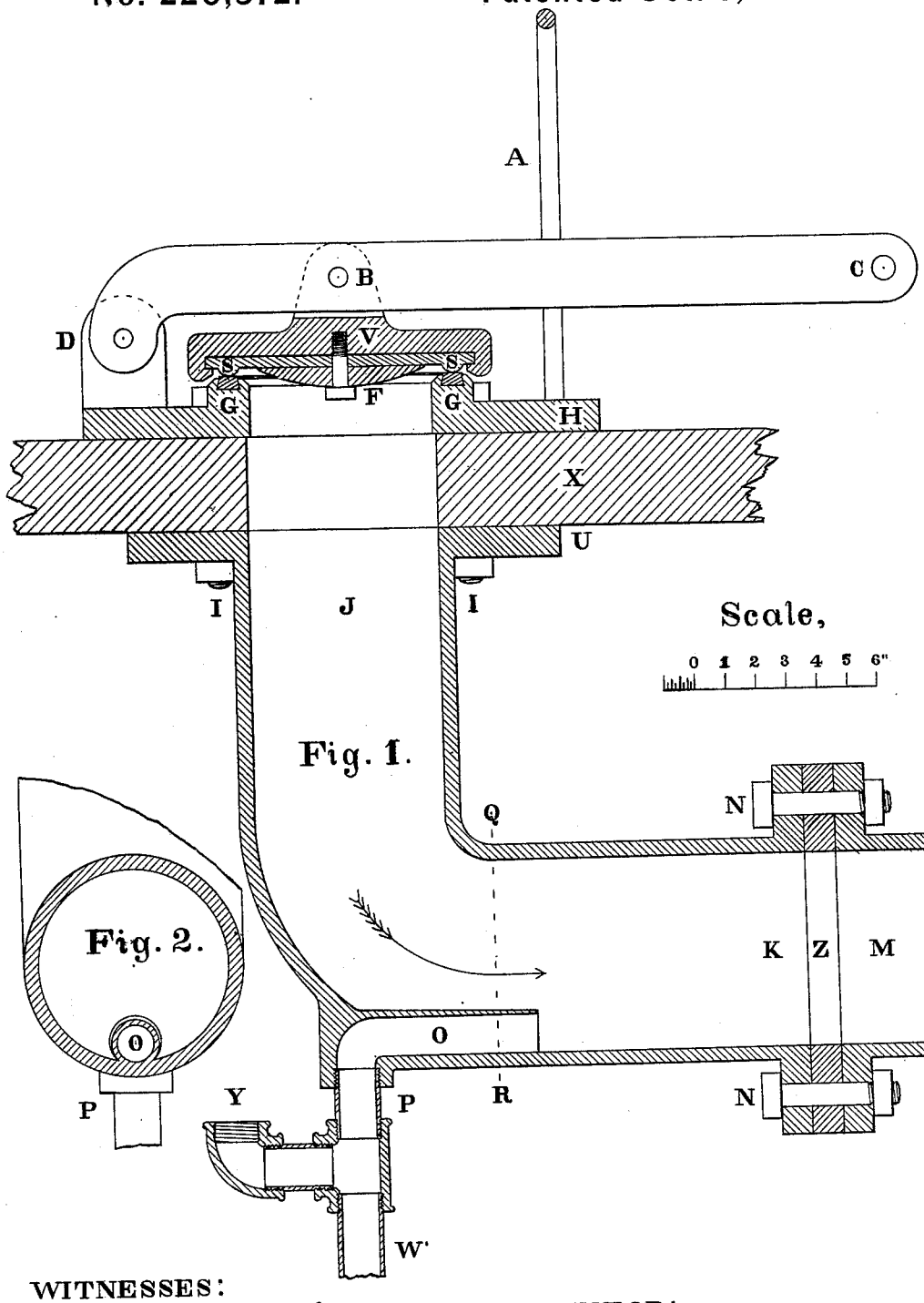

Fig. 1.

Fig. 2.

WITNESSES:

Henry N. Wade.

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UNITED STATES PATENT OFFICE.

DANIEL HALLADAY, OF BATAVIA, ILLINOIS.

IMPROVEMENT IN OUTLET-PIPES FOR RAILROAD-TANKS.

Specification forming part of Letters Patent No. **220,372**, dated October 7, 1879; application filed August 13, 1879.

To all whom it may concern:

Be it known that I, DANIEL HALLADAY, of Batavia, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Outlet-Pipes for Conveying Water from Tanks or Reservoirs to Locomotive-Tanks; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The nature of my invention consists in so constructing the outlet-pipe as to guard against the formation of ice in the pipe and under the outer end of the pipe by means of a drip-hole at or near the rear end of same; also, to prevent the concussion against the under side of the outlet-valve produced by the reaction of the water directly after closing the valve, by providing for the admission of air at the rear end of pipe, thus preventing the formation of the vacuum which otherwise would be formed by the momentum of the water, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawings, in which—

Figure 1 is a longitudinal section of the outlet-pipe and attachments embodying my invention, and Fig. 2 a cross-section of same.

X represents the bottom of a water-tank from which it is desired to draw water through the outlet-pipe J K M. A hole the size of the caliber of the pipe is cut through the bottom of the tank, and the pipe-elbow J K is bolted beneath the opening by means of bolts passing through the flange U and tank-bottom X. The same bolts secure the valve-seat G G above the opening, and the valve V prevents the egress of water when closed, or allows it to discharge through the outlet-pipe when opened by means of the lever B C, which lever is hinged at D, and prevented from being raised too high by the staple A.

The pipe M is fastened to the elbow J K by the bolts N N passing through flanges and the annular packing Z, as shown. The packing Z may be made of wood or any other poor conductor of heat, and serves to retard the loss of heat through the elbow J K, which is usually inclosed in a frost-proof casing, while a portion at least of the pipe M is exposed to the external atmosphere, as in the case of railway water-stations.

The pipe J K M is inclined, so as to make the inner end a little lower than the outer, thus causing whatever water may be left in the pipe after closing the valve to flow to the rear or inner end and discharge through the small tubular passage O, provided for that purpose. The lower side of the passage O coincides with the continuation of the lower inside of the horizontal portion of pipe J K M, and turns downward at the back end, so as to connect with the vertical pipe W, through which the waste-water is carried back into the well or to any desired place.

Any water which chances to get into the pipe J K M through the accidental leakage of the valve V, and which might otherwise cause trouble by freezing in the pipe or dropping from the outer end onto the track below, thus obstructing it with ice in the winter-time, is also discharged through passage O. As the passage O opens in the direction of the current of water discharging through the pipe J K M, no inconvenience is experienced from a wasteful discharge through O while drawing water for use. On the contrary, a suction is produced at O by the rapid flow of water, causing air to be drawn into the pipe at this point. The air thus admitted prevents the formation of a vacuum at the rear end of pipe J K M instantly upon closing of the valve V, which would otherwise cause the water in the pipe to be forced back by atmospheric pressure striking against the under side of valve, lifting it, causing what is termed "pounding" or "jumping" of the valve, also a waste of water and time, which are sources of great annoyance.

Where the pipe W is too long to allow air to be drawn with sufficient facility through it into the outlet-pipe J K M, an air-opening may be provided by inserting in the pipe W′, near the passage O, a short curved pipe, with the opening upward, as shown at Y.

The above description of my invention applies more particularly to outlet-pipes for use on railroads; but I do not mean to confine it to such use only.

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

1. The combination of the passage O with the pipe J K M, as and for the purpose herein shown and specified.

2. The passage O, in combination with the pipe J K M and pipe W, as and for the purpose set forth.

3. The pipe J K M, in combination with the passage O, pipe W, and curved pipe Y, substantially as set forth and shown.

4. The passage O, in combination with the pipe J K M, tank X, and valve V, substantially as described and shown.

DANIEL HALLADAY.

Witnesses:
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