

S. Williamson.

WATER-TUYERE.

PATENTED AUG 22 1871

118321

Fig. 1.

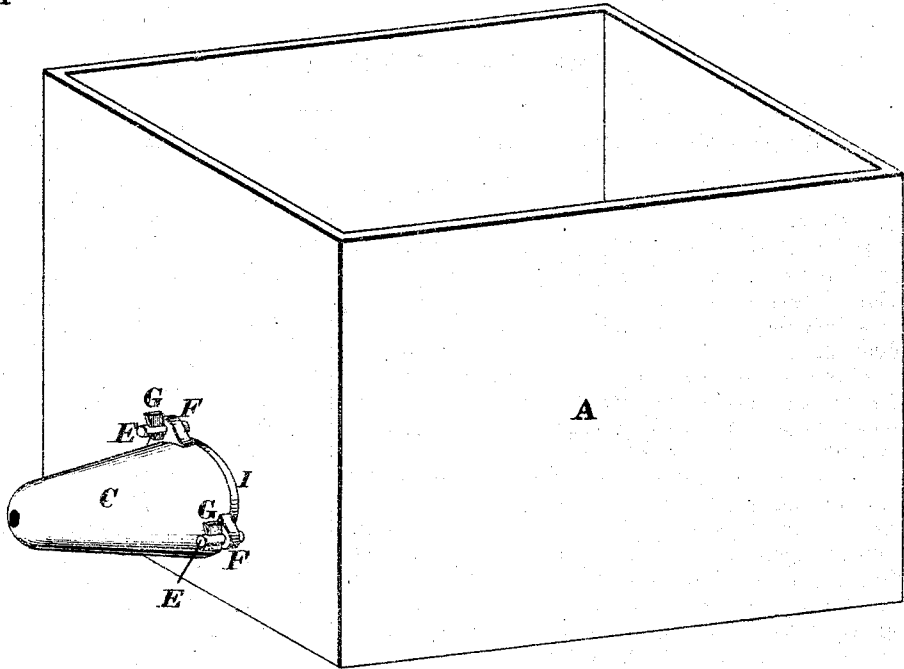


Fig. 2.

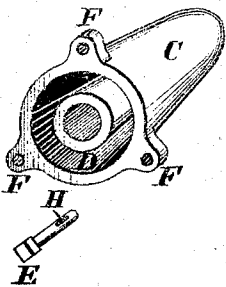


Fig. 3.

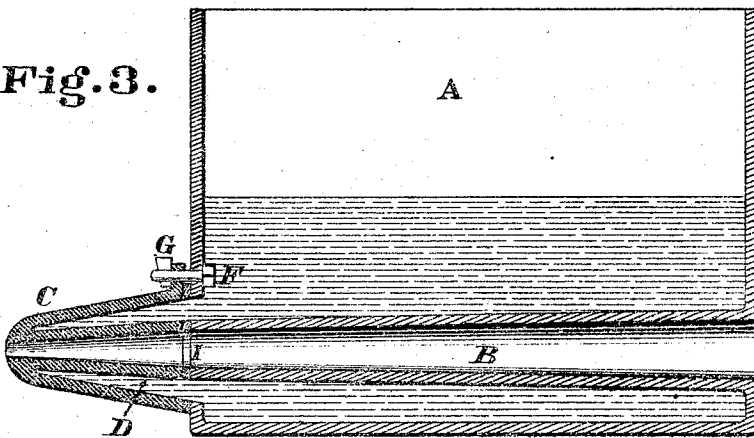


Fig. 4.

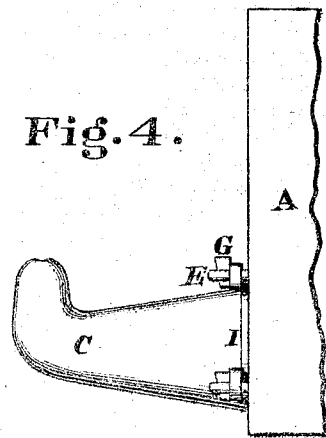
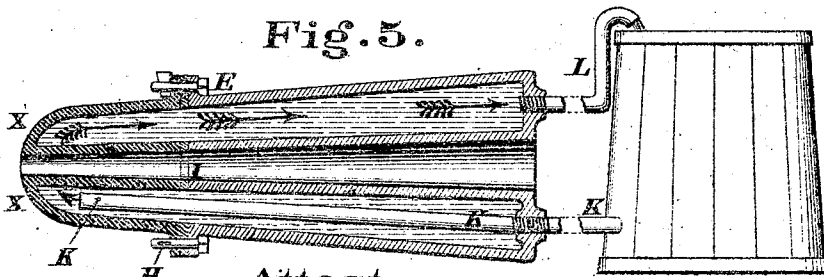


Fig. 5.



Attest.

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Received Jan'y. 2^d 1872.

118,321

UNITED STATES PATENT OFFICE.

SAMUEL WILLIAMSON, OF CINCINNATI, OHIO.

IMPROVEMENT IN WATER-TUYERES.

Specification forming part of Letters Patent No. 118,321, dated August 22, 1871; antedated August 9, 1871.

To all whom it may concern:

Be it known that I, SAMUEL WILLIAMSON, of Cincinnati, Hamilton county, Ohio, have invented certain new and useful Improvements in Water-Tuyeres, of which the following is a specification:

This is an improvement in the class of tuyeres for forges and blast-furnaces whose parts exposed to the fire are protected by a water-casing or jacket.

Figure 1 is a perspective view of a water-tuyere embodying my invention. Fig. 2 shows the nozzle of such tuyere detached. Fig. 3 is a vertical longitudinal section through the said tuyere. Fig. 4 shows the same tuyere-body with a different form of nozzle. Fig. 5 shows a modification of my tuyere having an arrangement whereby the entering water is conducted to the extremity of the nozzle.

A represents the tank or box of a water-tuyere traversed by blast-pipe B that discharges into a nozzle-pipe, C, which pipe C is surrounded by a water-chamber or jacket, D, that communicates with the tank. The pipe C and jacket D constitute my nozzle, which, instead of being cast solidly to the tank or body of the tuyere, as in the customary form, consists of a separate piece or casting, as shown. This separate nozzle is united to the body by bolts E, which project from the

body and through lugs F upon the nozzle, and are secured by cotters G, that are driven into slots H in the bolts in front of said lugs. A gasket, I, of gum, leather, or other suitable material, interposed between the nozzle and the tuyere-body, closes the joints and prevents leakage either of air or of water. Fig. 5 represents a tubular water-tuyere, adapted to receive its water by pipe K from a hydrant or an elevated reservoir, and to discharge its heated water through another pipe, L. To this form I adapt a separate nozzle, substantially as above described. I extend the pipe K so as to conduct the cold entering water to the hottest part of the nozzle at X, and thus protect the same against injury however intense the fire may be. On removing the nozzle the scales that accumulate in the nozzle can be easily cleaned out.

I claim herein as new and of my invention—

The combination of water-box A B, nozzle C D, slotted bolts E H, perforated lugs F, and cotters G, for the objects stated.

In testimony of which invention I hereunto set my hand.

SAML. WILLIAMSON.

Witnesses:

GEO. H. KNIGHT,
JAMES H. LAYMAN.