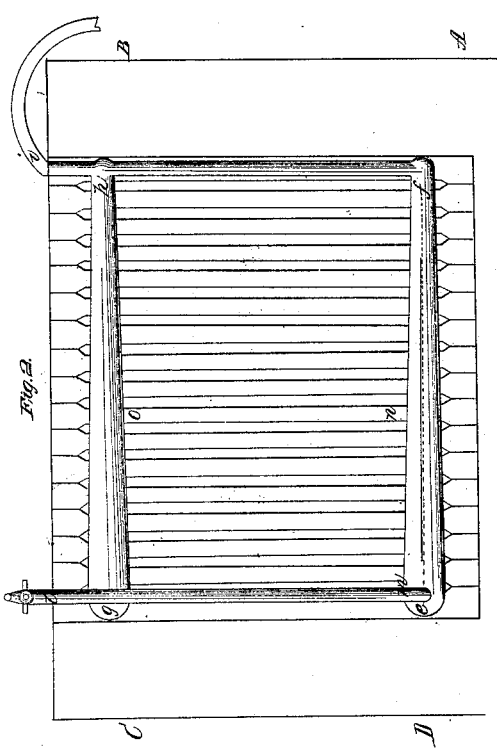
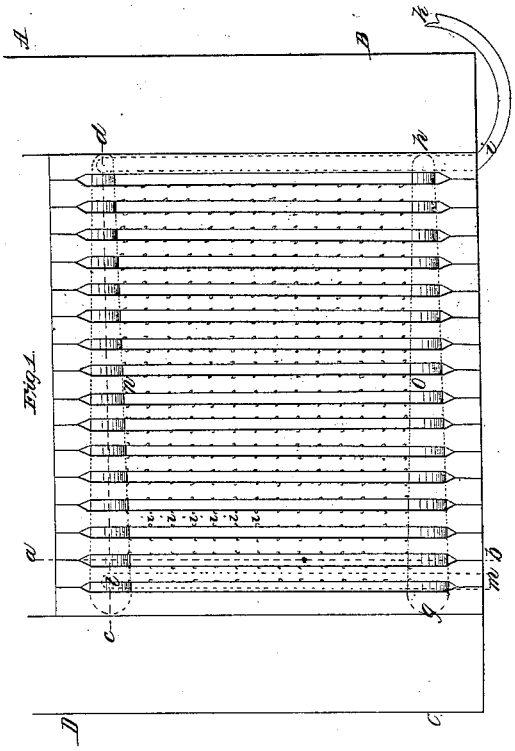
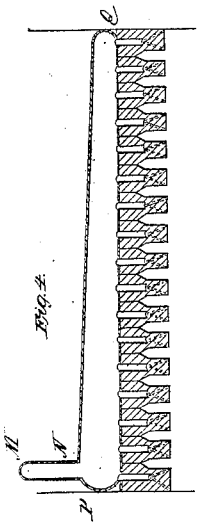
L. Maillard,

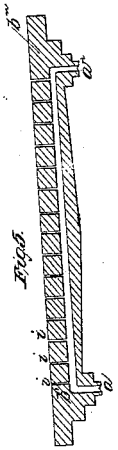
Furnace Grate.

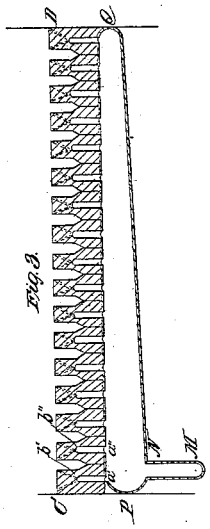
No. 1144. Patented May 18, 1839.

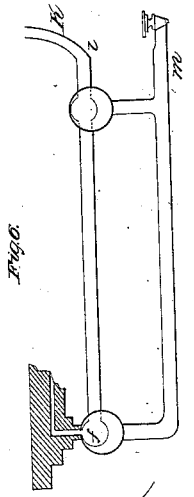












Witnesses:
H. Jaist
C. Lemmon

Inventor:
L. Maillard

UNITED STATES PATENT OFFICE.

LUCIEN MAILLARD, OF NEW YORK, N. Y.

FURNACE OF STEAM-BOILERS FOR THE PURPOSE OF INCREASING COMBUSTION BY THE DECOMPOSITION OF STEAM.

Specification of Letters Patent No. 1,144, dated May 18, 1839.

To all whom it may concern:

Be it known that I, LUCIEN MAILLARD, of New York, in the county of New York and State of New York, have invented new bars for grates at the fireplace of steam-engines, stationary or locomotive, being on the high-pressure principle, this grate to be used for the consumption of dead steam.

The nature of my invention consists in conveying by a copper pipe the steam, after the useful effect is made in the cylinder, under the burning coal into conical tubes, connected with hollow bars perforated of small holes.

To enable others skilled in the art to make use of my invention, I will proceed to describe its construction and operation, by reference to the drawings:

Figure 1, upper surface plan of the grate. *g o h* is the representation of the conical tube in which the steam is admitted, by means of the copper pipe *i k* connected with the escape pipe of the engine. This conical tube is under the grate and solidly fixed to the wall; from that tube steam is distributed throughout the bars of the grate as will be seen. Fig. 5, *i*, *i*, *i*, etc., represent the holes by which steam escapes from the hollow bars to be put in contact with the burning coal.

Fig. 2, under surface plan. *g o h*, *e n f* are the two conical tubes; *i f* is a communication pipe for the introduction of steam from the fore tube into the back tube; *l m* is a pipe, provided with a cock, by which the condensated steam is let out from the conical tubes.

Fig. 3, section on line *c d*, Fig. 1. *p n g* is the section through the conical tube, *n m* the junction pipe of that tube with the pipe for the escape of the water of condensation; *a' b'*, *a'' b''* &c., &c., are the small tubes by which steam is introduced into the hollow bars.

Fig. 4, section on line *e f* Fig. 2. It will be seen that this section is exactly the same as the preceding except that it is reversed.

Fig. 5, section across one of the bars. This figure shows how steam can go through the bar by means of the canal *a' b'*, *a'' b''*, and how it engages in *i*, *i*, *i*, etc.

Fig. 6, section on line *l m* Fig. 1. *i k* is the copper pipe by which steam is admitted into the conical tube; *i f* is the communication steam pipe between the two cones; *l m* the pipe to let out the condensation water.

The drawing attached to this specification giving the exact dimensions of every part of my grate on a scale of two inches per foot, that grate can be constructed without any further explanation.

For a locomotive I use only one conical tube placed in front of the grate, the bars are exactly the same as those above described.

In consequence of the above description; I do not claim as my invention the introduction of waste steam on to or amid the red hot incandescent coals in the furnace for the purpose of increasing combustion by its decomposition, this having been previously done, but not in the manner in which I effect it.

I therefore claim as my invention and desire to secure by Letters Patent—

The introduction of waste steam on to or amid the red hot incandescent coals by means of the arrangement of conical tubes and hollow and perforated bars, on which the coals rest, in the manner herein fully described.

L. MAILLARD.

Witnesses:
H. T. JACOB,
C. ROUMAGE.