

Specification of Édouard Besnier de la Pontonerie : furnaces or fire-places.

Contributors

De la Pontonerie, Édouard Besnier.

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A.D. 1856 N^o 1117.

SPECIFICATION

OF

EDOUARD BESNIER DE LA PONTONERIE.

FURNACES OR FIRE-PLACES.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

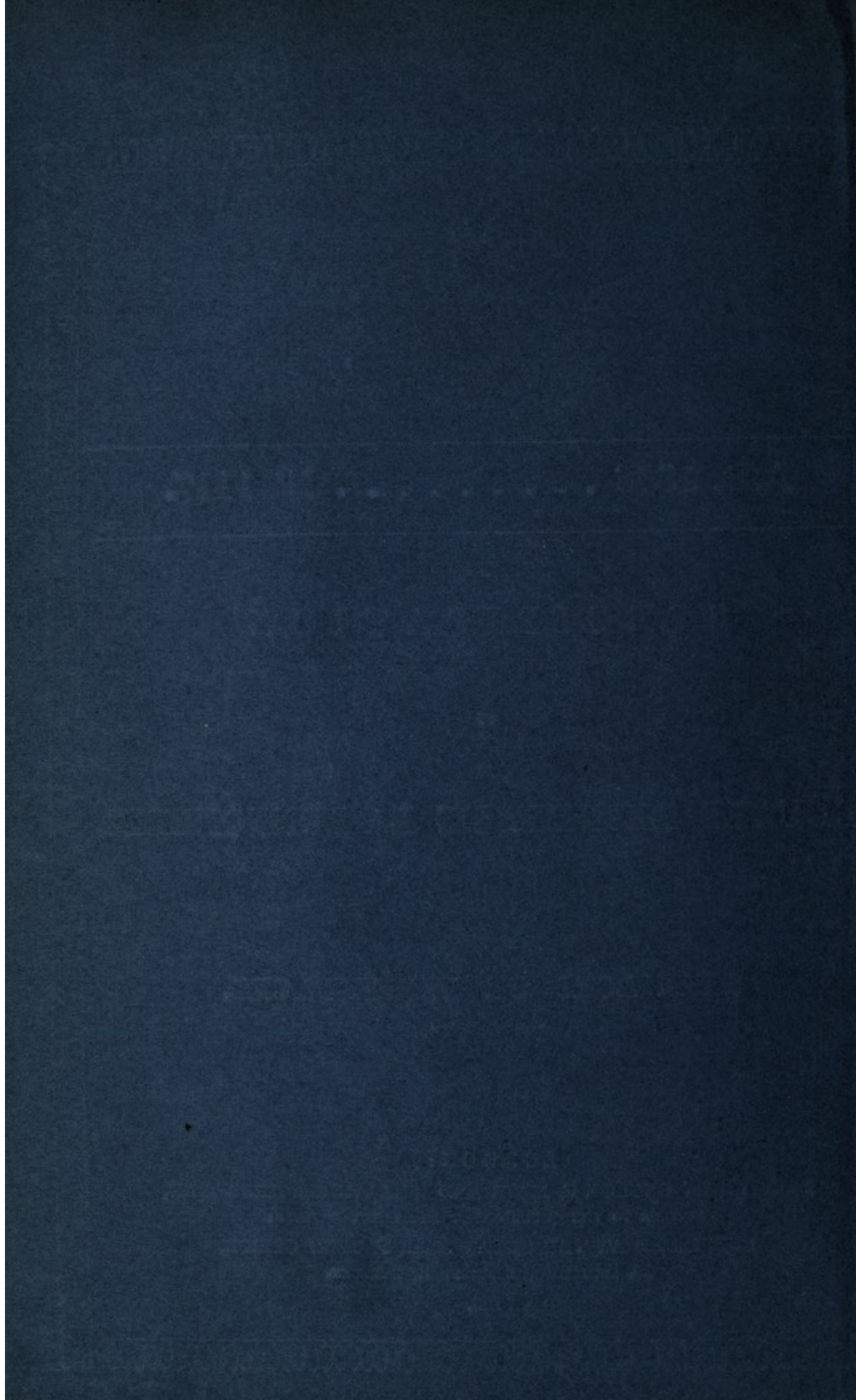
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:

PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Price 7d.

1856.





A.D. 1856 N° 1117.

Furnaces or Fire-places.

LETTERS PATENT to Edouard Besnier de la Pontonerie, of Paris, in the Empire of France, Merchant, for the Invention of "**CERTAIN IMPROVEMENTS IN THE APPARATUS FOR CONSUMING SMOKE.**"—A communication.

Sealed the 4th November 1856, and dated the 12th May 1856.

PROVISIONAL SPECIFICATION left by the said Edouard Besnier de la Pontonerie at the Office of the Commissioners of Patents, with his Petition, on the 12th May 1856.

I, EDOUARD BESNIER DE LA PONTONERIE, of Paris, in the Empire of France,
5 Merchant, do hereby declare the nature of the said Invention for "**CERTAIN IMPROVEMENTS IN THE APPARATUS FOR CONSUMING SMOKE,**" a communication, to be as follows:—

The improvements relate to using jets of steam to act upon and combine
with the flame and products of combustion as they pass from the fire-place or
10 furnace through the flues.

The steam from a generator is conducted into the fire by a suitable tube or
passage, which is then coiled or otherwise caused to circulate in a suitable part
of such fire chamber, in order to the steam therein becoming highly heated;
this pipe or passage then passes in coils or otherwise past the passages for the
15 flame and products of combustion, where there are small holes for its exit, in

De la Pontonerie's Improvements in Apparatus for Consuming Smoke.

order to its amalgamating with such flame and products of combustion, whereby they will become purified, whilst a more intense heat will be obtained.

A perpendicular hopper grate heated to whiteness is also used to burn the hydrogen escaped from the jets of steam, and another horizontal grate burns the particles which escape from the first grate. 5

To attain without inconvenience a greater temperature, the coils or other passages employed may be of platinum or of porcelain, plunged edgeways or laterally in the incandescent fuel of the furnaces.

The improvements, with modifications, are applicable to forges, kitchen ranges, domestic grates, &c. 10

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Edouard Besnier de la Pontonerie in the Great Seal Patent Office on the 10th November 1856.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EDOUARD BESNIER DE LA PONTONERIE, of Paris, in the Empire of France, Merchant, 15
send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twelfth day of May, in the year of our Lord One thousand eight hundred and fifty-six, in the nineteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said 20
Edouard Besnier de la Pontonerie, Her special licence that I, the said Edouard Besnier de la Pontonerie, my executors, administrators, and assigns, or such others as I, the said Edouard Besnier de la Pontonerie, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, 25
should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**CERTAIN IMPROVEMENTS IN THE APPARATUS FOR CONSUMING SMOKE**," a communication, upon the condition (amongst others) that I, the said Edouard Besnier de la Pontonerie, my executors or administrators, 30
by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent. 35

De la Pontonerie's Improvements in Apparatus for Consuming Smoke.

NOW KNOW YE, that I, the said Edouard Besnier de la Pontonerie, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say :—

5 The improvements relate to using jets of steam to act upon and combine with the flame and products of combustion as they pass from the fire-place or furnace through the flues.

The steam from a generator is conducted into the fire chamber by a suitable tube or passage, which is then coiled or otherwise caused to circulate in a
10 suitable part of such fire chamber, in order to the steam therein becoming highly heated ; this pipe or passage then passes in coils or otherwise through the passages for the flame and products of combustion, where there are small holes for its exit, in order to its amalgamating with such flame and products of combustion, whereby they will become purified, whilst a more intense heat
15 will be obtained.

A perpendicular hopper grate heated to whiteness is also used to burn the combustible gases escaped from the jets of steam, and another horizontal grate burns the particles which escape from the first grate.

To attain without inconvenience a greater temperature, the coils or other
20 passages employed may be of platinum or of porcelain, plunged edgeways or laterally in the incandescent fuel of the furnaces. The improvements, with modifications, are applicable to forges, kitchen ranges, domestic grates, &c.

But that the nature of the said Invention, and the means which I employ to carry the same into effect, may be fully understood, I will proceed to describe
25 the Drawing annexed.

DESCRIPTION OF THE DRAWING.

Figure 1 shows a vertical section, Figure 2 an end elevation, and Figure 3 a longitudinal elevation, of part of a stationary steam boiler, with parts in connection with it, arranged to carry out the improvements ; Figures 4 and 5
30 show details of the same. The part A of the boiler supplies steam by the passages C to the chamber B, by that pipe being contained within the chamber B, as shown by dotted lines in Figure 4, where that pipe is pierced with numerous holes, by which the steam which has become superheated escapes into the chamber B, and thence into the fire, from the
35 direct action of which, the plate B protects it, the heat penetrating through the holes in the plate B² of the chamber B to superheat the steam in the pipe C. D is the perpendicular hopper grate, and E another horizontal grate. The chamber B, as shown by Figure 5, is pierced at its lower

De la Pontonerie's Improvements in Apparatus for Consuming Smoke.

surface B² with numerous holes of small diameter, allowing this superheated steam to escape upon the flames of the furnace, to purify the flame and the smoke, thereby causing a more complete combustion of and an appreciable economy in the fuel employed.

The perpendicular hopper grate D, by becoming heated to redness, burns 5 the oxygen and hydrogen, which escape in jets of steam, and the horizontal grate E burns the particles unconsumed by the first grate D.

The modifications represented at Figures 6, 7, and 8 represent a sectional elevation, end view, and plan of part of a locomotive boiler with the improvements applied thereto, showing also the manner in which the improvements 10 may be applied to other multitubular boilers. The same letters indicate similar parts in each of these Figures. *a, a, a*, are the smoke tubes; *b*, pipe conducting steam from the generator by the pipe *c*; *d*, grate of the furnace; *e*, furnace. The steam passage is first wound helically in the upper part of the interior of the furnace, it then traverses longitudinally above and below the 15 openings to the smoke tubes *a, a, a*, by which the steam thus caused to circulate in the pipe *b, c*, in contact with the fire and products of combustion in the fire box, till it escapes through very small holes pierced in the pipe *b*, forming passages opposite the ends of the tubes *a*, where it becomes amalgamated with and decomposes the smoke, so that the whole becomes ignited, and 20 in passing along the smoke tubes a complete combustion takes place, producing a notable increase of caloric.

The pipes or worms may for very high temperatures be formed of platinum or of porcelain, and may then be laid edgeways or laterally in the incandescent fuel of the furnace or other fire-place. 25

With regard to boilers of steam boats which are not tubular, a double enveloped apparatus is employed to receive the worms conveying the steam from the generator. The steam issues from the pipe or worm into the enveloping apparatus or chamber in jets, as explained, and by the heat communicated to such enveloping apparatus it becomes superheated, and it is 30 thence projected in direct jets upon the incandescent fuel of the furnace. From the explanation given, those modifications will readily be made by which to adapt the improvements to forges, kitchen ranges, domestic grates, &c., so that jets of superheated steam may be caused to escape into the fire-place or passages of the flame to effect combustion of the products from the fire. 35 As it has been stated with reference to stationary boilers, a guard or shield ought to be in most cases interposed between the fire and the pipe bringing the steam to be superheated, such guard being pierced with a great number of small holes for the penetration of heat and escape of the superheated steam,

De la Pontonerie's Improvements in Apparatus for Consuming Smoke.

Having thus described the nature of the said Invention, and the means which I adopt in carrying the same into effect, I would have it understood that I do not confine myself to the precise details shown and described, so long as the peculiar character of the Invention be retained, as herein explained.

5 In witness whereof, I, the said Edouard Besnier de la Pontonerie, have hereunto set my hand and seal, this Third day of November, in the year of our Lord One thousand eight hundred and fifty-six.

EDOUARD BESNIER DE LA PONTONERIE. (L.S.)

Witness,

10 A^{re} PERPIGNA.

LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1856.

FIG. 2



FIG. 1

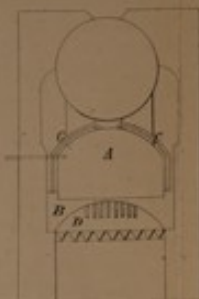


FIG. 3

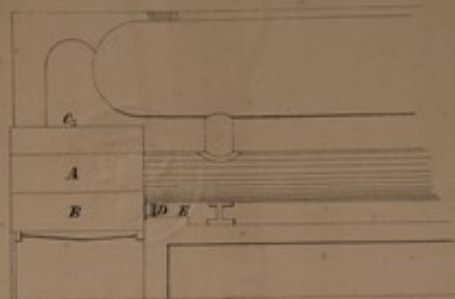


FIG. 4



FIG. 5

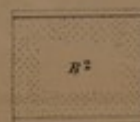


FIG. 7

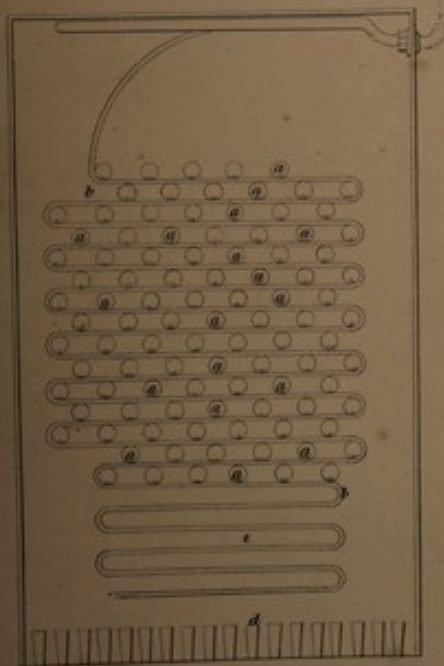


FIG. 8



FIG. 6



