

Specification of James Blackwell : evaporating furnaces.

Contributors

Blackwell, James.

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A.D. 1848 N° 12,049.

SPECIFICATION

OF

JAMES BLACKWELL.

EVAPORATING FURNACES.

LONDON:

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A.D. 1848 N° 12,049.

Evaporating Furnaces.

BLACKWELL'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JAMES BLACKWELL, of Winsford, in the County of Chester, Salt Proprietor, send greeting.

WHEREAS Her present most Excellent Majesty Queen Victoria, by Her
5 Royal Letters Patent under the Great Seal of the United Kingdom of Great Britain and Ireland, bearing date at Westminster, the Second day of February (One thousand eight hundred and forty-eight), in the eleventh year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said James Blackwell, my exors, admors, and assigns, Her especial licence,
10 full power, sole privilege and authority, that I, the said James Blackwell, my exors, admors, and assigns, or such others as I, the said James Blackwell, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within England,
15 Wales, and the Town of Berwick-upon-Tweed, in the Islands of Jersey, Guernsey, Alderney, Sark, and Man, and in all Her Majesty's Colonies and Plantations abroad, my Invention of "**CERTAIN IMPROVEMENTS IN EVAPORATING FURNACES**;" in which said Letters Patent is contained a proviso that I, the said James Blackwell, shall cause a particular description of the nature of
20 my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, to be inrolled in Her Majesty's High Court of Chancery within six calendar months next and immediately after the date of the said in part recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

Blackwell's Improvements in Evaporating Furnaces.

NOW KNOW YE, that in compliance with the said proviso, I, the said James Blackwell, hereby declare that my said Invention has relation generally to all furnaces employed for the purpose of evaporating fluids or bodies in a fluid state, as water, brine, oils, syrups, &c., and has for its nature or object the producing and sustaining of an intensity of heat in such furnaces greater 5 than usual, a saving in the consumption of fuel, and the avoidance or diminution of smoke; and I further declare that the manner in which the said Invention is performed is fully set forth in the following description thereof, reference being had to the Drawings hereunto annexed; that is to say:—

The said Drawings exemplify my said Invention as applied to a furnace 10 suitable for the evaporation of brine or manufacture of salt.

Figure 1 is a front elevation of this furnace; Figure 2 a longitudinal section of it; and Figure 3 a plan on the line *a, b*, of Figure 1. A, A, A, are the external walls of the furnace, which are formed throughout of fire brick. B is the fire place, and *a, a, a*, the grate bars. B¹ is the bridge, which is composed, 15 like the outer walls, of fire brick. C is an ante-chamber through which the fireplace is supplied with fuel in manner to be presently herein-after explained. D, D, D¹, D¹, are two sets of air holes formed in the front wall of the furnace immediately over and under the fuel supply chamber C, which holes lead into the fireplace B, and are left always open. Beneath D¹, D¹, there is an open 20 passage E, leading to the part of the fireplace immediately above the grate bars, which serves also as an inlet for air, and through which all such solid residual matters as are left on the bars are raked out from time to time. F is the ash pit, G salt pan, and H the passage to the chimney. The manner of operation is as follows: A fire is first made in the fireplace B, with wood and 25 coal as usual; the ante-chamber C is then filled to the top and from end to end with coal or good coal slack. The fire as it burns in B gradually cokes the green or crude fuel in the adjoining chamber C, and draws from it various gaseous vapours which contribute more or less combustible matter to the fire. When the original supply of fuel to the fireplace B begins to be exhausted 30 (which the person in charge can readily ascertain by looking through the open passage E), a farther supply is furnished by pushing forward the contents of the ante-chamber C, and to the extent of the void thereby made in that chamber it is refilled with fresh coal or coal slack. When that second supply is nearly consumed a third is pushed forward in like manner, and so on. For 35 the first time or two that the contents of the ante-chamber C are ejected upon the fire they are commonly in an imperfectly coked or carbonized state, and there is consequently a considerable escape of smoke (or unconsumed fuel) from the chimney (though still much less than usual); but after the fire has

FIG. 1.

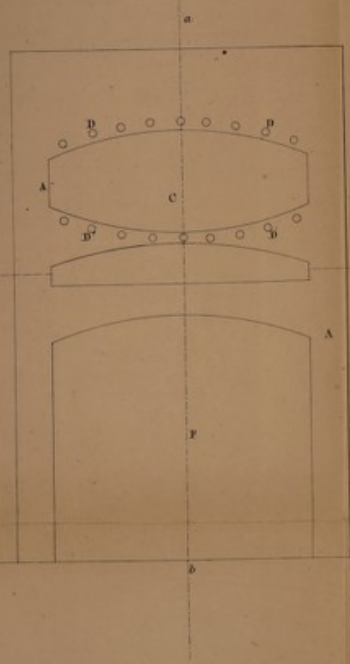


FIG. 2.

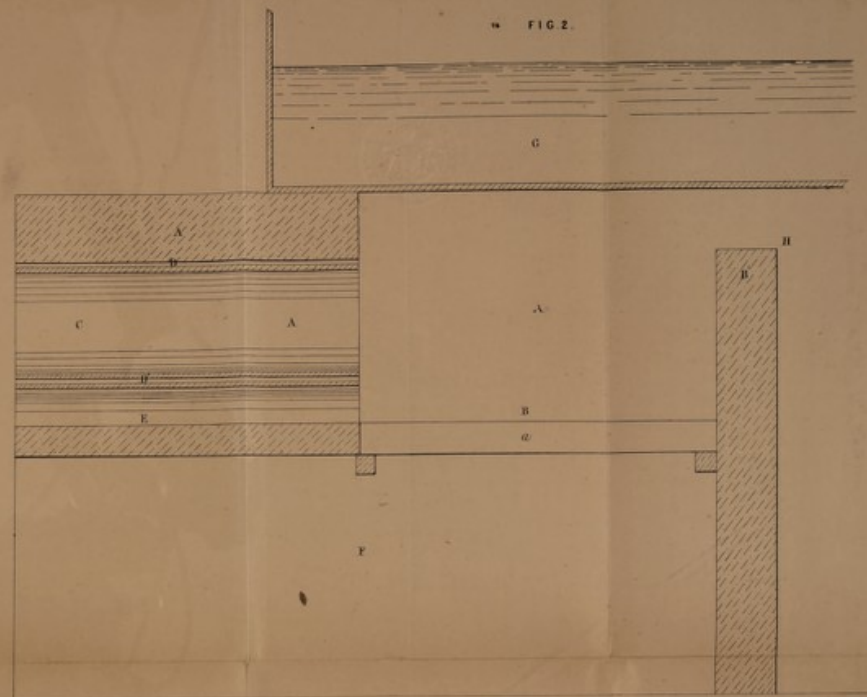
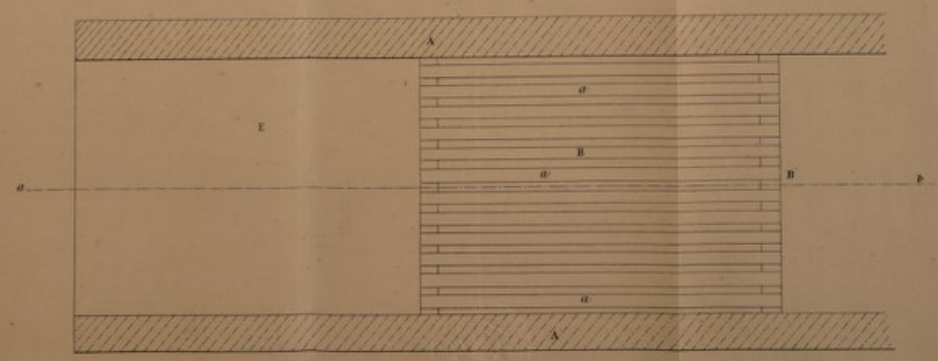


FIG. 3.



The enrolled drawing is partly referred.

...and the walls of the furnace have been ...
...of the consumption of fuel in the ...
...of every foot into the ...
...is emitted from the chimney ...
...in the foot and thus ...
...the result is ...

...the nature of the ...
...I believe that I ...
...of separating ...
...of the fuel, and ...
...is ...

...the said James ...
...of the ...
...that ...
...is ...

...the ...
...the ...
...the ...
...the ...
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Blackwell's Improvements in Evaporating Furnaces.

been well got up, and the walls of the furnace have become thoroughly heated, the coking keeps so ahead of the consumption of fuel in the fireplace that there ceases to be any discharge of crude fuel into the fire, and only a colourless or imperceptible vapour is emitted from the chimney. The whole or nearly
5 the whole of the combustible matters in the fuel are thus turned to profitable account, and a saving in fuel is the result much exceeding (I believe) any which has been hitherto effected.

And having now described the nature of my said Invention, and in what manner the same is to be performed, I declare that what I claim as my Inven-
10 tion is the constructing of evaporating furnaces with an ante-chamber for the preparatory coking or carbonizing of the fuel, and open air holes or passages, placed and arranged as before described.

In witness whereof, I, the said James Blackwell, have hereunto set my hand and seal, this Twenty-eighth day of July, in the year of our
15 Lord One thousand eight hundred and forty-eight.

JAMES (L.S.) BLACKWELL.

AND BE IT REMEMBERED, that on the Twenty-eighth day of July, in the year of our Lord 1848, the aforesaid James Blackwell came before our said Lady the Queen in Her Chancery, and acknowledged the Specification
20 aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

JEFFERSON.

Enrolled the Second day of August, in the year of our Lord One thousand eight hundred and forty-eight.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1855.

