

## **Specification of John Birch : smoke-consuming furnaces.**

### **Contributors**

Birch, John.

### **Publication/Creation**

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A.D. 1860, *4th FEBRUARY.* N° 305.

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S P E C I F I C A T I O N

OF

JOHN BIRCH.

—  
SMOKE-CONSUMING FURNACES.  
—

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 3d.*

1860.





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A.D. 1860, 4th FEBRUARY. N<sup>o</sup> 305.

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### Smoke-consuming Furnaces.

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*(This Invention received Provisional Protection only.)*

**PROVISIONAL SPECIFICATION** left by the said John Birch at the Office of the Commissioners of Patents, with his Petition, on the 4th February 1860.

I, JOHN BIRCH, of Duren, in the Kingdom of Prussia, at present residing  
5 in Birmingham, in the County of Warwick, Civil Engineer, do hereby declare the nature of the said Invention for "**IMPROVEMENTS IN THE CONSTRUCTION OF SMOKE-CONSUMING FURNACES,**" to be as follows, that is to say:—

My Invention consists in so arranging furnaces and their appliances, that instead of feeding the fires with cold air admitted in front of the furnace or  
10 through the fire-doors, I exclude all air that would flow in from that quarter, applying (if necessary) a blast quite underneath the bed of the fire. The furnace is fired on the top of an inclined hopper plate fixed diagonally across the top of the fire-door, and passing down at an inclination of forty-five degrees at the back of the fire-door into the bed of the furnace, a drop door  
15 closes the top of the hopper, and the hopper is always kept well filled with coal, which, as it gradually descends into the bed of the furnace, becomes coked, and thus all gases are burnt before the fuel reaches the bed. Above the bed of the furnace a transverse tube or tubes may be fixed; these are connected with longitudinal tubes, all belonging to the boiler, and passing  
20 along the furnace flues. A blast pipe from a fan blast, when a blast is requisite, has its orifice immediately under the bed of the furnace, and at the bottom of the inclined hopper plate, and immediately above the mouth of the

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*Birch's Improvements in the Construction of Smoke-consuming Furnaces.*

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blast pipe, and in place of the ordinary fire-bars which would be melted by so great a heat, I place a grid formed of fire-clay or fire-brick as a distributor for the blast before it enters the furnace bed. At any convenient point in the blast pipe I attach a branch pipe, and by employing valves above and below the junction of the pipes, I can shut off the blast, and take the smoke from 5 the chimney when the damper is down, causing the smoke to repass through the fire; this is for the purpose of allowing the stoker to clean out the furnace.

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LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1860.