

## **Specification of William Smith : smoke-consuming furnace.**

### **Contributors**

Smith, William.

### **Publication/Creation**

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A.D. 1857 . . . . . N<sup>c</sup> 1085.

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

OF

WILLIAM SMITH.

—  
SMOKE-CONSUMING FURNACE.  
—

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

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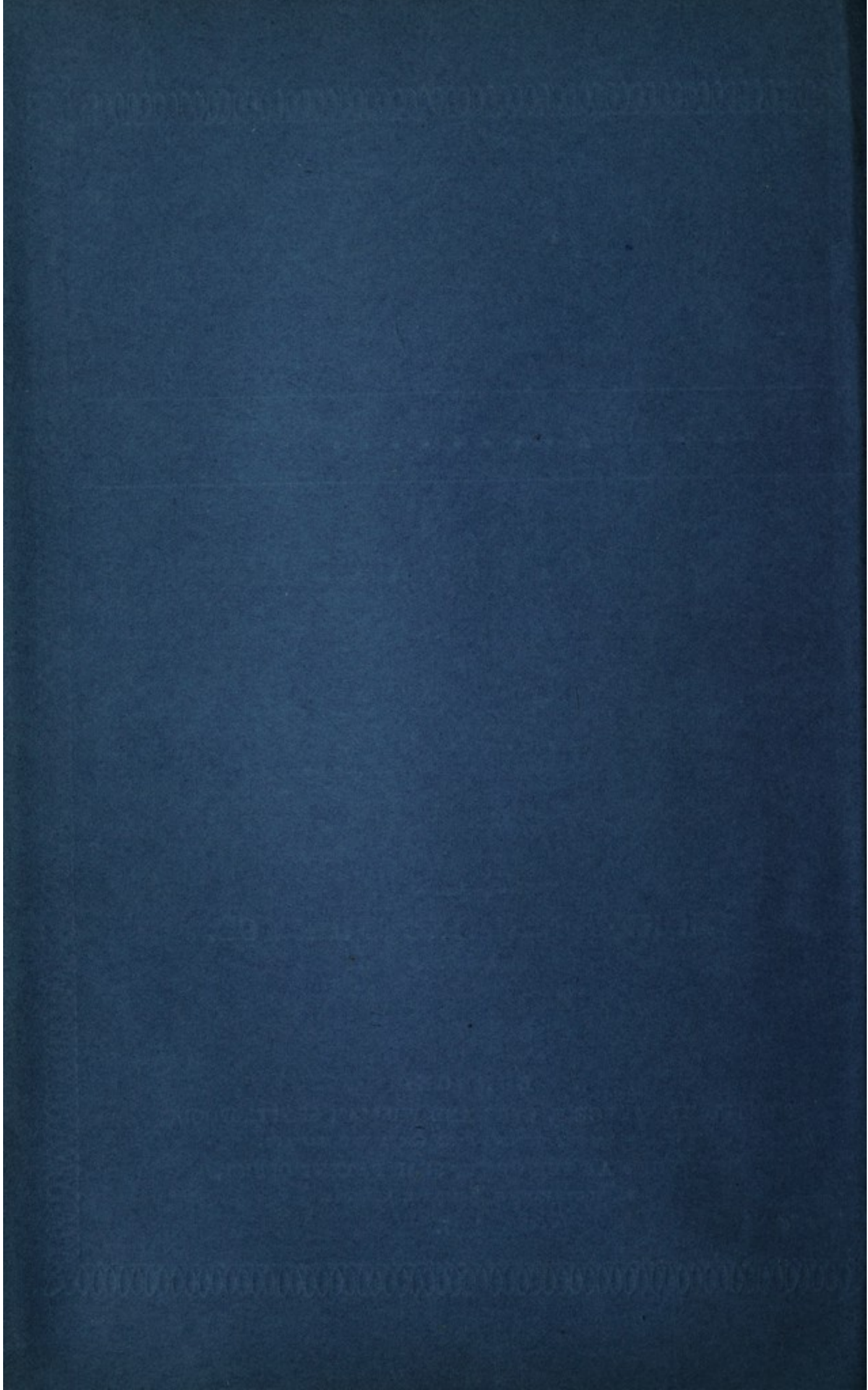
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1857.









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A.D. 1857 . . . . . N° 1085.

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**Smoke-consuming Furnace.**

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*(This Invention received Provisional Protection, but notice to proceed with the application for Letters Patent was not given within the time prescribed by the Act.)*

**PROVISIONAL SPECIFICATION** left by William Smith at the Office of the Commissioners of Patents, with his Petition, on the 16th April 1857.—A communication from Mess<sup>rs</sup> Sebille, Bertholomey, and Mariotte, Engineers, of Paris and Nantes.

5 I, WILLIAM SMITH, of 10, Salisbury Street, Adelphi, Civil Engineer, do hereby declare the nature of the said Invention for "A SMOKE-CONSUMING FURNACE," a communication from Mess<sup>rs</sup> Sebille, Bertholomey, and Mariotte, Engineers, of Paris and Nantes, to be as follows:—

This Invention relates to steam-boiler and other furnaces, and consists in a  
10 novel arrangement of the grate or fire-bar portions, the disposition of bridges and deflectors in the arrangement for charging and cokeing the fuel in or upon the furnace.

Instead of the ordinary furnace, a circular frame is mounted on a standard or pillar in the ash-pit, or under the boiler, copper, or other vessel to be heated.  
15 Upon this circular frame a set of fire bars, divided in their length into two parts or two sets of short bars, are fitted, so that upon turning the frame round to the extent of half its circumference, one set or part of the bars are presented, and upon which the fuel is deposited, which, when partially consumed or in an incandescent state, is, by reason of the furnace being again  
20 caused to turn or partially rotate, changed from the front to the back part of



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*Smith's Smoke-consuming Furnace.*

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the furnace, when that which is the front division has to be charged with fuel. When the bars are cast in one piece of the entire length, a projection upward in the centre of the length of each bar is formed or cast thereon, so as to form a ridge piece, bridge, or division across the diameter of the circular grate; or when the bars are fitted in two parts or lengths, then a cross ridge piece or bridge 5 may be cast on and form part of the supporting frame. Over the centre of the revolving grate, and projecting from the bottom of the boiler, a bridge is formed of a suitable shape, composed of fire lumps or fire bricks; or a hollow cast-iron trunk, tube, or deflector may span the furnace and aid in supporting the boiler; and this hollow bridge piece may be perforated with holes for the 10 admission of air into the furnace. For other forms of boilers the same end may be attained by forming the depending bridge by a suitable water space or connecting piece extending across the furnace. Where two furnace doors are employed, or where it is desirable to divide the furnace in width, a longitudinal ridge, bridge, or division may be constructed, depending from the under side 15 of boiler or boilers, so as to approach within a suitable distance the upper surface of the revolving grate or furnace. There are also instances where the circular revolving grate may be used advantageously in combination with a short length of the ordinary fixed furnace bars applied in front thereof.

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Printers to the Queen's most Excellent Majesty. 1857.