

## **Specification of George Hart : consuming smoke in furnaces.**

### **Contributors**

Hart, George.

### **Publication/Creation**

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A.D. 1868, 27th FEBRUARY. N° 670.

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SPECIFICATION

OF

GEORGE HART.

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CONSUMING SMOKE IN FURNACES.

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LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

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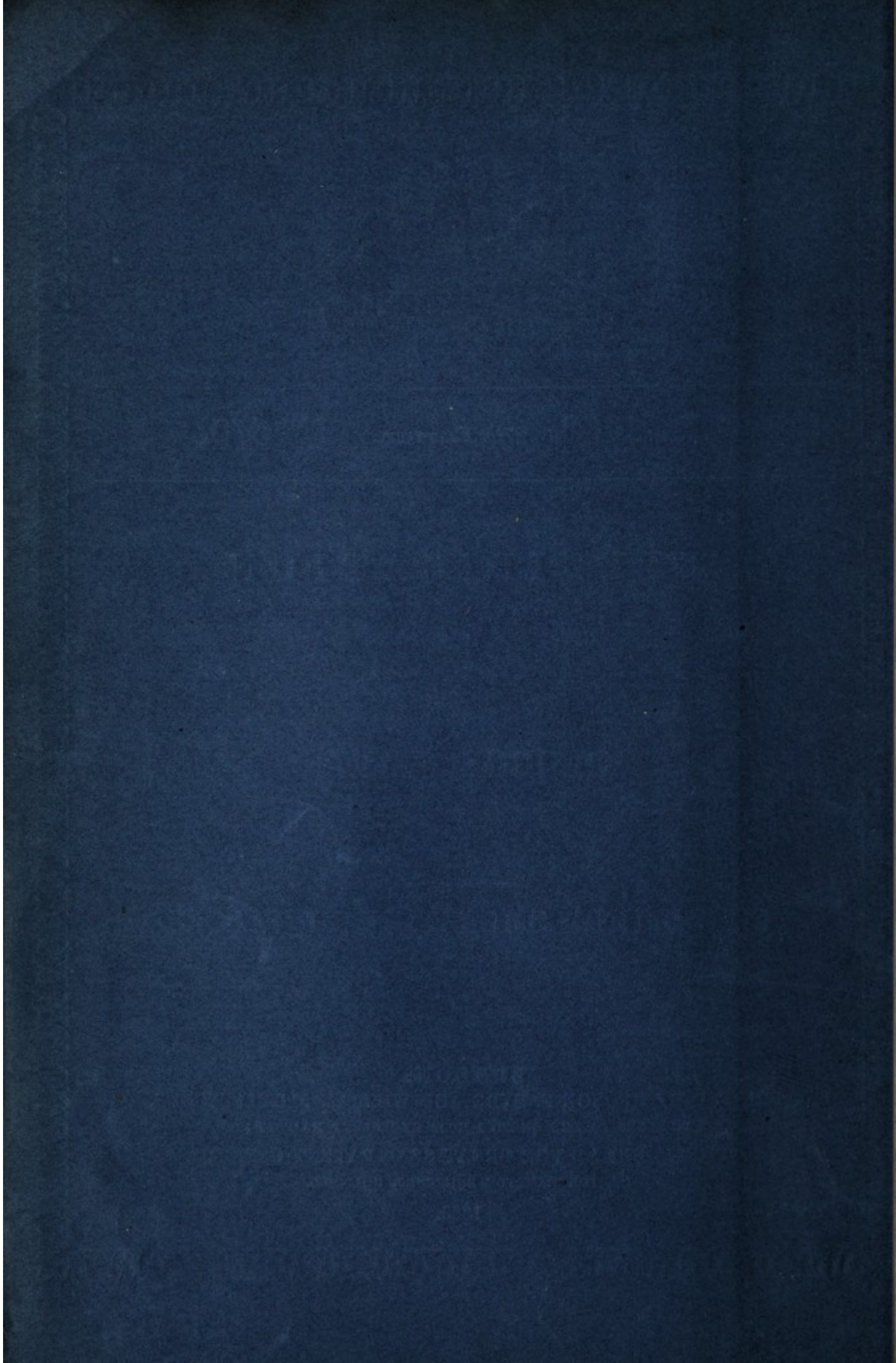
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Price 4d.

1868.









A.D. 1868, 27th FEBRUARY. N° 670.

### Consuming Smoke in Furnaces.

*(This Invention received Provisional Protection only.)*

**PROVISIONAL SPECIFICATION** left by George Hart at the Office of the Commissioners of Patents, with his Petition, on the 27th February 1868.

I, GEORGE HART, of Wakefield, in the County of York, Engineer,  
do hereby declare the nature of my said Invention for "**AN IMPROVED MODE OR METHOD OF AND APPARATUS FOR EFFECTING THE CONSUMPTION OR PREVENTION OF SMOKE IN STEAM BOILER AND OTHER LIKE FURNACES,**" to be as follows, that is to say :—

This Invention relates to a mode of effecting the consumption or prevention of smoke in steam boiler and other like furnaces, and consists of an arrangement whereby air at a highly elevated temperature is allowed to mix with the unconsumed smoke and gases just as they are passing or immediately after they have passed over the fire bridge. The air may be heated under several different arrangements by its passing through pipes in the flues, but the object of this Invention is to raise air to such an elevated temperature before it mixes with the gases for supporting combustion that it shall not lower their temperature, but ignite them immediately on mixing therewith. Further these hot currents of air if not required for combustion assist in generating steam, the heat so collected having to traverse a second time through the flues of the boiler, thereby economising fuel as well as supporting combustion.



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*Hart's Improved Apparatus for Consuming Smoke in Furnaces.*

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According to one mode of carrying out my Invention as applied for example to a double cylindrical flued boiler with external side flues, I place in each of the side flues a pipe or tube of metal, fire-clay, or other suitable material, the ends of these pipes farthest from the front of the boiler being open to the atmosphere. Across the front of each 5 furnace there is fitted another pipe or main into each of which the front ends of the first-mentioned pipes open. From these transverse pipes or mains branch off a number of smaller pipes, say four to each furnace, such pipes passing longitudinally close under the grate bars and opening at their rear ends into a transverse perforated or slotted 10 pipe let into a channel in the fire bridge, or the pipes may discharge themselves into a hollow fire-clay bridge instead of the slotted pipe. The cold air which first enters the pipes has its temperature gradually elevated as it passes along to the front mains, and on passing through the branch pipes immediately beneath the fire bars it becomes highly 15 heated, in which condition it issues in a divided state or in the form of a thin sheet from the perforated pipes in the fire bridge, and by mingling with the smoke and unconsumed gases effects their immediate consumption.

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## LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1868.