

# **Specification of Robert Newton : consuming smoke in furnaces of steam boilers, &c.;**

## **Contributors**

Newton, Robert.

## **Publication/Creation**

London : Great Seal Patent Office, 1867 (London : George E. Eyre and William Spottiswoode)

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A.D. 1866, 21st JULY. N<sup>o</sup> 1901.

SPECIFICATION

OF

ROBERT NEWTON.

CONSUMING SMOKE IN FURNACES OF  
STEAM BOILERS, &c.

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 10d.

1867.









A.D. 1866, 21st JULY. N° 1901.

**Consuming Smoke in Furnaces of Steam Boilers, &c.**

**LETTERS PATENT** to Robert Newton, of Lower Providence Mill, near Keighley, in the County of York, for the Invention of "**IMPROVED MEANS OR APPARATUS FOR CONSUMING SMOKE IN THE FURNACES OF STEAM BOILERS, ALSO IN OTHER FURNACES WHERE APPLICABLE.**"

Sealed the 5th January 1867, and dated the 21st July 1866.

**PROVISIONAL SPECIFICATION** left by the said Robert Newton at the Office of the Commissioners of Patents, with his Petition, on the 21st July 1866.

I, ROBERT NEWTON, of Lower Providence Mill, near Keighley, in the County of York, do hereby declare the nature of the said Invention for "**IMPROVED MEANS OR APPARATUS FOR CONSUMING SMOKE IN THE FURNACES OF STEAM BOILERS, ALSO IN OTHER FURNACES WHERE APPLICABLE,**" to be as follows:—

The object of my Invention is to produce a thorough combustion of the smoke in the furnaces of steam boilers and other furnaces. For this purpose I place an arch of brickwork within the furnace immediately behind the fire-door, and having perforated the arch with two or more holes I insert small pipes within the same, causing them to extend a short distance into the furnace. The outer ends of these pipes I connect by means of branch pipes with an air tube, this latter being supplied with a current of air by an ordinary fan placed in any convenient position; a valve is also placed between the fan and the jets in any desired position to regulate the admission of the air. The above-named apparatus may be used either by itself, for the purpose of



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

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smoke consumption only or in conjunction with my "Improved Means or Apparatus for Generating Steam in Steam Boilers," for which I obtained Protection, March 24th, 1866, No. 878, with the double object of consuming smoke and generating steam; in the latter case the same main or supply air tube may be made available for both.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said Robert Newton in the Great Seal Patent Office on the 21st January 1867.

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ROBERT NEWTON**, of Lower Providence Mill, near Keighley, in the County of York, 10  
send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-first day of July, in the year of our Lord One thousand eight hundred and sixty-six, in the thirtieth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the 15  
said Robert Newton, Her special licence that I, the said Robert Newton, my executors, administrators, and assigns, or such others as I, the said Robert Newton, 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, should and lawfully might make, use, exercise, 20  
and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**IMPROVED MEANS OR APPARATUS FOR CONSUMING SMOKE IN THE FURNACES OF STEAM BOILERS, ALSO IN OTHER FURNACES WHERE APPLICABLE**," upon the condition (amongst others) that I, the said Robert Newton, my executors or administrators, by an instrument 25  
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.

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**NOW KNOW YE**, that I, the said Robert Newton, 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 :—

The object of my Invention is to produce a thorough combustion of the 35  
smoke in the furnaces of steam boilers and other furnaces. For this purpose



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

---

I place an arch of brickwork within the furnace immediately behind the fire-door, and having perforated the arch with two or more holes I insert small pipes within the same, causing them to extend a short distance into the furnace. The outer ends of these pipes I connect by means of branch pipes  
5 with an air tube, this latter being supplied with a current of air by an ordinary fan placed in any convenient position; a valve is also placed between the fan and the jets in any desired position to regulate the admission of the air. The above-named apparatus may be used either by itself, for the purpose of smoke consumption only, or in conjunction with my "Improved Steam Gene-  
10 rator," for which I obtained Letters Patent bearing date March 24, 1866, No. 878, with the double object of consuming smoke and generating steam, in the latter case the same main or supply air tube may be made available for both. I prefer, however, in some cases not to put tubes through the arch above spoken of, but to put them behind the ordinary bridge; such tubes to  
15 be made of clay (by preference), the largest diameters being, say, four inches, and the remainder two inches, or such diameter as may be accommodated in the flue. These tubes may be of the length of three feet, or two feet six inches, if desired.

The purpose of my Invention is either to use the apparatus named by itself  
20 or in conjunction, as before stated, with my improved steam generator, for which I obtained Letters Patent, bearing date March 24, 1866, and which said Patent was sealed August 7, 1866.

In order, however, that my Invention may be the better understood, the features of it may be seen by reference to the accompanying Sheet of Drawings.  
25 It will be seen that the illustration shows the major portions of my previous Patent before referred to, No. 878, A.D. 1866, that is to say:—

#### DESCRIPTION OF DRAWINGS.

Figure 1 shows a front elevation of the subject-matter of my previous Patent in combination with my present one; Figure 2 shows a section in which my  
30 improved apparatus, as described in my preferred arrangement, is illustrated; Figure 3 shows the arrangement I prefer for the flues, the tubes being shewn therein in section.

Letters A denote the pipes furnished with air from the pipe B by means of the fan C. The air so supplied is passed through the small pipes *d*, as will  
35 be seen on reference to Figure 2, into the furnace. The tubes before mentioned placed behind the bridge effect the result that I desire, viz., combustion of smoke.

Having now particularly described and declared the nature of my Invention,



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

I wish it to be understood that, without confining myself to the precise details shewn in my Drawing, what I claim as and of my Invention is the improved means or apparatus for the consumption of smoke in the furnaces of steam boilers, or in other furnaces where applicable, by the use of the blast arrangement shown conjointly with the tubular arrangement behind the bridge, or 5 separately, if desired, in the manner described and shown in this my Specification and my Drawings attached thereto, and therefore it will be seen that my Invention consists mainly in the brick lining of the flue, the tubes behind the bridge, and result, as named.

In witness whereof, I, the said Robert Newton, have hereunto set my 10 hand and seal, this Nineteenth day of January, in the year of our Lord One thousand eight hundred and sixty-seven.

ROBERT NEWTON. (L.S.)

Witness,

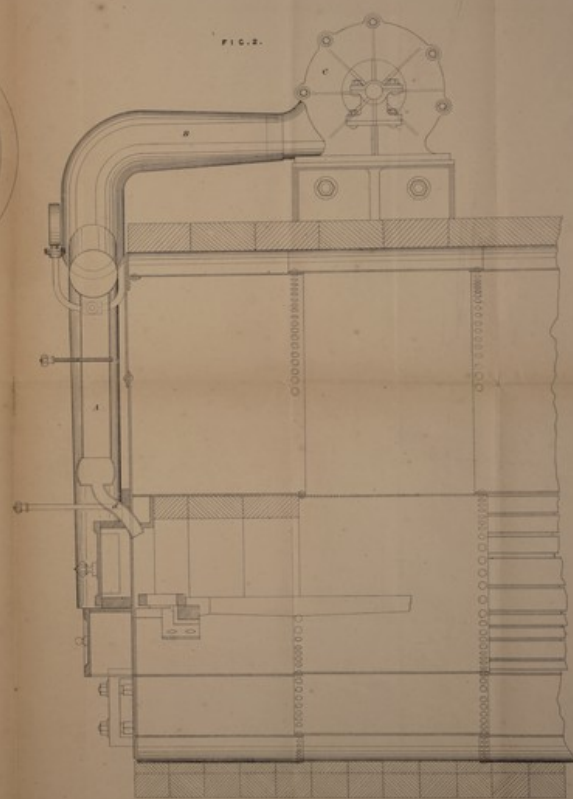
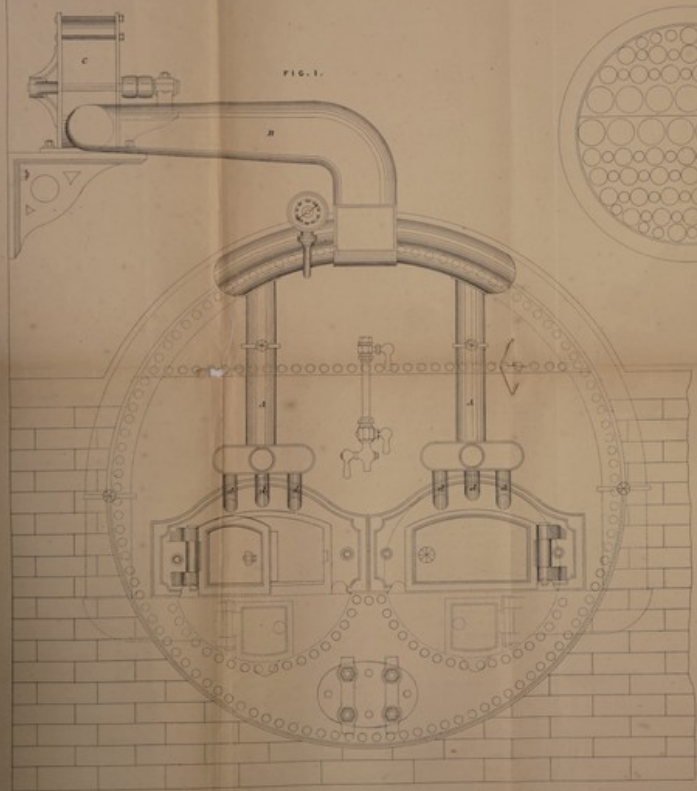
P. H. SHARP,

Leeds.

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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1867.



The said drawing is partly colored.

London: Printed by George Lawrence Long and William Hutchinson, Printers to the Board of Trade, at the Patent Office, 25, Abchurch Lane.

Printed in Stone by Wadley & Sons.



