

## **Specification of William Edward Kenworthy and John Johnstone : consuming smoke.**

### **Contributors**

Kenworthy, William Edward.  
Johnstone, John.

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A.D. 1871, 28th APRIL. N° 1127.

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

OF

WILLIAM EDWARD KENWORTHY  
AND  
JOHN JOHNSTONE.

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CONSUMING SMOKE.

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LONDON:

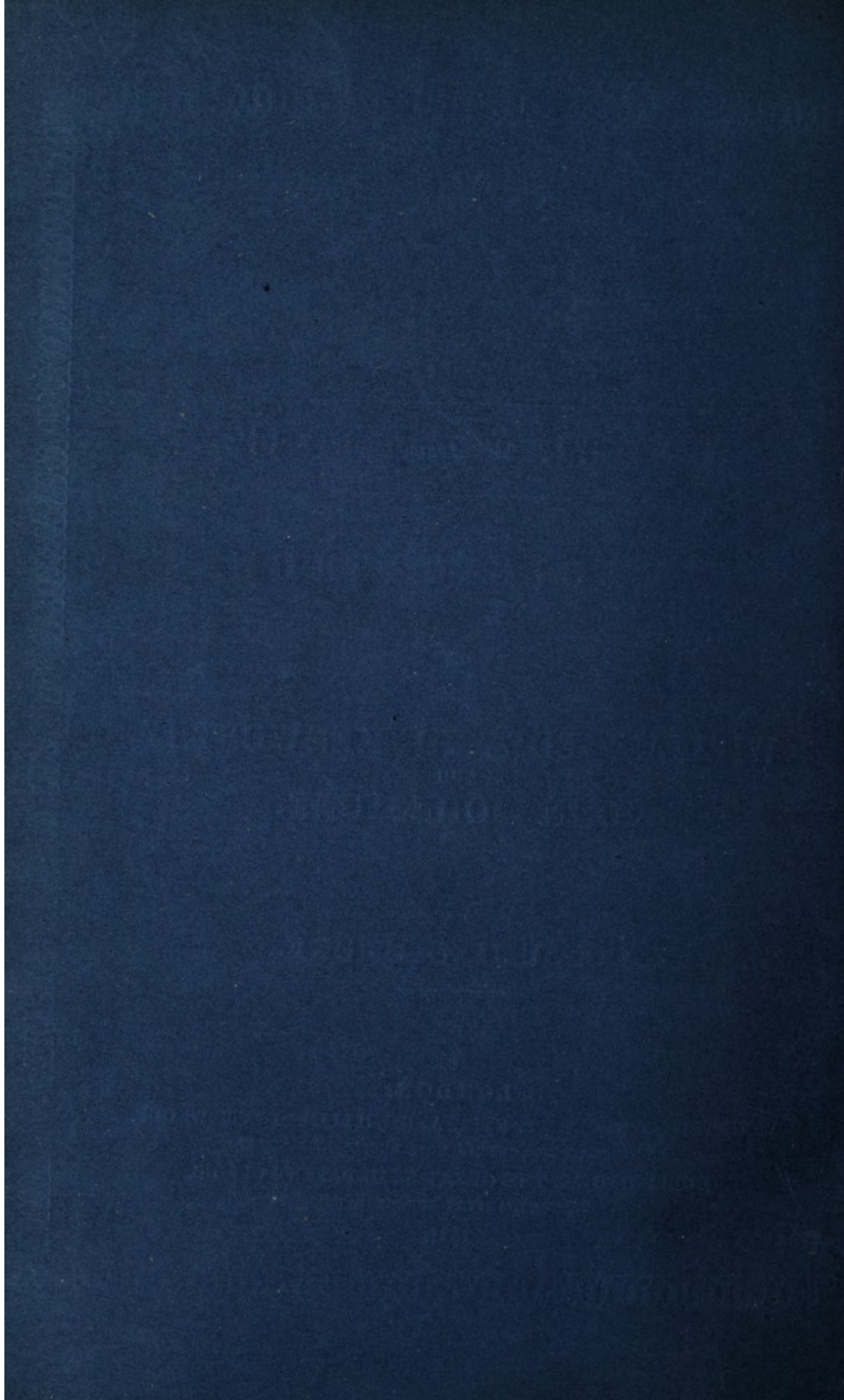
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1871.





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A.D. 1871, 28th APRIL. N<sup>o</sup> 1127.

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### Consuming Smoke.

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**LETTERS PATENT** to William Edward Kenworthy and John Johnstone, both of Leeds, in the County of York, for the Invention of "**IMPROVEMENTS IN APPARATUS FOR BURNING AND CONSUMING SMOKE.**"

Sealed the 24th October 1871, and dated the 28th April 1871.

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**PROVISIONAL SPECIFICATION** left by the said William Edward Kenworthy and John Johnstone at the Office of the Commissioners of Patents, with their Petition, on the 28th April 1871.

We, **WILLIAM EDWARD KENWORTHY** and **JOHN JOHNSTONE**, both of  
5 Leeds, in the County of York, do hereby declare the nature of the said  
Invention for "**IMPROVEMENTS IN APPARATUS FOR BURNING AND CONSUMING  
SMOKE,**" to be as follows:—

The object of this Invention is to cause a more perfect combustion  
of the gases evolved in steam boiler and other furnaces whereby smoke  
10 is prevented and a greater economy of fuel attained. For this purpose  
we admit atmospheric air over the furnace grate in the manner hereafter  
described, atmospheric air being also admitted to the under side of the

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grate as usual. The air is admitted over and on to the grate through one or more air passages or shoots, which have a slanting direction pointing downwards in the direction of about the middle of the length of the grate, more or less according to circumstances. This shoot or shoots is or are formed in the furnace front over the door, is of a box-<sup>5</sup> like shape in front, and is there provided with a lid, which on being opened more or less admits more or less atmospheric air on to the grate as required.

**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said William Edward Kenworthy and John Johnstone <sup>10</sup> in the Great Seal Patent Office on the 27th October 1871.

**TO ALL TO WHOM THESE PRESENTS SHALL COME**, we, **WILLIAM EDWARD KENWORTHY** and **JOHN JOHNSTONE**, both of Leeds, in the County of York, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her <sup>15</sup> Letters Patent, bearing date the Twenty-eighth day of April, in the year of our Lord One thousand eight hundred and seventy-one, in the thirty-fourth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto us, the said William Edward Kenworthy and John Johnstone, Her special licence that we, the said William Edward <sup>20</sup> Kenworthy and John Johnstone, our executors, administrators, and assigns, or such others as we, the said William Edward Kenworthy and John Johnstone, our 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 <sup>25</sup> might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN APPARATUS FOR BURNING AND CONSUMING SMOKE,**" upon the condition (amongst others) that we, the said William Edward Kenworthy and John Johnstone, our executors or adminis- <sup>30</sup> trators, by an instrument in writing under our, or one of our, 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 <sup>35</sup> the date of the said Letters Patent.

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NOW KNOW YE, that we, the said William Edward Kenworthy and John Johnstone, 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, reference  
5 being had to the accompanying Drawings, and to the letters of reference marked thereon, that is to say :—

The object of this Invention is to cause a more perfect combustion of the gases evolved in steam boiler and other furnaces, whereby smoke is prevented and a greater economy of fuel attained. For this purpose  
10 we admit atmospheric air over the furnace grate in the manner hereafter described, atmospheric air being also admitted to the under side of the grate as usual. The air is admitted over and on to the grate through one or more air passages or shoots which have a slanting direction pointing downwards in the direction of about the middle of the length of the  
15 grate more or less according to circumstances. This shoot or shoots is or are formed in the furnace front over the door of a box-like shape in front, and is there provided with a lid, which on being opened more or less admits more or less atmospheric air on to the grate as required.

Fig. 1 of the accompanying Drawings is a front elevation and Fig. 2  
20 is a transverse section of apparatus for burning and consuming smoke, constructed according to our Invention.

*a* is the grate to which air is admitted over or on through one or more air passages or shoots *b*, which have a slanting direction, as shewn, pointing downwards in the direction of the arrows in Fig. 2 to about  
25 the middle of the length of the grate, more or less according to circumstances. This shoot or shoots *b* is or are formed in the furnace front plate *c* over the doorway, and is or are of a box-like form, but when required it or they may be fixed on the front plate *c*, as shewn at Fig. 3, and in dotted lines at Fig. 1, a hole or holes having been previously  
30 cut in the front plate. By this arrangement the apparatus may be attached to any furnace front. When requisite a lid *d* may be used, which on being opened more or less admits more or less atmospheric air on to the fire as required.

Having now described the nature of our said Invention, and the  
35 manner in which the same is to be performed, we would remark in conclusion that we do not limit ourselves to the exact details, limits and configuration of parts we have expressed and shewn as the same may be varied or modified without in any way departing from our

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Invention, as, for instance, instead of the crescent form of shoot *b* a straight shoot in some cases may be used, but what we do claim and desire to be secured to us by Letters Patent is, the arrangement, construction, and application of apparatus for causing a more perfect combustion of the gases evolved in steam boilers or other furnaces 5 substantially as herein set forth.

In witness whereof, I, the said William Edward Kenworthy, for myself and on behalf of the said John Johnstone, have hereunto set my hand and seal, this Twenty-fifth day of October, in the year of our Lord One thousand eight hundred and seventy-one. 10

WILLIAM EDWARD KENWORTHY. (L.S.)

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FIG. 1.

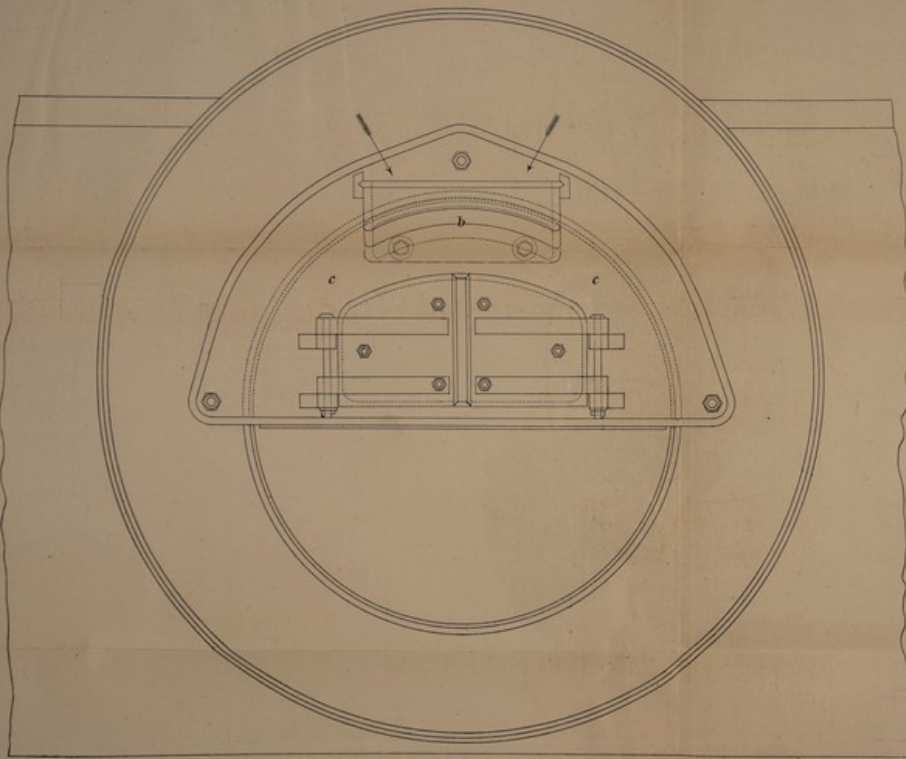


FIG. 2.

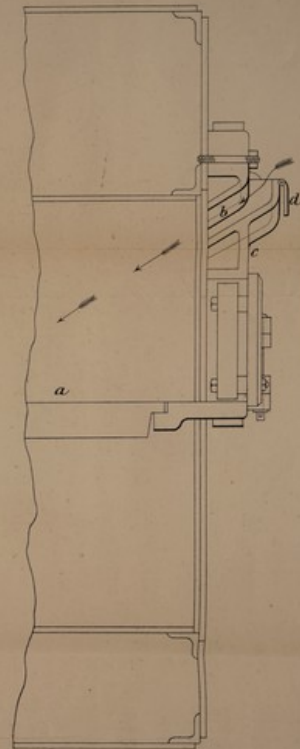
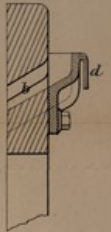


FIG. 3.



The filed drawing is partly colored.



