

## **Specification of Henry Bright : drying sewage.**

### **Contributors**

Bright, Henry.

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A.D. 1871, 30th August. N<sup>o</sup> 2274.

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

OF

HENRY BRIGHT.

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DRYING SEWAGE, &c.

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LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,

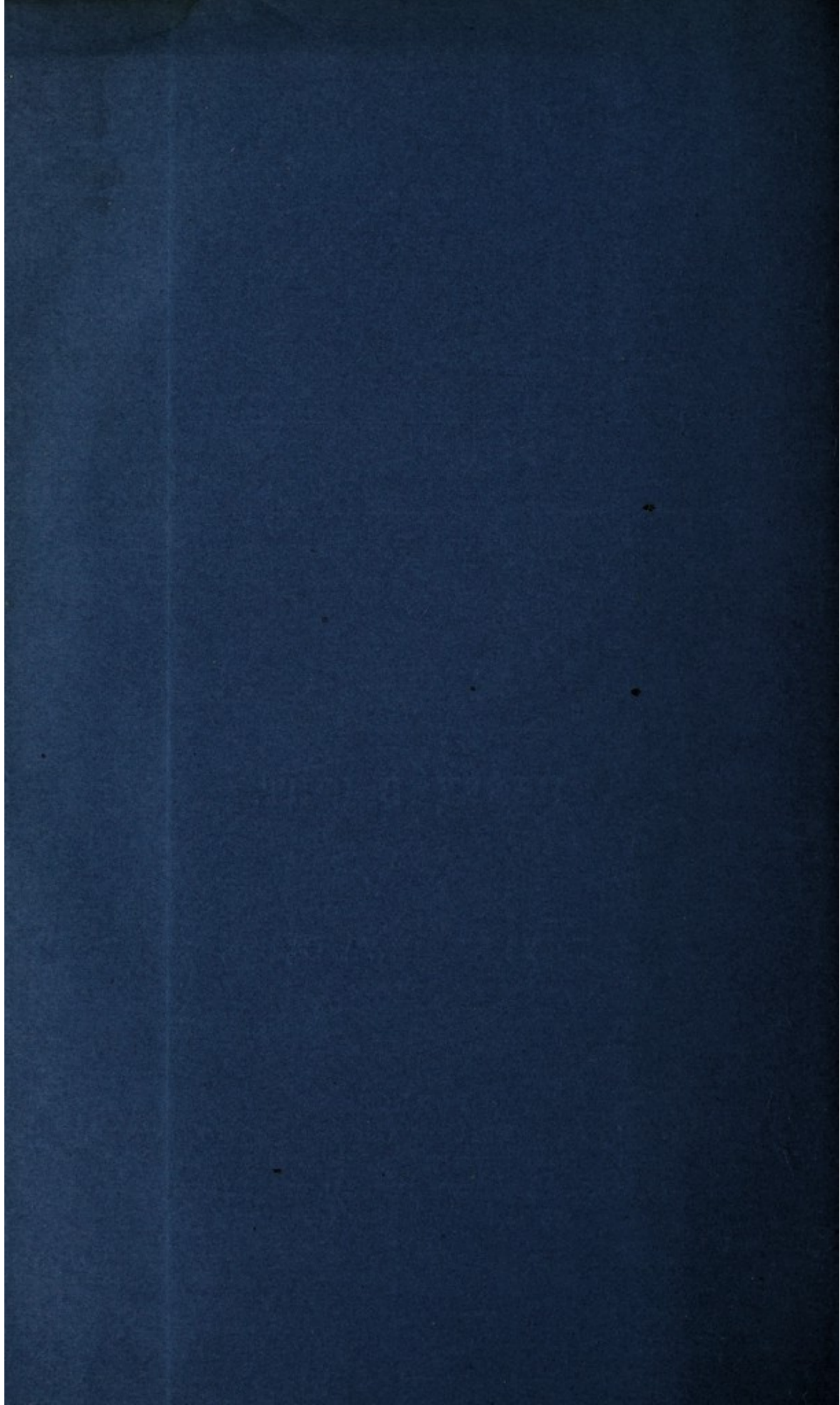
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PUBLISHED AT THE GREAT SEAL PATENT OFFICE,

25, SOUTHAMPTON BUILDINGS, HOLBORN.

Price 10d.

1872.





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A.D. 1871, 30th *AUGUST*. N° 2274.

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**Drying Sewage, &c.**

**LETTERS PATENT** to Henry Bright, of Leamington, in the County Warwick, for the Invention of "**IMPROVEMENTS IN THE MEANS AND APPARATUS FOR DRYING SEWAGE AND OTHER MATTERS AND DESTROYING NOXIOUS VAPOURS ARISING THEREFROM.**"

Sealed the 17th November 1871, and dated the 30th August 1871.

**PROVISIONAL SPECIFICATION** left by the said Henry Bright at the Office of the Commissioners of Patents, with his Petition, on the 30th August 1871.

I, HENRY BRIGHT, of Leamington, in the County Warwick, do  
5 hereby declare the nature of the said Invention for "**IMPROVEMENTS IN THE MEANS AND APPARATUS FOR DRYING SEWAGE AND OTHER MATTERS AND DESTROYING NOXIOUS VAPOURS ARISING THEREFROM,**" to be as follows :—

My Invention has principally for its object the drying of sewage and other offensive matters in such manner that the offensive smell of the

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vapours given off therefrom during the process of drying shall be entirely destroyed before the vapours pass into the atmosphere; it consists mainly in causing heated air to pass over a layer of the substance to be dried, which air after taking up moisture is then withdrawn at one or more points in proximity to the surface of the material, and is caused 5 to pass through a furnace or fire-place so as in entering into combustion with the fuel to entirely destroy the noxious vapours carried off by the air.

For this purpose I prefer to employ apparatus of the following arrangement:—I construct a drying room or shed of any convenient 10 shape, which can be closed as nearly air-tight as possible, with the exception of the openings herein-after mentioned, through which the current of air is admitted and extracted. In connection with such room I erect a stove or “cockle” (by preference Whittaker’s convoluted stove), surrounded by an enclosed space or jacket which communicates at the 15 bottom with the surrounding atmosphere and at the top with the upper part of the drying room, so that the air in passing into such jacket becomes heated by contact with the stove, and then passes into the upper part of the room. The fire-box of the stove is closed in front, with the exception of the necessary openings for feeding and cleaning, 20 and communicates below the grate with a flue leading to a number of openings in or near the floor of the drying room, while the top of the fire-box communicates with a flue leading to a chimney shaft.

The operation of the apparatus is as follows:—The sewage or other matter to be dried is spread on the floor of the drying room, the door of 25 which is then closed as air-tight as possible, and a fire is then lighted in the stove. The heated fresh air passes from the jacket of the stove into the room, raising the temperature therein rapidly, and at the same time the suction resulting from the draught of the stove causes the air that is in close proximity to the layer of sewage, and that is charged with the 30 noxious vapours evaporated from the latter, to be drawn off through the before-mentioned openings and to be passed through the fire of the stove, whereby any noxious smell of such air is entirely destroyed before it passes into the chimney. The fresh air newly heated always rises to the top of the chamber, and in descending replaces that which has 35 become cooled by contact with the moist surface of the sewage or other material, and which being heaviest and nearest the floor is sucked away by the draught of the stove. This constant current of hot air over the

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wet material soon dries the latter, and by this arrangement a heat of from 100 to 200 degrees Fahrenheit can be rapidly got up in the room, and can be cooled down again as quickly for the removal of the dried material and the introduction of a fresh charge. The degree of heat in  
5 the room and the rapidity of the circulation of the air is regulated by a damper in the chimney.

Although the above-described apparatus is principally intended for drying sewage and other materials giving off offensive vapours, yet it  
10 not give off offensive smells.

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**SPECIFICATION** in pursuance of the conditions of the Letters Patent, filed by the said Henry Bright in the Great Seal Patent Office on the 29th February 1872.

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, HENRY**  
15 **BRIGHT**, of Leamington, in the County of Warwick, send greeting.

**WHEREAS** Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Thirtieth day of August, in the year of our Lord One thousand eight hundred and seventy-one, in the thirty-fifth year of Her reign, did, for Herself, Her heirs and  
20 successors, give and grant unto me, the said Henry Bright, Her special licence that I, the said Henry Bright, my executors, administrators, and assigns, or such others as I, the said Henry Bright, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter  
25 during the term therein expressed, should and lawfully 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 THE MEANS AND APPARATUS FOR DRYING SEWAGE AND OTHER**  
**MATTERS AND DESTROYING NOXIOUS VAPOURS ARISING THEREFROM,**” upon the con-  
30 dition (amongst others) that I, the said Henry Bright, my executors or administrators, by an instrument 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

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Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Henry Bright, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the 5 following statement:—

My Invention has principally for its object the drying of sewage and other offensive matters in such manner that the offensive smell of the vapours given off therefrom during the process of drying shall be entirely destroyed before the vapours pass into the atmosphere; it consists 10 mainly in causing heated air to pass over a layer of the substance to be dried, which air after taking up moisture is then withdrawn at one or more points in proximity to the surface of the material, and is caused to pass through a furnace or fire-place so as in entering into combustion with the fuel to entirely destroy the noxious vapours carried off by the 15 air.

For this purpose I prefer to employ apparatus of the following arrangement:—I construct a drying room or shed of any convenient shape, which can be closed as nearly air-tight as possible, with the exception of the openings herein-after mentioned, through which the 20 current of air is admitted and extracted. In connection with such room I erect a stove or "cockle" (by preference Whittaker's convoluted stove), surrounded by an enclosed space or jacket which communicates at the bottom with the surrounding atmosphere and at the top with the upper part of the drying room, so that the air in passing into such jacket 25 becomes heated by contact with the stove, and then passes into the upper part of the room. The fire-box of the stove is closed in front, with the exception of the necessary openings for feeding and cleaning, and communicates below the grate with a flue leading to a number of openings in or near the floor of the drying room, while the top of the 30 fire-box communicates with a flue leading to a chimney shaft.

The operation of the apparatus is as follows:—The sewage or other matter to be dried is spread on the floor of the drying room, the door of which is then closed as air-tight as possible, and a fire is then lighted in the stove. The heated fresh air passes from the jacket of the stove into 35

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the room, raising the temperature therein rapidly, and at the same time the suction resulting from the draught of the stove causes the air that is in close proximity to the layer of sewage, and that is charged with the noxious vapours evaporated from the latter, to be drawn off through the  
5 before-mentioned openings and to be passed through the fire of the stove, whereby any noxious smell of such air is entirely destroyed before it passes into the chimney. The fresh air newly heated always rises to the top of the chamber, and in descending replaces that which has become cooled by contact with the moist surface of the sewage or other  
10 material, and which, being heaviest and nearest the floor, is sucked away by the draught of the stove. This constant current of hot air over the wet material soon dries the latter, and by this arrangement a heat of from 100 to 200 degrees Fahrenheit can be rapidly got up in the room, and can be cooled down again as quickly for the removal of the dried  
15 material and the introduction of a fresh charge. The degree of heat in the room and the rapidity of the circulation of the air is regulated by a damper in the chimney.

Although the above-described apparatus is principally intended for drying sewage and other materials giving off offensive vapours, yet it  
20 may also be applied with advantage for drying other substances that do not give off offensive smells.

A convenient arrangement of the before-described apparatus is shewn in the accompanying Drawings, in which the floor C, upon which the sewage material to be dried is spread, is made of sheet iron, the hot air  
25 passing from the stove D being made to travel along flues E underneath such floor before ascending into the chamber F above the same through the apertures B, B. From these apertures the hot air is made to pass over the surface of the sewage material in the direction of the arrows, and is eventually drawn down through the apertures A, A, into the fire-  
30 box of the stove. The chamber F is closed in at a short distance above the floor C by means of hinged doors G, which, for introducing the material to be dried and for removing the same when dried, are opened as indicated in the Drawing, but which, when the apparatus is in operation, are closed down to the dotted line G, so as to keep the  
35 current of hot air in close contact with the material to be dried.

Having now particularly described and ascertained the nature of my said Invention, and how the same is to be performed, I wish it to be



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understood I make no claim for any of the apparatus taken separately, and that what I do claim is, the process or means, and the apparatus herein-before shown and described, for drying sewage and other matters, and destroying noxious vapours arising therefrom.

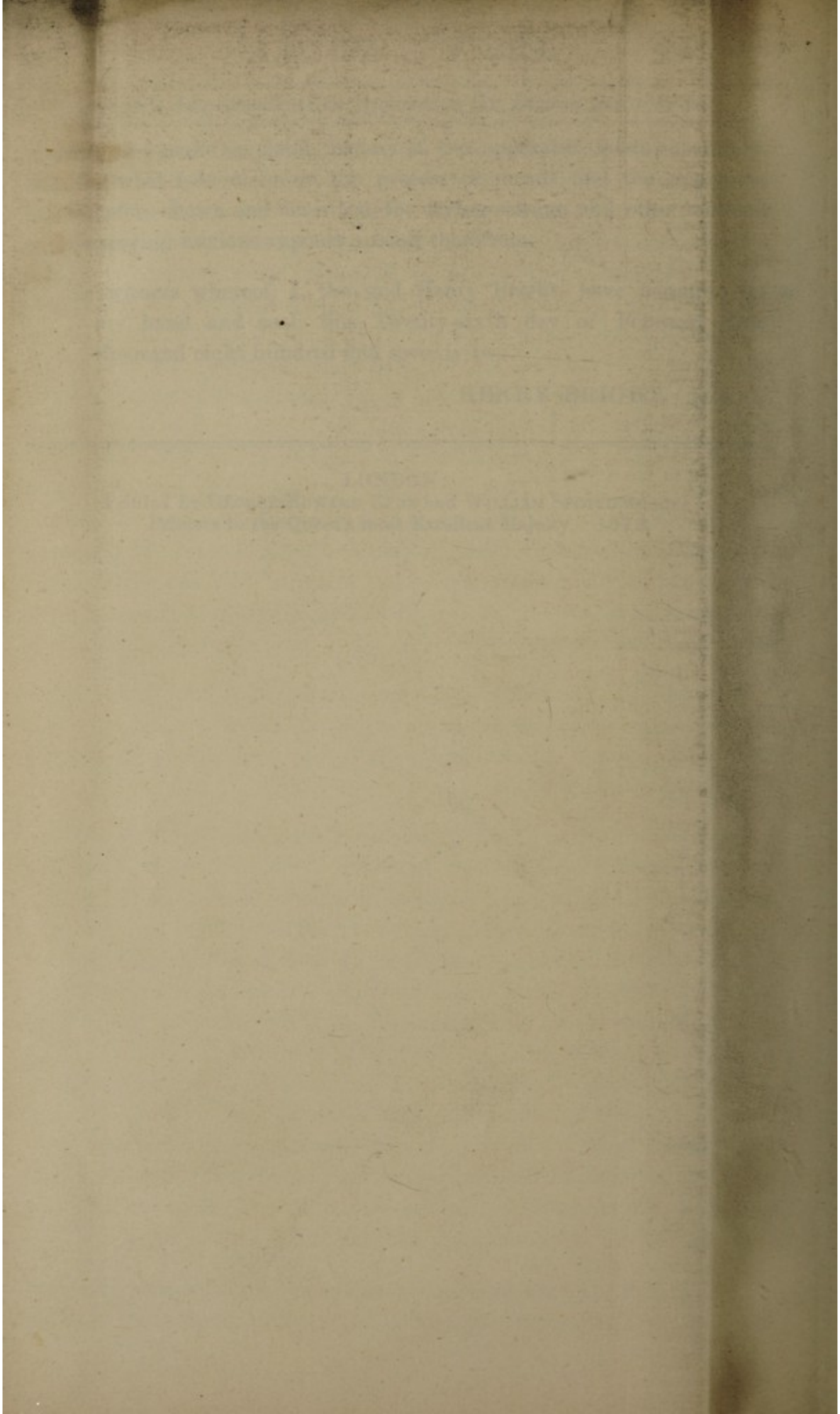
In witness whereof, I, the said Henry Bright, have hereunto set my hand and seal, this Twenty-sixth day of February One thousand eight hundred and seventy-two.

HENRY BRIGHT. (L.S.)

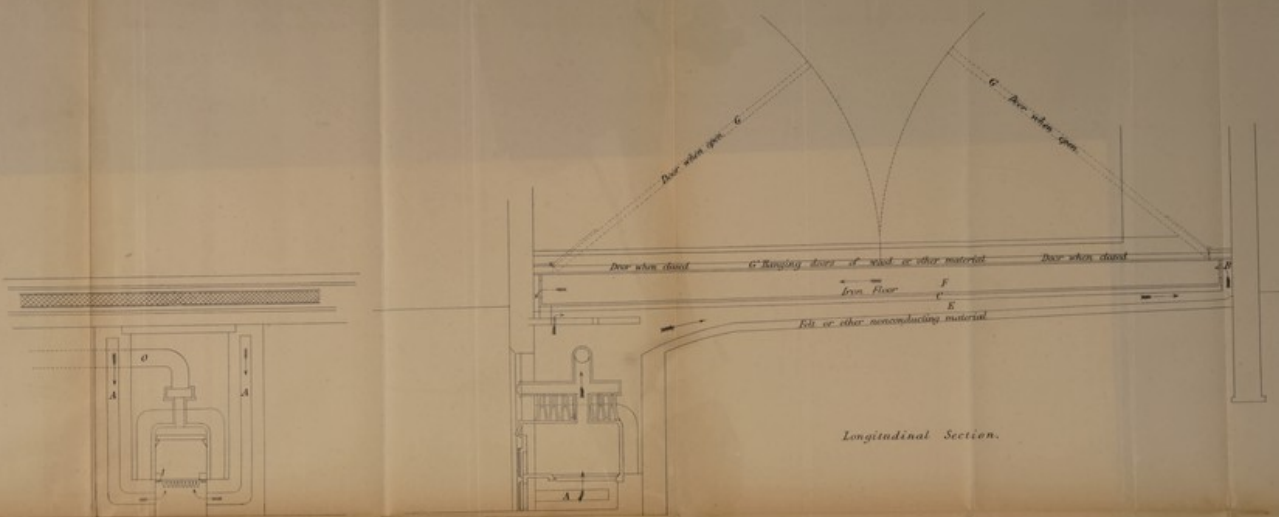
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Printers to the Queen's most Excellent Majesty. 1872.

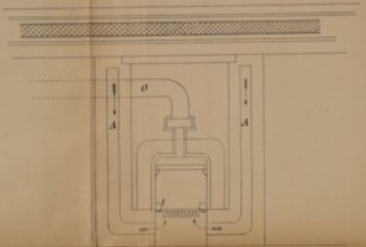




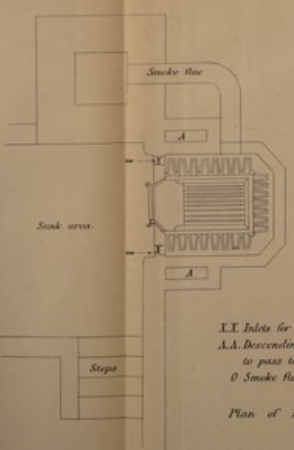
A. D. 1871. AUG. 30. N° 2274.  
BRIGHT'S SPECIFICATION.



Longitudinal Section.



Cross Section thro' Furnace



I.I. Inlets for fresh air  
A.A. Descending flues for foul air  
to pass to Ash pit  
O Smoke flue  
Plan of Furnace.



Plan on the Iron drying Floor

Scale 1/4 Inch to the Foot

The steel drawings is partly altered.

LONDON: Printed by George Edwardes, 15, Abchurch Lane, in the Strand, W.C.

Drawn on Steel by Malby & Sons

