

## **Specification of Thomas Hills the younger : steam boiler furnaces.**

### **Contributors**

Hills, Thomas.

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Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
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A.D. 1833 . . . . . N° 6389.

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

OF

THOMAS HILLS THE YOUNGER.

STEAM BOILER FURNACES.

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 5d.*

1855.





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A.D. 1833 . . . . . N° 6389.

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**Steam Boiler Furnaces.**

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**HILL'S SPECIFICATION.**

**TO ALL TO WHOM THESE PRESENTS SHALL COME, I, THOMAS HILLS** the younger, of Saint Michael's Alley, Cornhill, in the City of London, Gentleman, send greeting.

**WHEREAS** His present most Excellent Majesty King William the Fourth, 5 by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Twenty-first day of February, in the third year of His reign, did, for Himself, His heirs and successors, give and grant unto me, the said Thomas Hills the younger, His especial licence that I, the said Thomas Hills the younger, my exors, admors, and assigns, or such others as I, the said Thomas 10 Hills the younger, my exors, admors, or assigns, should at any time agree with, and no others, from time to time and at all times during the term of fourteen years therein expressed, should and lawfully might make, use, exercise, and vend, within England, Wales, and the Town of Berwick-upon-Tweed, my Invention of "**A CERTAIN IMPROVEMENT IN FURNACES FOR STEAM BOILERS, AND OTHER USEFUL 15 PURPOSES;**" in which said Letters Patent is contained a proviso obliging me, the said Thomas Hills the younger, by an instrument in writing under my hand and seal, particularly to describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, and to cause the same to be enrolled in His said Majesty's High Court of Chancery within six 20 calendar months next and immediately after the date of the said recited Letters Patent, as in and by the same, reference being thereunto had, will more fully and at large appear.

**NOW KNOW YE,** that in compliance with the said proviso, I, the said Thomas Hills the younger, do hereby declare the nature of my said Invention

*Hill's Improvements in Steam Boiler Furnaces.*

to consist in causing what is commonly called the apron plate or dead plate in furnaces, to be kept heated as uniformly as may be to a red heat, by means of heat applied to the under surface of it, so that coals thrown on it when so heated may be rapidly decomposed and deprived of their inflammable gas before they are pushed forward on to the furnace bars. And in further compliance with the said proviso, I, the said Thomas Hills the younger, do hereby describe the manner in which my said Invention is to be performed, by the following description thereof, reference being had to the Drawing annexed, and to the figures and letters marked thereon (that is to say):—

## DESCRIPTION OF THE DRAWING.

Figure 1 represents my said improvement in section, and the mode of heating the apron plate. A is the apron plate; B, B, side flues for the smoke from the fire under the apron plate to escape by; C, C, C, C, C, brickwork forming the side end and bottom of the said flues; D, the foundation plate on which the said brickwork is raised; E, fire bars for the fire under the apron plate; F, F, F, F, F, F, support bars for the said fire bars and the foundation plate; H, the ordinary furnace fire bars; I, I, the bearing bars for the same; G, the end of the flue B, B, which opens at this point over the fire on the furnace bars, which further decomposes the smoke before it is carried into the main boiler flue P, O, which is the ordinary flue passing under and round the boiler. N is the boiler, and M is a brick arch thrown over the apron plate; L is a slide door for the furnace.

Figure 2 is a front elevation of my said Invention, T being the door of the fireplace under the apron plate; and similar letters being used to denote similar parts in all the Figures, no further description of this Figure will be necessary.

Figure 3 is a plan of my said Invention, with the apron plate removed in order to show the course of the flues marked B, the line of draft being marked by arrows. These flues may be furnished with dampers, if thought desirable, as shown at numbers 1, 2, in this Figure. It should be here observed, that instead of placing the coals on the apron plate they may be laid in flat shallow iron troughs placed upon bearers let into the side walls, and having a fire under each trough.

In order to put my said Invention into practice, the fire under the apron plate being lighted, and the plate heated to a red heat, fresh coal should from time to time be spread, about four inches thick, upon the apron plate, and when the inflammable gas has all been evolved from the portion of coals on the apron plate, the coke or residuum should be pushed forward upon the ordinary furnace bars to constitute the ordinary boiler furnace fire, while a fresh layer of coal should be placed on the apron plate.

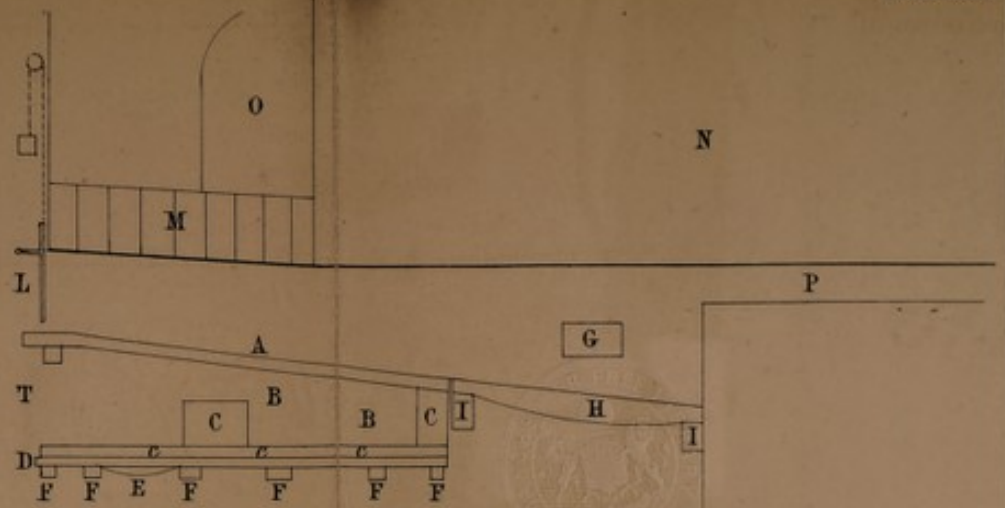


FIGURE . 1 .

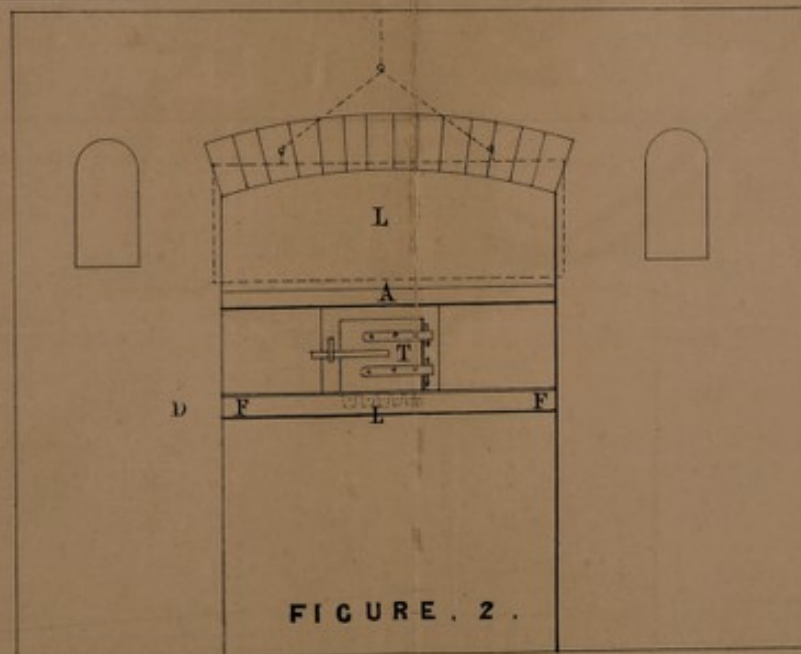


FIGURE . 2 .

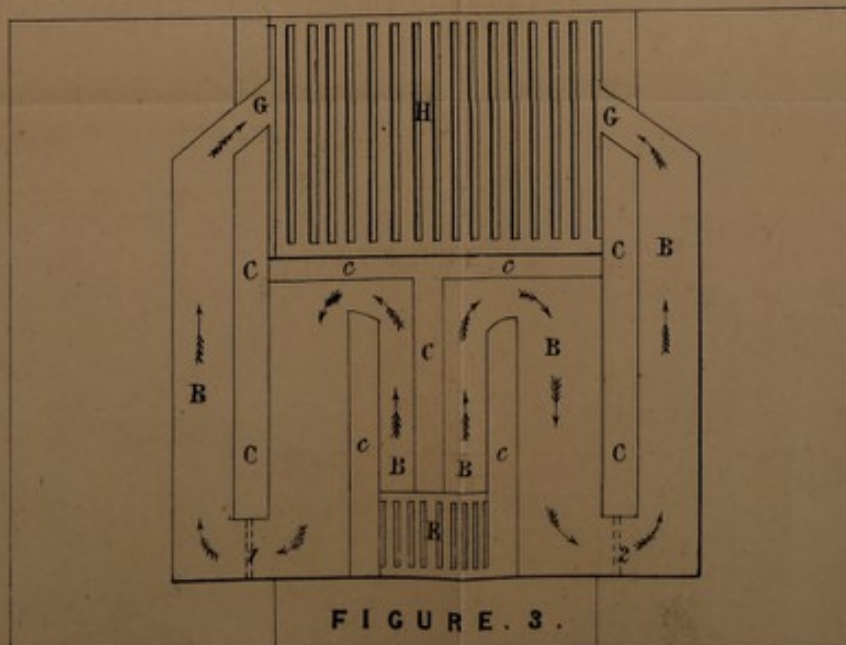


FIGURE . 3 .

*The enrolled drawing is partly colored.*

Drawn on Stone by Malby & Sons.



*Hill's Improvements in Steam Boiler Furnaces.*

Now whereas I claim as my Invention and improvement the heating of the apron or dead plate in furnaces, in manner herein-before described, to a red or such other heat, while the fuel is upon it, as will cause the said fuel to give out its inflammable gasses, and form coke previously to its being pushed  
 5 on to the ordinary furnace bars ; and such my Invention being, to the best of my knowledge and belief, entirely new, and never before used within that part of His said Majesty's United Kingdom of Great Britain and Ireland called England, His said Dominion of Wales, or Town of Berwick-upon-Tweed, I do hereby declare this to be my Specification of the same, and that I do verily  
 10 believe this my said Specification doth comply in all respects fully, and without reserve or disguise, with the proviso in the said herein-before in part recited Letters Patent contained ; wherefore I do hereby claim to maintain exclusive right and privilege to my said Invention.

In witness whereof, I, the said Thomas Hills, have hereunto set my hand  
 15 and seal, the Twentieth day of August, in the year of our Lord One thousand eight hundred and thirty-three.

THOMAS (L.S.) HILLS, JUN<sup>r</sup>.

Signed, sealed, and delivered by the within-  
 named Thomas Hills the younger, (being  
 20 first duly stamped) in the presence of

THOMAS HORNBY, Solicitor,  
 31, St. Swithin's Lane, London.  
 HENRY BATT, his Clerk.

AND BE IT REMEMBERED, that on the Twentieth day of August, in the  
 25 year of our Lord 1833, the aforesaid Thomas Hills the younger came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and every thing therein contained and specified, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute made for that purpose.

30 Inrolled the Twentieth day of August, in the year of our Lord One thousand eight hundred and thirty-three.

LONDON :

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
 Printers to the Queen's most Excellent Majesty. 1855.



The first of these is the... the second is the... the third is the... the fourth is the... the fifth is the... the sixth is the... the seventh is the... the eighth is the... the ninth is the... the tenth is the... the eleventh is the... the twelfth is the... the thirteenth is the... the fourteenth is the... the fifteenth is the... the sixteenth is the... the seventeenth is the... the eighteenth is the... the nineteenth is the... the twentieth is the... the twenty-first is the... the twenty-second is the... the twenty-third is the... the twenty-fourth is the... the twenty-fifth is the... the twenty-sixth is the... the twenty-seventh is the... the twenty-eighth is the... the twenty-ninth is the... the thirtieth is the... the thirty-first is the... the thirty-second is the... the thirty-third is the... the thirty-fourth is the... the thirty-fifth is the... the thirty-sixth is the... the thirty-seventh is the... the thirty-eighth is the... the thirty-ninth is the... the fortieth is the... the forty-first is the... the forty-second is the... the forty-third is the... the forty-fourth is the... the forty-fifth is the... the forty-sixth is the... the forty-seventh is the... the forty-eighth is the... the forty-ninth is the... the fiftieth is the... the fifty-first is the... the fifty-second is the... the fifty-third is the... the fifty-fourth is the... the fifty-fifth is the... the fifty-sixth is the... the fifty-seventh is the... the fifty-eighth is the... the fifty-ninth is the... the sixtieth is the... the sixty-first is the... the sixty-second is the... the sixty-third is the... the sixty-fourth is the... the sixty-fifth is the... the sixty-sixth is the... the sixty-seventh is the... the sixty-eighth is the... the sixty-ninth is the... the seventieth is the... the seventy-first is the... the seventy-second is the... the seventy-third is the... the seventy-fourth is the... the seventy-fifth is the... the seventy-sixth is the... the seventy-seventh is the... the seventy-eighth is the... the seventy-ninth is the... the eightieth is the... the eighty-first is the... the eighty-second is the... the eighty-third is the... the eighty-fourth is the... the eighty-fifth is the... the eighty-sixth is the... the eighty-seventh is the... the eighty-eighth is the... the eighty-ninth is the... the ninetieth is the... the ninety-first is the... the ninety-second is the... the ninety-third is the... the ninety-fourth is the... the ninety-fifth is the... the ninety-sixth is the... the ninety-seventh is the... the ninety-eighth is the... the ninety-ninth is the... the hundredth is the...

In witness whereof I the said Thomas Pitt have hereunto set my hand and seal the 15th day of August in the year of our Lord the thousand eight hundred and thirty-six.

THOMAS PITT, Esq.  
Secretary of State for the Home Department.

AND THE SEVENTEENTH DAY OF AUGUST 1801... the eighteenth is the... the nineteenth is the... the twentieth is the... the twenty-first is the... the twenty-second is the... the twenty-third is the... the twenty-fourth is the... the twenty-fifth is the... the twenty-sixth is the... the twenty-seventh is the... the twenty-eighth is the... the twenty-ninth is the... the thirtieth is the... the thirty-first is the... the thirty-second is the... the thirty-third is the... the thirty-fourth is the... the thirty-fifth is the... the thirty-sixth is the... the thirty-seventh is the... the thirty-eighth is the... the thirty-ninth is the... the fortieth is the... the forty-first is the... the forty-second is the... the forty-third is the... the forty-fourth is the... the forty-fifth is the... the forty-sixth is the... the forty-seventh is the... the forty-eighth is the... the forty-ninth is the... the fiftieth is the... the fifty-first is the... the fifty-second is the... the fifty-third is the... the fifty-fourth is the... the fifty-fifth is the... the fifty-sixth is the... the fifty-seventh is the... the fifty-eighth is the... the fifty-ninth is the... the sixtieth is the... the sixty-first is the... the sixty-second is the... the sixty-third is the... the sixty-fourth is the... the sixty-fifth is the... the sixty-sixth is the... the sixty-seventh is the... the sixty-eighth is the... the sixty-ninth is the... the seventieth is the... the seventy-first is the... the seventy-second is the... the seventy-third is the... the seventy-fourth is the... the seventy-fifth is the... the seventy-sixth is the... the seventy-seventh is the... the seventy-eighth is the... the seventy-ninth is the... the eightieth is the... the eighty-first is the... the eighty-second is the... the eighty-third is the... the eighty-fourth is the... the eighty-fifth is the... the eighty-sixth is the... the eighty-seventh is the... the eighty-eighth is the... the eighty-ninth is the... the ninetieth is the... the ninety-first is the... the ninety-second is the... the ninety-third is the... the ninety-fourth is the... the ninety-fifth is the... the ninety-sixth is the... the ninety-seventh is the... the ninety-eighth is the... the ninety-ninth is the... the hundredth is the...

Witness my hand and seal the 15th day of August 1801.

THOMAS PITT, Esq.  
Secretary of State for the Home Department.