

## **Specification of John Wright : furnaces for steam boilers.**

### **Contributors**

Wright, John.

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A.D. 1756 . . . . . N<sup>o</sup> 709.

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

OF

JOHN WRIGHT.

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FURNACES FOR STEAM BOILERS.

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L O N D O N :

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,  
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY :

PUBLISHED AT THE QUEEN'S PRINTING OFFICE, EAST HARDING STREET,  
NEAR FLEET STREET.

*Price 9d.*

1854.









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A.D. 1756 . . . . . N° 709.

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**Furnaces for Steam Boilers.**

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**WRIGHT'S SPECIFICATION.**

TO ALL TO WHOM THESE PRESENTS SHALL COME, JOHN WRIGHT, of Lower Redbrooke, in the County of Gloucester, Refiner, sends greeting.

**WHEREAS** His present Majesty King George the Second, by Letters  
5 Patent, under the Great Seal of Great Britain, bearing date the Twenty-seventh day of May last past, reciting that he, the said John Wright, had by his petition to His Majesty represented that he had by long application and many years experience in directing the building and working of great number of furnaces of different structures found out and brought to perfection "**A NEW**  
10 **METHOD OF RAISING STEAM FOR WORKING FIRE ENGINES,**" whereby many collieries, as well as tin, copper, and lead mines, that have been worked to so great a depth as to be at present of little or no value to the proprietors, by reason of the great expense of coal in draining them by fire engines in the method they are now worked, might, by means of such Invention, be worked with very considerable  
15 advantage to the publick in general and the proprietors in particular by the much less quantity of coal rendered necessary for working such fire engines, and that the said Invention would be also of great advantage in working fire engines for raising water in the neighbourhood of London and elsewhere for publick use, and tend to singular benefit in many mechanical operations, and  
20 praying His Majesty's Letters Patent for the sole use thereof, His Majesty did thereby give and grant unto the said John Wright, his executors, administrators and assigns, his especial licence, full power, sole privilege and authority, make, use, exercise, and vend his said Invention within England, Wales, Barwick upon Tweed, and all His Majesties Plantations in America, to have,  
25 hold, exercise, and enjoy the same for the term of fourteen years from the



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*Wright's Improvements in Raising Steam for Working Fire Engines.*

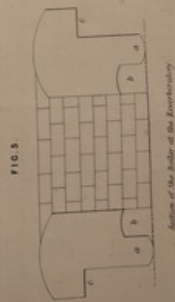
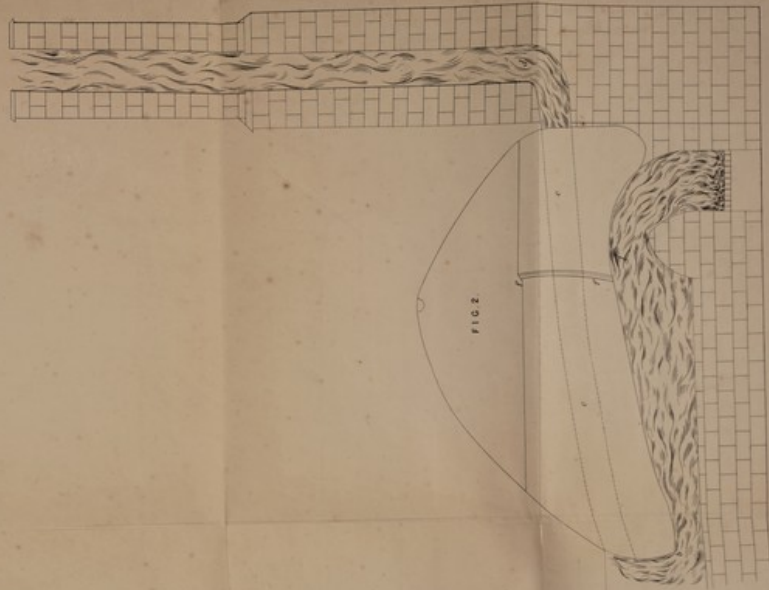
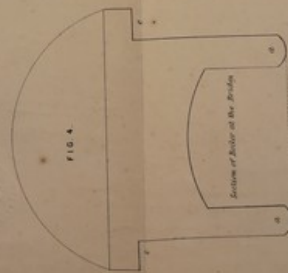
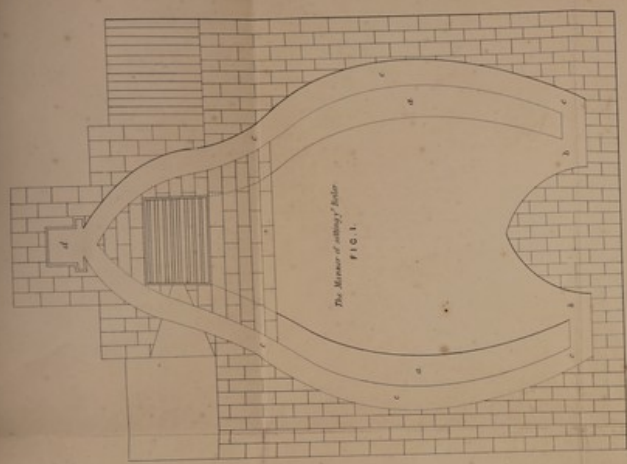
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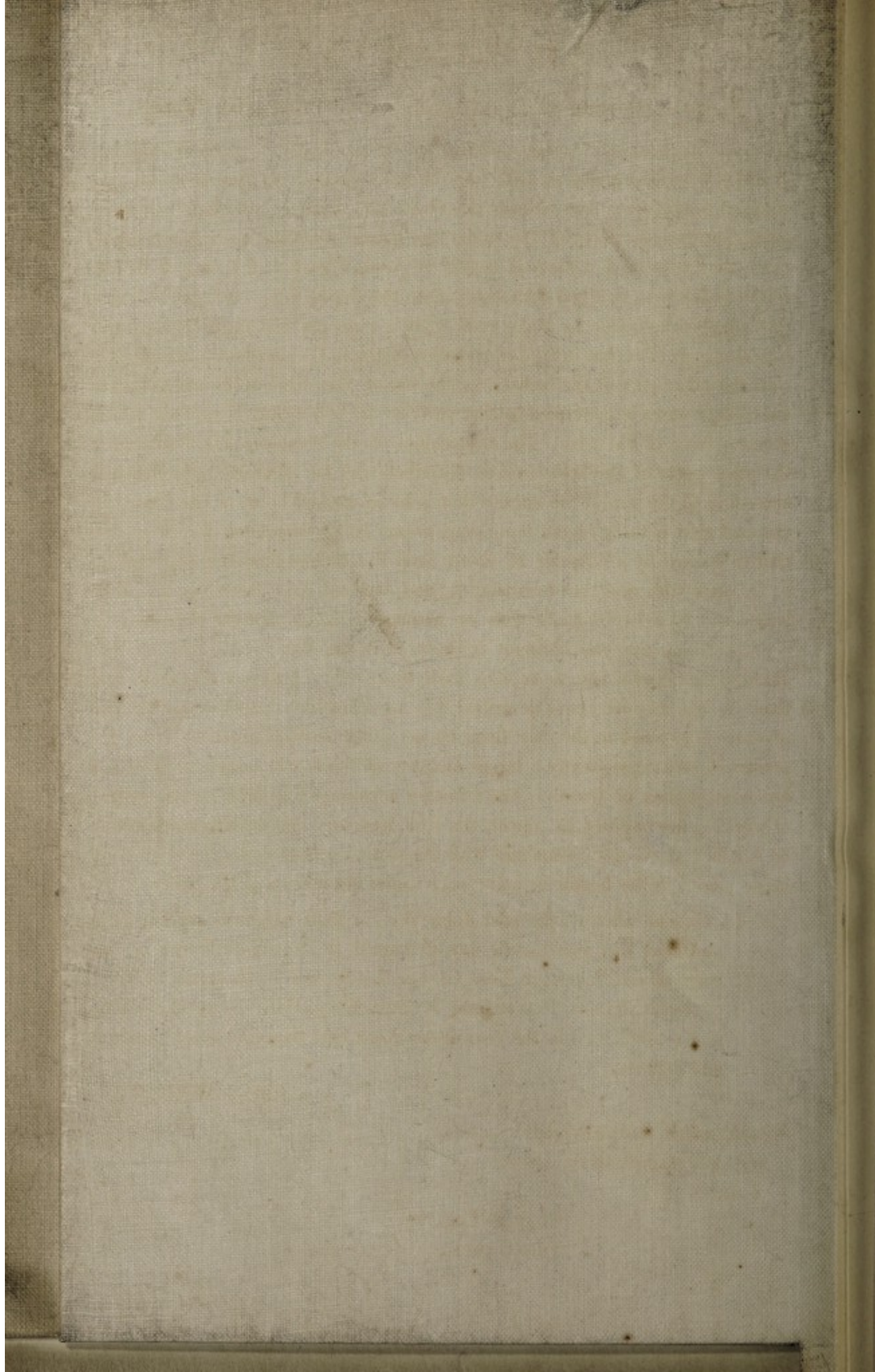
date thereof; in which said Letters Patent is contained a provisoe, that if the said John Wright should not particularly describe and ascertain the nature of the said Invention and in what manner the same is to be performed, by an instrument in writing under his hand and seal, and cause the same to be inrolled in the High Court of Chancery within four kalendar months next after the date 5 of the said Letters Patent, that then the said Letters Patent and all advantages thereby granted should cease and become void.

**NOW KNOW YE**, that the said John Wright, in pursuance and performance of the said provisoe, doth hereby describe and ascertain the nature of the said Invention, and in what manner the same is to be performed, as follows 10 (that is to say):—

The boiler is made of copper or iron plates hammered and rivetted together in the ordinary way and form of boilers now in use for atmosphere engines worked by steam of boiling water, but with the following difference, (viz<sup>t</sup>.) this boiler is heated with fire made to reverberate by the bottom of the boiler 15 being of a shape to form the arch or roof and inner side walls of a reverberating furnace, and is placed over a hollow or open space of about ten feet long from the bridge to the reverberatory, and eight feet wide in the middle or widest part, five feet wide at the bridge, and six feet wide at the reverberatory, as in the plan annexed, Figure 1. The bottom of the boiler is made sloping, and fixed 20 three feet high at the bridge and one foot high at the reverberatory above the bottom of the hollow or open space through which the flame and hot air pass from the fire-place or grate under the bottom of the boiler to the reverberatory, as in Figures 2 & 5, *b, b*. The flame and hot air are returned under a flanch or elbow that projects from the outside of the boiler about one foot, and forms a 25 cavity between the brickwork and the outside of the boiler of about fourteen inches by twelve, as in Figures 3, 4, & 5, *c, c*, through which cavity they pass into the chimney or stack, as in Figure 2, *d*. The hollow or open space is divided into two flews or cavitys, as in Figures 1, & 5, *b, b*, which are twelve inches by nine each, and are contained of the same dimensions, one foot and a half upright, and 30 are there returned under the flanch or elbow before described. The bottom of the boiler is made to descend in two trows or hollows, one on each side the before-mentioned hollow or open space, of about one foot wide and ten feet long each, as in Figure 1, *a, a*. These trows or hollows are made curving, so as to form the two sides of the said hollow or open space, and communicate with the 35 boiler, as in Figures 3, 4, & 5, *a, a*. The fire place or grate is about three feet by two feet, and is divided from the said hollow or open space by a bridge of about one foot six inches high and two foot six inches wide at the bottom, and brought tapering up on each side to about one foot wide at the top, over which bridge the flame passes under the bottom of the boiler, as in Figure 2, *e*. 40









*Wright's Improvements in Raising Steam for Working Fire Engines.*

Over the fire place and bridge another part of the boiler is fixed, the bottom of which is made curving so as to form an arch of about six feet diameter, and is joined to the other part already described with nails or rivetts, and at the place that the two parts of the boiler are joined together a division is made  
 5 cross the boiler with a plate of copper or iron, Figure 2, *f, f*, to such height as the boiler is to be filled with water when the engine is at work. The water that supplies the boiler to make good what is evaporated in steam is conveyed into that part of it that is fixed over the fire-place and bridge, and communicates with the other part of the boiler over the top of this division, by which means  
 10 the coldest water is contained in that part of the boiler that is exposed to the greatest heat of the fire. The dimensions of the fire-place and flews and of the other parts of the boiler above described may be enlarged or contracted according to the size of the engine that is to be worked by it, or the quality of the coal that is to be burnt, these demensions being calculated for an engine  
 15 that is worked by a cillinder of about forty-five inches diameter, and the fire to be made with coal that burns quick, and does not cake in the grate. The boiler may likewise be made with or without a flanch, and the flews may be conveyed both into one chimney or stack, as in the plan annexed, or into two chimneys or stacks, one to receive each flew. By a boiler of the shape and  
 20 fixed in the manner above described it is apprehended a much larger surface of water is exposed to the fire than by any other method that has been yet practised, and consequently a larger quantity of steam will be produced with a less consumption of fewell. And a further advantage may arise by this method of working fire engines, as copper, tin, lead, iron oars, and other materials may  
 25 be calcined at the same time and with the same fire that works the engine, by being placed in the hollow or open space under the bottom of the boiler.

In witness whereof, the said John Wright hath hereunto set his hand and seal, the Fourteenth day of August, in the thirtieth year of the reign of our Sovereign Lord George the Second, by the grace of God,  
 30 of Great Britain, France, and Ireland, King, Defender of the Faith, and so forth, and in the year of our Lord One thousand seven hundred and fifty-six.

JOHN WRIGHT.

Signed, sealed, and delivered, being  
 35 first duly stampd, in the presence  
 of us,

CHARLES COLLYER.

THO<sup>s</sup> GAMULL.



*Wright's Improvements in Raising Steam for Working Fire Engines.*

EDWARDS.

AND BE IT REMEMBERED, that on the Sixteenth day of August, in the year bove written, the aforesaid John Wright came before our said Lord the King in His Chancery, and acknowledged the writing aforesaid, and every matter and thing therein contained, and specified in form above said, and the said writing was stampd according to the Statute made in the Sixth year of 5 the reign of the late King William and Queen Mary, and so forth.

Inrolled the said Sixteenth day of August, in the thirtieth year of the reign of His Majesty King George the Second, 1756.

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1854.