

Specification of William Pritchard : apparatus for regulating supply of air to furnaces.

Contributors

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A.D. 1820 N° 4523.

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

OF

WILLIAM PRICHARD.

APPARATUS FOR REGULATING SUPPLY OF
AIR TO FURNACES.

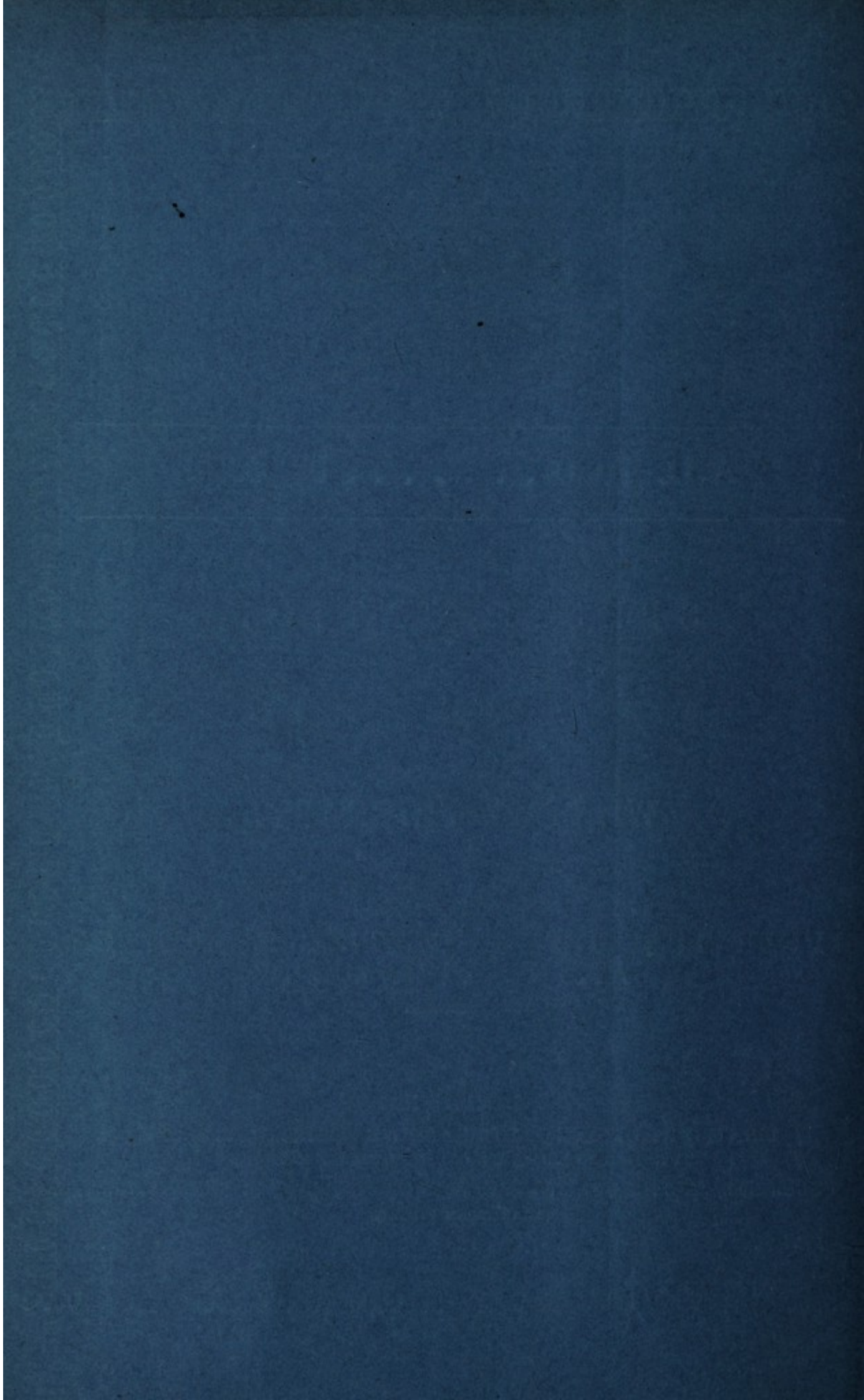
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1854.





A.D. 1820 N^o 4523.

Apparatus for Regulating Supply of Air to Furnaces.

PRICHARD'S SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, WILLIAM PRICHARD, of Leeds, in the County of York, Engineer, send greeting.

WHEREAS His most Excellent Majesty King George the Fourth did, by His Letters Patent under the Great Seal of that part of the United Kingdom of Great Britain and Ireland called England, bearing date at Westminster, the Twenty-second day of December, in the first year of His reign, give and grant unto me, the said William Prichard, my exors, admors, and assigns, His especial licence, full power, sole privilege and authority, that I, the said William Prichard, my exors, admors, and assigns, during the term of years
10 therein mentioned, should and lawfully might make, use, exercise and vend, within England, Wales, and the Town of Berwick upon Tweed, my Invention of "**CERTAIN IMPROVEMENTS IN AN APPARATUS CALCULATED TO SAVE FUEL, AND FOR THE MORE ECONOMICAL CONSUMPTION OF SMOKE, IN SHUTTING FIRE DOORS AND AIR FLUES IN STEAM-ENGINE BOILERS, DYING-PANS, AND BREWING-PANS, AND OTHER FIRE**
15 **DOORS AND AIR FLUES;**" in which said Letters Patent there is contained a proviso that if I, the said William Prichard, shall not particularly describe and ascertain the nature of my said Invention, and in what manner the same is to be performed, by an instrument in writing under my hand and seal, and cause the same to be inrolled in His Majesty's High Court of Chancery within
20 two calendar months next and immediately after the date of the said Letters Patent, that then the said Letters Patent, and all liberties and advantages whatsoever thereby granted, shall utterly cease, determine, and become void, as in and by the same, relation being thereunto had, will more fully and at large appear.

Prichard's Improvements in Apparatus for Consumption of Smoke.

NOW KNOW YE, that in compliance with the said proviso, I, the said William Prichard, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, are particularly described and ascertained in and by the Drawings hereunto annexed, and the following description thereof (that is to say):—

But first I would observe, it has been found that the admission of air is absolutely necessary to the consumption of smoke in steam engine boilers, drying pans, brewing and other pans, furnaces, &c., and it has also been found that if the doors or air flues are not closed in proper time, that the cold air which continues to press in will cause the coal to consume too rapidly, and the boiler to wear out much sooner than if the air is partially excluded. The object therefore of this Invention is to produce a self-adjusting or self-regulating apparatus by which the door will close itself in any required space of time, which object will be found accomplished by the following contrivance. In some convenient part of the boiler house I place a metallic cylinder, with a piston, the top of the rod of which is to be connected by means of a chain to the fire door and air doors of the furnace, as shewn at Figure 1 & 2 of the Drawing, but the interior of the cylinder and the piston is shewn in the section, Fig. 2. A is the cylinder; B, the piston, made air-tight, with cupped leathers, working in oil or any other anti-attribitious matter (but oil I prefer), the quantity of which should be sufficient to cover the piston when at the bottom of the cylinder. C is the door of the fire-place and air flues, sliding up and down in grooves, and connected as before mentioned by means of the chain D to the piston rod, which chain passes over the pulleys E, E. When the door C is lifted up for the purpose of putting a fresh supply of fuel into the fire-place, the piston will descend to the bottom of the cylinder by the valve F opening of itself as the piston descends. The door having been kept up by means of a rest or otherwise during the time of supplying the furnace with fuel, is now disengaged from its rest, and suspended by the chain D; the fire-place and air passages are closed within about three inches of the bottom in order to admit the requisite quantity of air to pass over the fire and into the air flues; this remaining space becomes gradually closed by means of the resistance which the air in the top of the cylinder exerts against the upper side of the piston, the air being only allowed to enter under the piston by a very small stream thro' the passage G, regulated by a stop-cock. The stop-cock is capable of adjustment by opening and shutting, so that the aperture or passage G for the air to pass from the upper to the under side of the piston may be regulated according to the time in which the door is required to close the furnace and air flues H, H, H. Thus I have described the nature of my In-

Section of the Cylinder

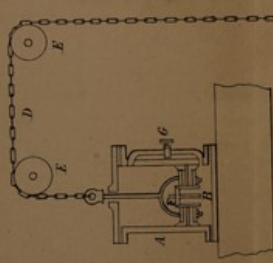


FIG. 2.

Elevation of the Cylinder

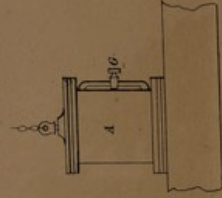
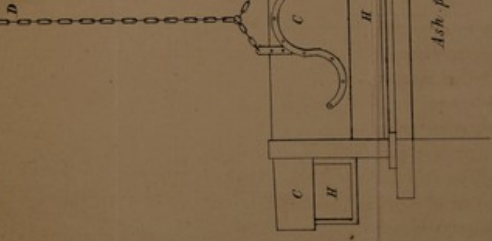
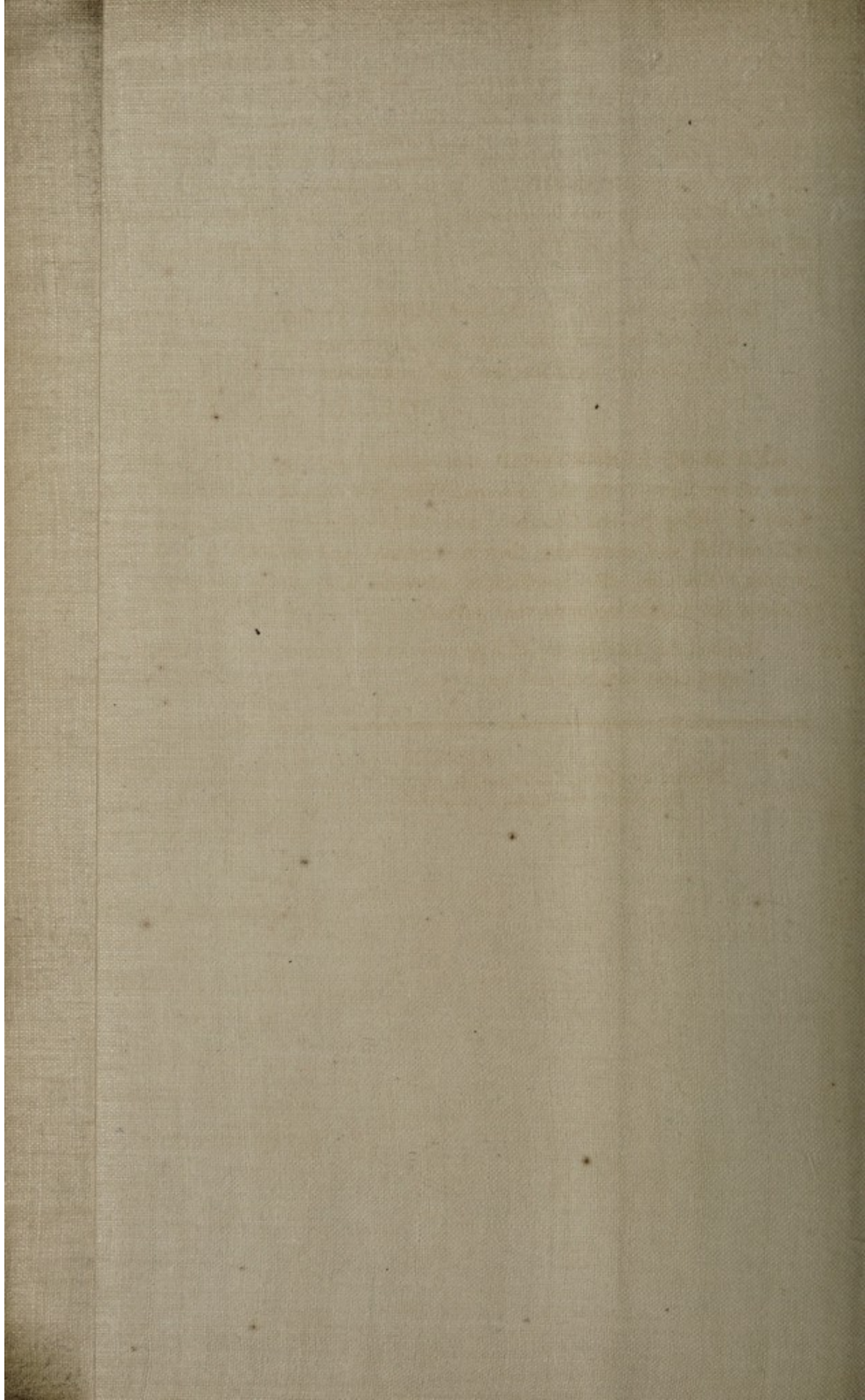


FIG. 1.



Ash pit

The enrolled drawing is partly colored.



Prichard's Improvements in Apparatus for Consumption of Smoke.

vention, which may be varied according to the size and situation of the fire-place; the apparatus may be erected at a trifling expence, will act with little or no attention, nor is it likely to get out of order or require reparation in many years use.

- 5 In witness whereof, I, the said William Prichard, have hereunto set my hand and seal, this Tenth day of February, in the year of our Lord One thousand eight hundred and twenty-one.

WILLIAM (L.S.) PRICHARD.

- 10 **AND BE IT REMEMBERED**, that on the Tenth day of February, in the year of our Lord 1821, the aforesaid William Prichard came before our said Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained and specified, in form above written. And also the Specification aforesaid was stampd according to the tenor of the Statute made for that purpose.

SHAW, Extra.

- 15 Inrolled the Twelfth day of February, in the year of our Lord One thousand eight hundred and twenty-one.

LONDON:

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Printers to the Queen's most Excellent Majesty. 1854.

