Specification of James Burnes : fire grates, stoves, furnaces, and chimneys.

Contributors

Burnes, James.

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7

A.D. 1799 . . . . . N° 2358.

SPECIFICATION

OF

JAMES BURNS.

FIRE GRATES, STOVES, FURNACES, AND CHIMNEYS.

LONDON:
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 7d.

1854.

A.D. 1799 . . . . . N° 2358.

Fire Grates, Stoves, Furnaces, and Chimneys.

BURNS' SPECIFICATION.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JAMES BURNS, of the City of Glasgow, in the County of Lanark, Builder, send greeting.

WHEREAS His present Majesty King George the Third, by His Letters Patent under the Great Seal of Great Britain, bearing date at Westminster, the Twenty-third day of November now last past, hath given and granted unto me, the said James Burns, my executors, administrators, and assigns, special licence, full power, sole privilege and authority, to make, use, exercise, and vend, within England, Wales, and the Town of Berwick upon Tweed, during the term of years therein expressed, my Invention of "CERTAIN IMPROVEMENTS APPLICABLE TO FIRE GRATES, STOVES, FURNACES, AND CHIMNIES, BY WHICH A GREATER QUANTITY OF HEAT MAY BE OBTAINED FROM A GIVEN QUANTITY OF FUEL, AND ROMS AND HALLS OF EVERY DESCRIPTION BE HEATED MORE SPEEDILY AND EFFECTUALLY THAN BY THE METHODS NOW IN USE, WHILE AT THE SAME TIME THEY ARE CALCULATED, IN A GREAT DEGREE, TO PREVENT THOSE LAMENTABLE ACCIDENTS WHICH SO FREQUENTLY ARISE FROM WOMAN'S AND CHILDREN'S CLOATHS CATCHING FIRE AND TO GIVE A DEGREE OF CLEANLINESS WHICH CANNOT BE ATTAINED WHERE GRATES AND STOVES OF THE COMMON CONSTRUCTIONS ARE EMPLOYED;" in which said Letters Patent there is contained a proviso obliging me, the said James Burns, by an instrument in writing under my hand and seal, to cause a particular description of the nature of my said Invention, and in what manner the same is to be performed, to be inrolled in His Majesty's High Court of Chancery within one calendar month next after the date of the said recited Letters Patent, as in and by the same (relation being thereunto had) may more fully and at large appear.

NOW KNOW YE, that I, the said James Burns, in compliance with the said proviso, do hereby declare that the nature of my said Invention, and the manner in which the same is to be performed, is particularly described and ascertained in the respective plan, elevation, and sections hereunto annexed, and the following description thereof, that is to say:—

The intention of my said Invention is to prevent the heat generated and thrown out into any room or apartment by combustion from being necessarily wasted by the air of such room or apartment being made to maintain the combustion of the fuel in the grate, as is usual in the stoves or grates on the common construction, where all the air that goes to maintain the combustion is furnished from the air in the room, the waste of which is supplied by the exterior cold air, which comes pouring into the room, at the bottom of the doors or by the sides of the windows, and thereby undoes a great part of the effect that otherwise would be produced by the fire. To accomplish this intention, the air that maintains the fire in the grates or stoves made with my improvements, or in other grates or stoves to which my improvements may be applied, should be brought through a tube (which I call the air tube) from the outside of the house, or be made to pass from the outside of the house between two of the joists, where the floors and ceilings are close enough to allow this, so as to be brought to the bottom bars of the grate without having any communication with the interior air of the room, while at the same time the grates and parts connected with them should be so constructed that, when the fire is not wished to be supplied with cold air from the outside of the house, the passage may be shut more or less perfectly by means of a valve, a small door, a cock, or any similar contrivance. When convenience does not admit of the air tube being carried to the outside of the house, if carried to a cellar, larder, staircase, or any lumber room, the same end will be gained, with this further advantage, that such cellar, larder, staircase, or lumber room will thereby be well ventilated and prevented from acquiring or retaining any unhealthy or disagreeable smells. From the foregoing short description of this part of my Invention it will be easily seen that the end may be gained by many various modes of construction, according to fancy or circumstances, but I shall give a description of one of my grates, constructed with such improvements, in as plain and intelligible a manner as possible. The principle, however, of supplying the fire with air from without the room or apartment, so as to prevent the warm air of the room from being drawn to the fire-place and hurried up the chimney, while at the same time all the advantage of open grates may be enjoyed, is hereby specified as my Invention, for the form of the grates or stoves may be varied indefinitely. Figure 1 represents a grate of the improved construction, and Figure 2 is a section

of it. The air that maintains the combustion is supplied through the pipe or tube A, (Figure 2 and Figure 4,) or from between the under ceiling and floor, as before mentioned, from which it passes up by the back or side of a drawer B, Figure 2, according as it is most convenient to bring it up by the one or the other; the back, however, is preferred where convenience admits of it. The front of this drawer in its place is seen in Figure 1, at C. The intention of this drawer is to receive the ashes that fall from the bottom bars of the grate, sections of which are represented at D, D, Figure 2. The ashes as they fall from the bars strike against the sides of the internal cavity E, and then are carried by their own gravity through the narrow part F, and fall into the drawer. This part of the construction may be easily understood by conceiving it to be an hollow vase, as it actually is, with a drawer in its pedestal or basement, and having a grate over it on which the fire rests. The valve, door, cock, or other contrivance by which the external air is admitted or excluded may be made in many various ways, and may be either in the neck F of the vase, or in the air tube, or in the drawer B, or C, or, which I prefer, in the cavity behing the drawer, the pedestal or basement of the vase being made large enough to admit of such cavity. Various constructions may be resorted to, but that represented in Figure 3 (which is a ground plan of a proper chimney for such a grate, and in which a bird's eye view of one half of the grate may be seen in its place, while the other half represents an horizontal section of the basement or pedestal, which is supposed to be open, shewing the drawer in its place with the cavity behind it,) will be found to answer every purpose. The cavity G is separated from the place in which the drawer is put by a partition (best made of plate or cast iron) passing from H to H, in which there is an opening I, with a cover K. To the cover K is attached a small bar L worked by another shorter bar M, to which it is attached by any simple joint. The bar M is fastened into an upright pivot, the top of which comes up through the pedestal at one of its corners, or any other convenient spot, and is furnished with a button to be laid hold of by the finger and thumb, or with a top fitted to a key, by the turning of which the cover K is made to shut or open the aperture I, and consequently to prevent or facilitate the passage of the air from the hole at G, which represents the internal mouth of the air tube, the other end of which is on the outside of the house, or in any cellar or other apartment, as before described. When the air has passed through the aperture I, it finds no difficulty in passing on to the bottom of the grate, that back or side of the drawer next which the aperture is being made low to allow it to flow in freely. The grate and its internal cavity E may be of any convenient form, but circular or eliptical will answer best, especially when another improvement included in the present Patent is intended to be applied, and which

shall be immediately described; but the improved fire grate already described may be used either with or without the other improvement just alluded to, which is a glass or a wirework fence or screen to prevent those dreadful accidents which so frequently occur of ladies or children's cloaths being set on fire by sparks from the grate. Where this safeguard fence or screen is wished to be applied, the inside of the chimney where the grate is to stand had best be a semi-cylinder or nearly so (as represented in Figure 3), with a lining or cover A, A, A, best made of metal, at such a distance from the semi-cylindrical wale N, N, N, N, as to give sufficient room for allowing the safeguard or fence to be slid round into it when the fire is wished to be left open, when fresh fuel is to be added, or when the drawer with the ashes is to be removed. The fence is a framework of metal, which when filled up with glass or with wirework forms a portion of a cylinder answerable to the curvature of the space between the back of the chimney and the lining above mentioned, made in one or more pieces, and moving in a circular groove *b*, *b*, *b*, in or upon the hearth which serves to conduct it into its place behind the grate when the fire-place is wanted to be left open, as before-mentioned. The top of the front of the opening of the chimney O, Figure 4, projects in a circular form, or is furnished with an added projection made of metal, marble, or any other fit material; but in either case the projection is furnished with a circular groove Z on its under surface of the same radius with the one in or planted on the hearth for the purpose of receiving the upper part of the framework of the fence or safeguard, which framework may be filled up with glass either plain or bent, and either colourless or coloured, or stained or painted with figures or designs of any kind. By this means complete safety is obtained against any such accidents as have been alluded to, while at the same time the comfort arising from the view of a chearful fire is not prevented by the interposition of any opaque body. But for nurseries or the like, where convenience and safety is more the object than elegance or luxury, the framework may be filled up with wirework. The fence may be seen in its place in the Drawing at P. Though I have stated that the framework of the fence or safeguard just described moves in a circular groove at top and bottom, I do not mean to say that no other construction will answer; on the contrary, the process may be reversed, and instead of such grooves at top and bottom for the fence to move in, the fence itself may be furnished with a groove at its top, and one at its bottom, to receive any projecting piece of metal or other substance of a proper curvature. Or its bottom groove may receive the upper edge of the fender, which being made to a proper curve, and properly adjusted and kept in its place, will answer the same end; but whichever of these ways be followed, or whatever

(1 SHEET.)

FIGURE. 4.

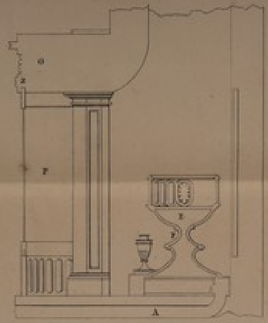


FIGURE. 2.

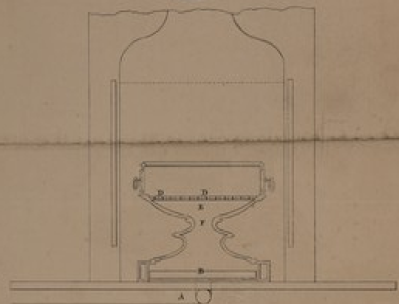


FIGURE. 1.

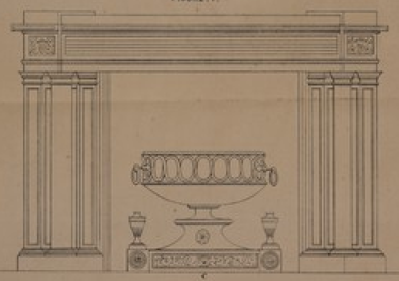
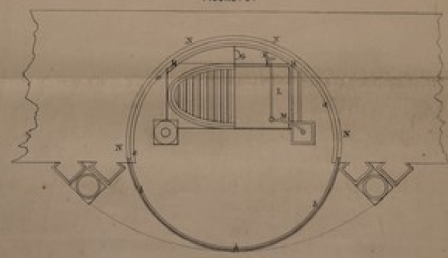


FIGURE. 3.



The enrolled drawing is colored.

Malby & Sons, Lith.

LONDON: Printed by George Edward Eyre and William Spottiswoode,
Printers to the Queen's most Excellent Majesty. 1857.

other method of construction, for it may easily be varied to answer circumstances, rollers or casters should be provided at the lower part of the fence to make it move with greater ease either to the front of the grate or into the space between the back of the chimney and the lining above mentioned. Where either the glass or the wirework fence or both of them are meant to be applied to square or rectangular chimneys without the trouble of giving them a semi-cylindrical form, the lining to receive the fence or fences may be introduced at the sides or jaumbs of such chimneys, or the fence may be made to rise by means of pullies into the wall above the opening, or slid sideways into the walls at the sides of the opening.

These improvements may be introduced either together or singly, and may be applied to many of the grates now in common use. Besides the advantages already pointed out as connected with them they possess also the following:— Any room or apartment may be heated by their means with a much smaller quantity of fuel than by any other method yet in use, at the same time the advantage of seeing the fire is not lost as in close stoves, for these grates have side as well as bottom bars, which allow the radiant heat and light to be thrown out into the room without any impediment, and in fact large rooms, halls, and the like, which by the usual methods can hardly be warmed or made at all comfortable in cold weather, may by means of these improvements be heated as effectually as the smallest apartment, for when their full effect is wanted to be produced, it is only necessary to keep the fence in its recess, that even that portion of heat which would be kept back by the interposed glass or wirework may be thrown out into the room and perform its office. They are also an effectual cure for smoakey chimnies, which not only cause great waste and destruction of good furniture, but many diseases to the inhabitants of houses plagued with that evil. They cause a clean fire-side to be easily commanded at all times, as hardly any of the dust or ashes fall through the side bars, almost the whole passing through the bottom bars down into the drawer, and any fire lighted in such improved grates burns up and becomes lively in a few minutes without the aid of bellows, and that watchful care which common grates or stoves require. The principles of the improvements which I have thus briefly described may be applied in many in various ways, either to new grates or to those already in use.

In witness whereof, I, the said James Burns, have hereunto set my hand and seal, this Seventh day of December, in the year of our Lord One thousand seven hundred and ninety-nine, and in the fortieth year of the reign of His Majesty King George the Third.

JAMES BURNS. (L.S.)

W. GRAVES.

AND BE IT REMEMBERED, that on the Ninth day of December, in the year above-mentioned, the aforesaid James Burns came before our Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained, in form above written. And also the Specification aforesaid was stamped according to the tenor of the Statute in that case made and provided.

Inrolled the Thirteenth day of December, in the year above writtten.

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